

# DROPBEAR DATASET OVERVIEW

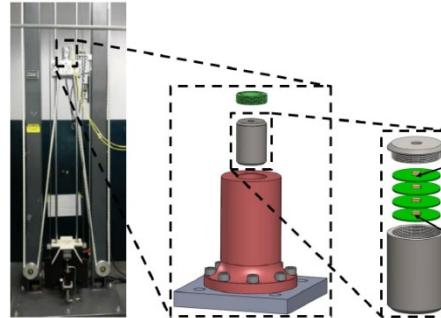
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**IOWA STATE UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY



# High-Rate Overview

High-Rate  
Overview

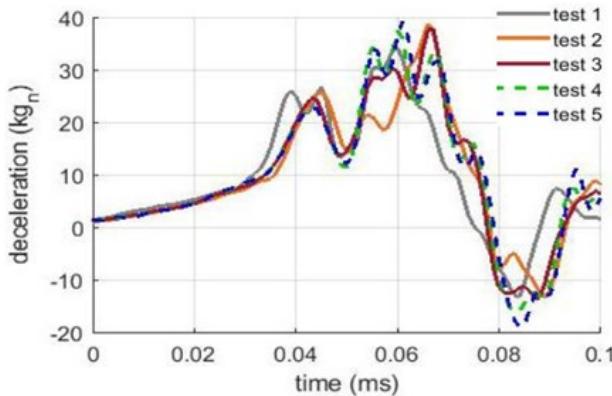
Benchmark

Applications

Datasets

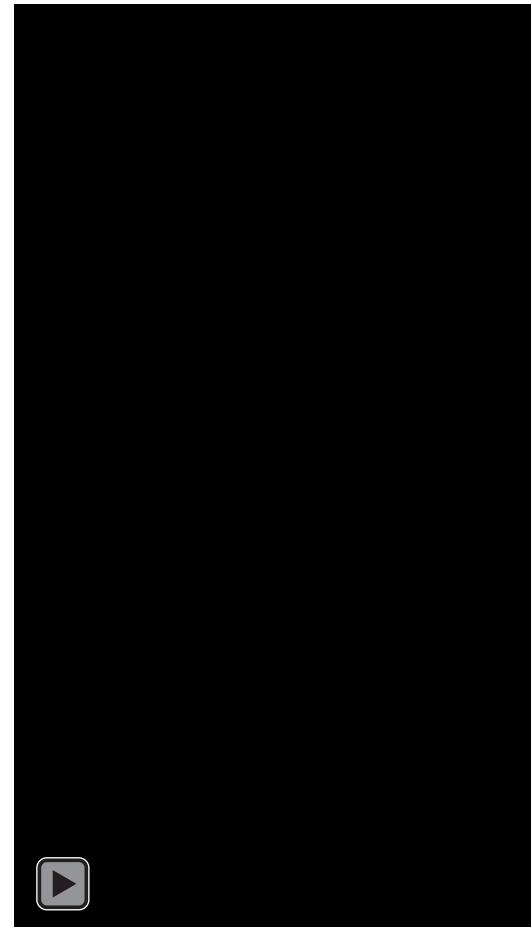
## DEFINITION

- Large uncertainties in the external loads.
- High levels of nonstationarity and heavy disturbance.
- Generations of unmodeled dynamics from changes in mechanical configuration.



## OBJECTIVE

- Create benchmark to evaluate algorithms capable of performing structural health monitoring for high-rate systems



# High-Rate Overview

High-Rate  
Overview

Benchmark

Applications

Datasets

## EXAMPLES

- 10 kg TNT takes 0.3 ms to 100 ms to travel over 1 to 40 m distance
- Mach 5 corresponds to 1.5 km/s (0.93 mi/s) – passenger aircrafts at Mach 0.8
- 1 ms at Mach 5 is 1.5 m. 1.5 MHz sampling gives a 1 mm resolution.



# Benchmark

High-Rate  
Overview

Benchmark

Applications

Datasets

## DROPBEAR

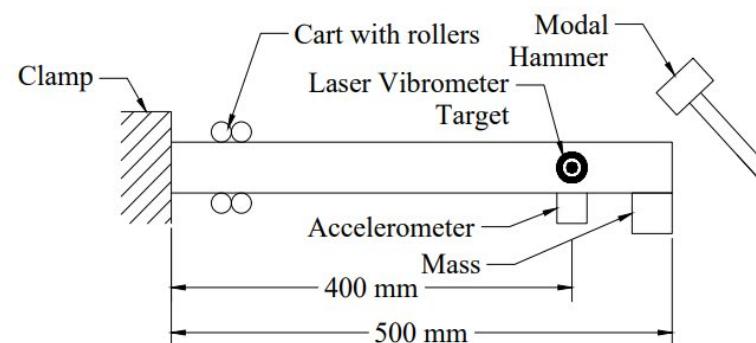
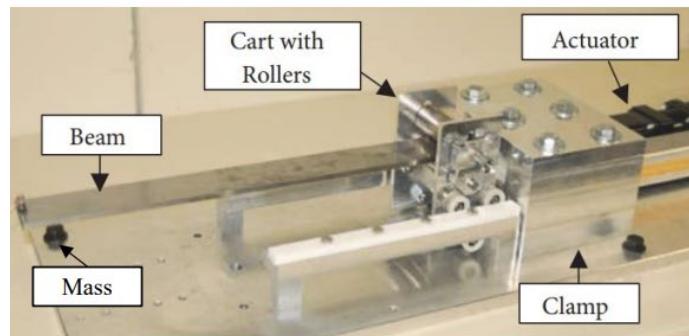
- DROPBEAR (Dynamic Reproduction of Projectiles in Ballistic Environments for Advanced Research)
- Dimensions - L: 500 mm (19.82 in), W: 50 mm (2 in), T: 6.4 mm (0.25 in)

### AVAILABLE SENSORS:

- Accelerometer (PCB 353B17)
- Strain Gauge (GF 164, 10 mA, 350 Ohm)
- Laser Vibrometer
- Extensometer
- Linear Transducer (SPS-L225-HALS)

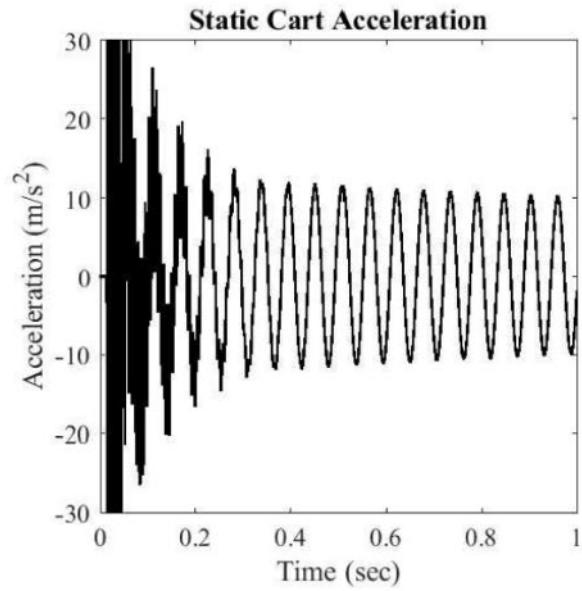
### AVAILABLE EXCITATIONS:

- Static or dynamic cart action
- Single or multiple modal hammer impacts
- Electromagnet mass

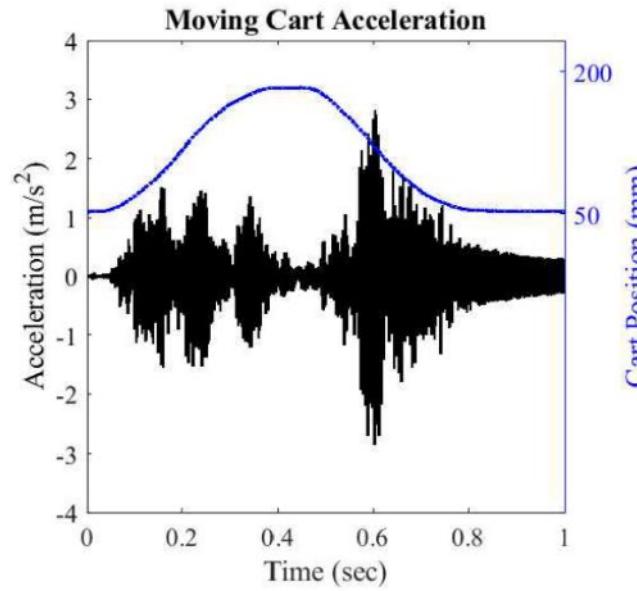


## DATA COLLECTION

- Modal Hammer: PCB 086C01
- Cart: servo-controlled rolling cart
- Data collection: Precision Filters 28000 signal conditioner and was recorded using National Instruments PXI NI 6133 card combination.
  - The strain gauges used a Precision Filters 28144 card with 2 wire constant current excitation
  - Accelerometers and modal hammer used a Precision Filters 28304 IEPE card



(a)



(b)

# Applications

High-Rate  
Overview

Benchmark

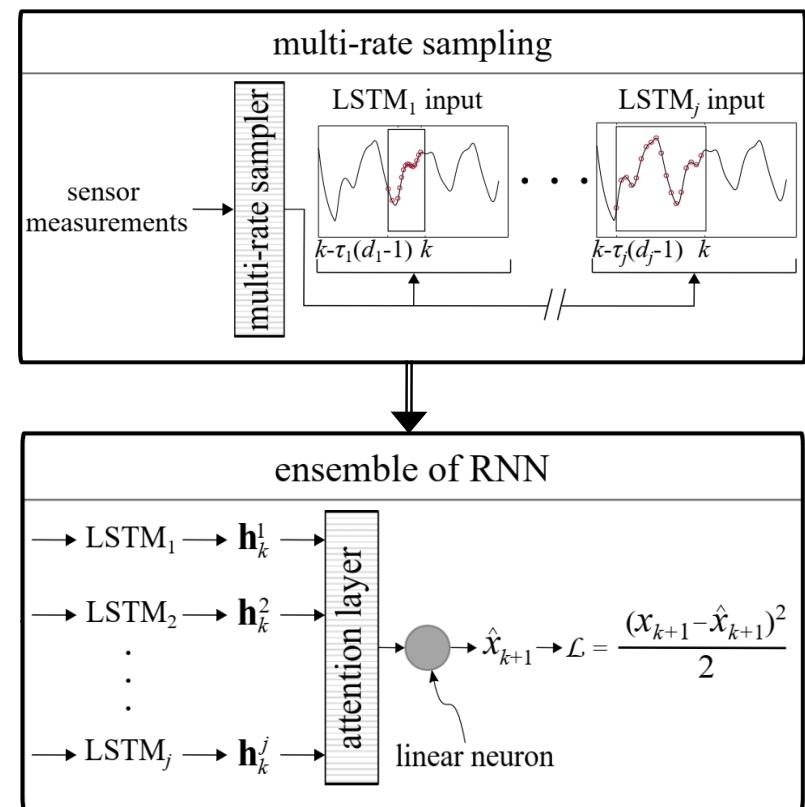
Applications

Datasets

## TIME SERIES MODELING – ENSEMBLE OF RECURRENT NEURAL NETWORKS

### GOAL:

- Predict acceleration using data-driven methods



# Applications

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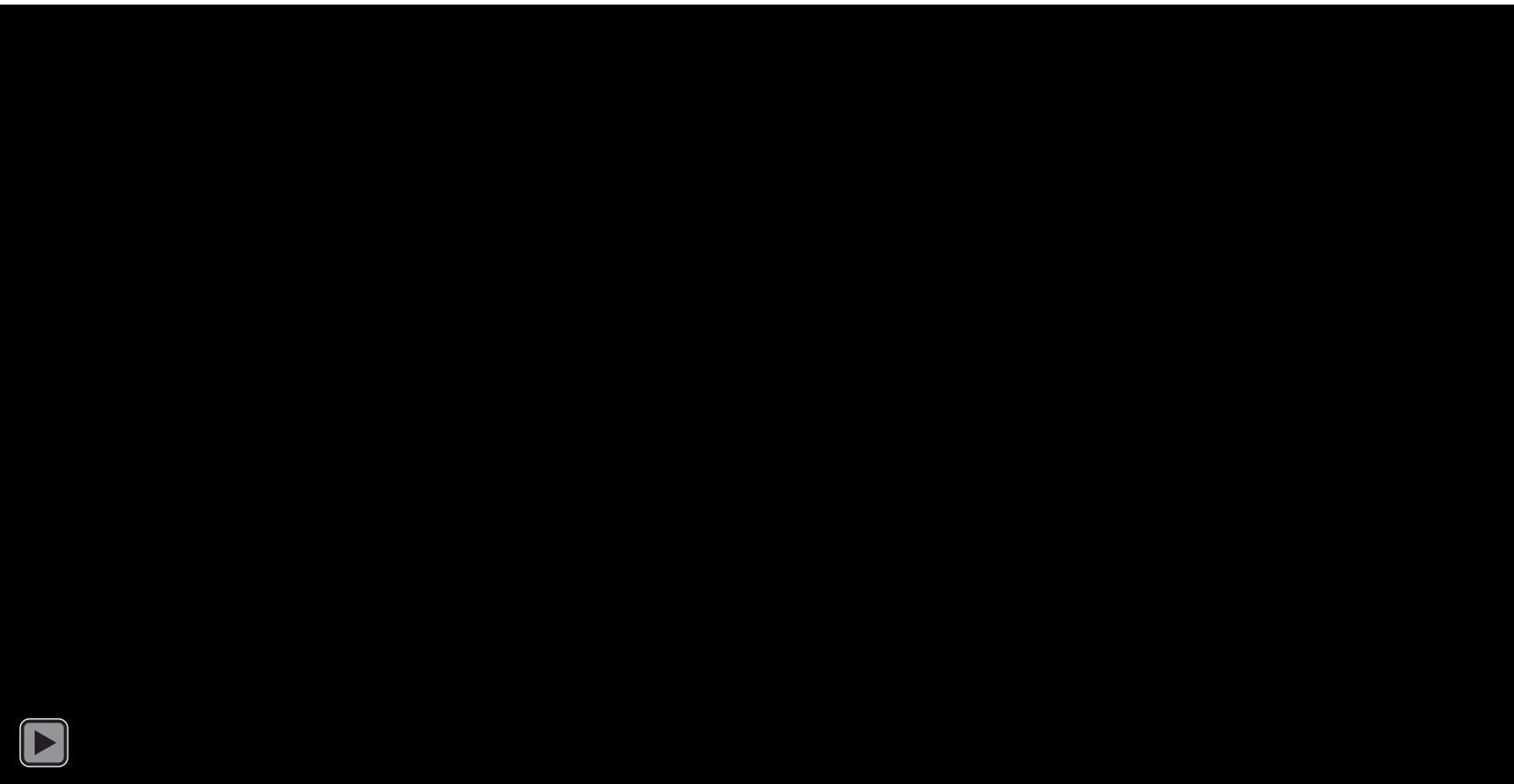
Applications

Datasets

## STATE ESTIMATION – MODEL REFERENCE ADAPTIVE SYSTEM

### GOAL:

- From acceleration input estimate the system's velocity, position, damping, and stiffness using physics-based methods



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## SUMMARY

**Table 1.** DROPBEAR dataset excitations and sensors.

Dataset	1	2	3	4	5	6	7	8
Cart boundaries (mm)	47:147	50:200	50	50:200	50:200	50:200	100:300	50:200
Static cart	x	x	x	x	x	x		
Dynamic cart	x				x	x	x	
Single hammer	x	x	x	x	x	x	x	x
Multi hammer						x	x	
Mass	x	x	x	x	x	x		x
Massless		x			x	x	x	
Mass drop	x					x		
Accelerometers	4	2	2	2	1	1	1	2
Strain gauge	0	0	0	9	2	2	2	9
Laser vibrometer	0	0	0	0	1	1	1	0
Extensometer	0	0	0	0	0	0	1	0
Amount of tests	62	65	40	20	29	16	13	10

# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 1 – SENSORS

### SENSORS:

4x Accelerometer (PCB 353B17)

1. SN 139378 – 200 mm
2. SN 127691 – 300 mm
3. SN 139351 – 400 mm
4. SN 127687 – 500 mm

### Excitation notes

- Single hammer impact to begin test 500 mm from clamp

Sampling frequency: 25,600 samples/s

# Datasets

High-Rate  
Overview

Benchmark

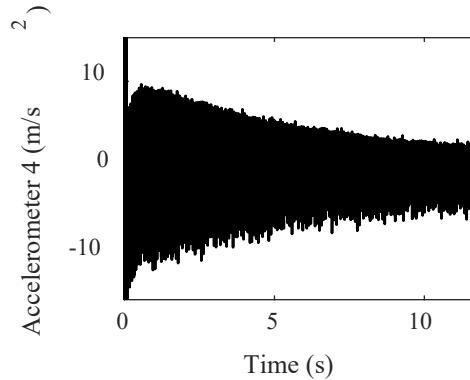
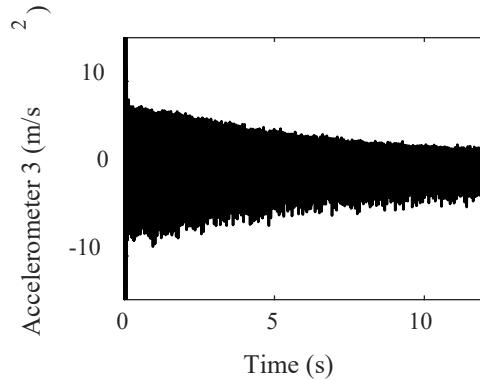
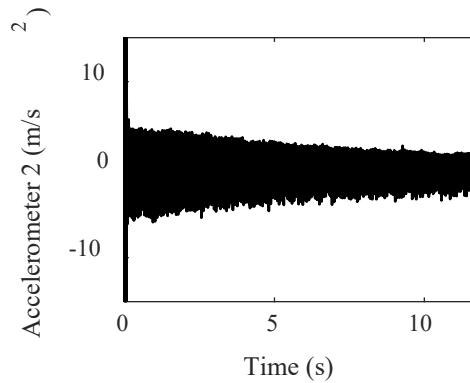
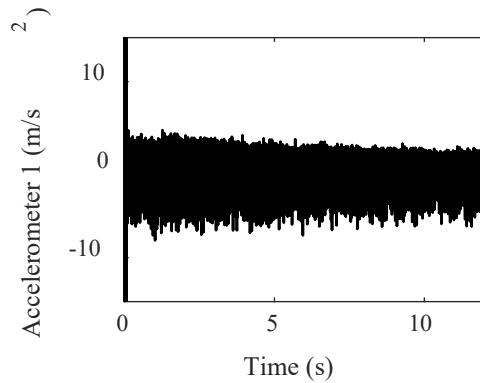
Applications

Datasets

## DATASET 1 – TEST 1

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4570 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

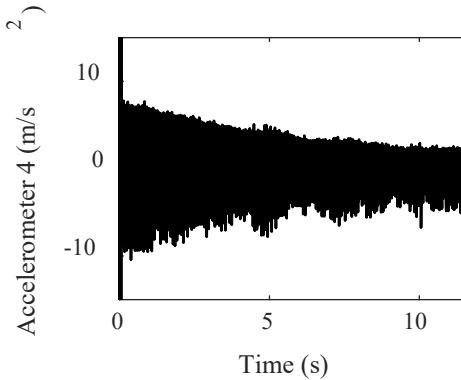
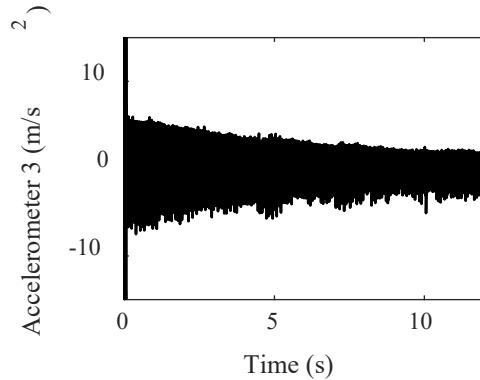
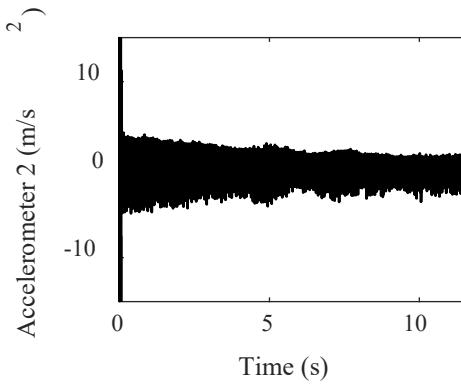
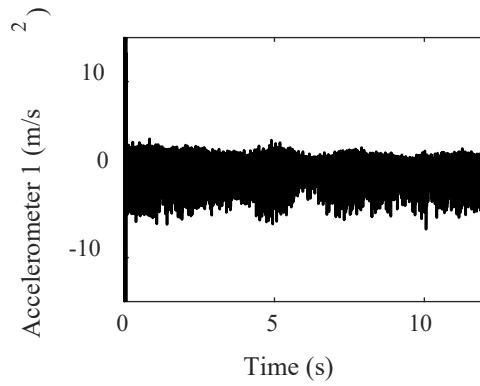
Applications

Datasets

## DATASET 1 – TEST 2

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4570 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

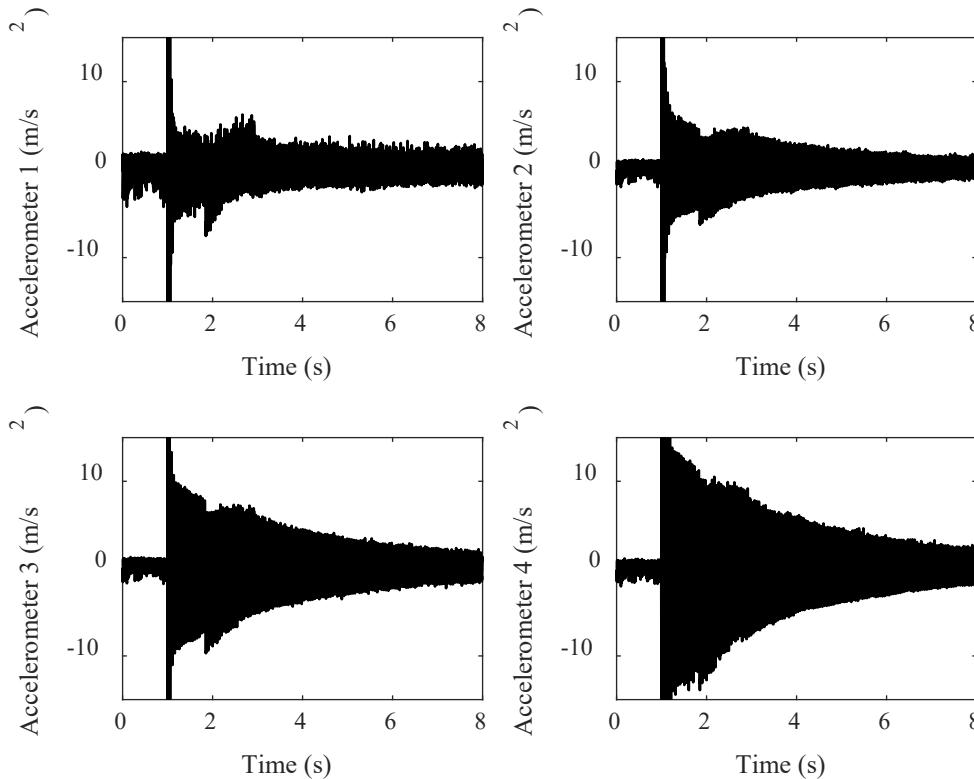
Applications

Datasets

## DATASET 1 – TEST 3

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2890 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

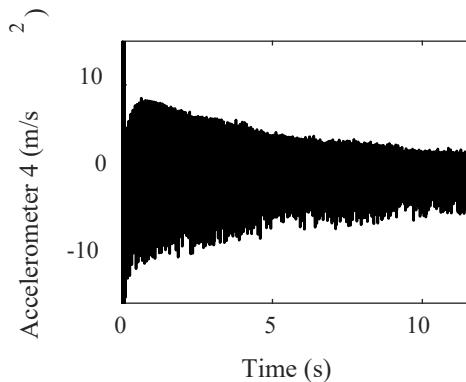
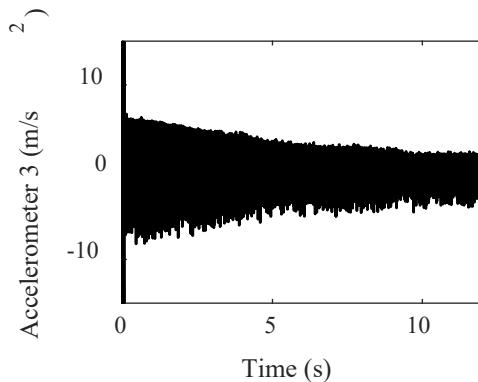
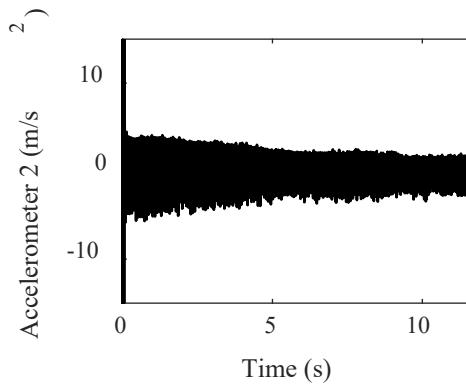
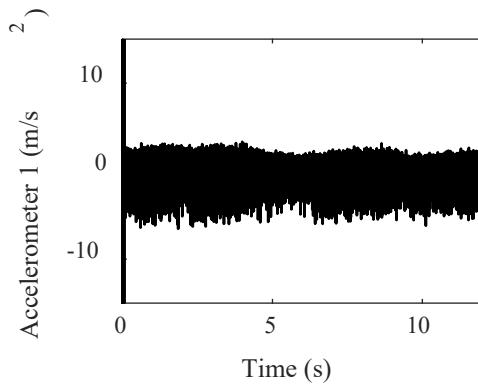
Applications

Datasets

## DATASET 1 – TEST 4

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $3970 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

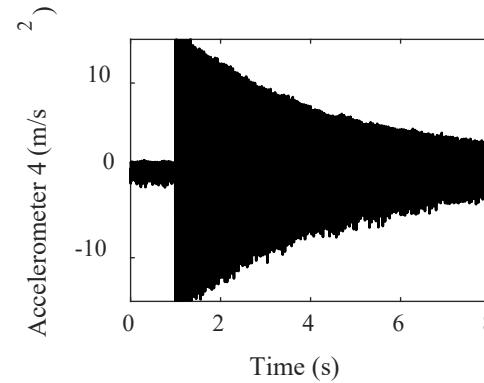
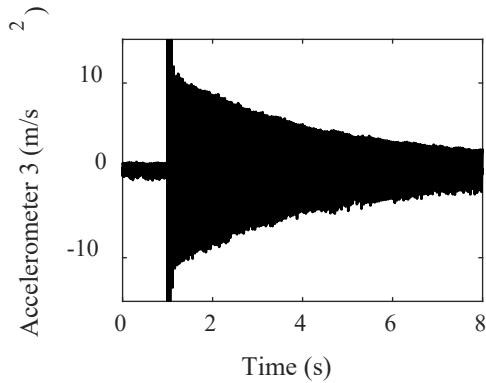
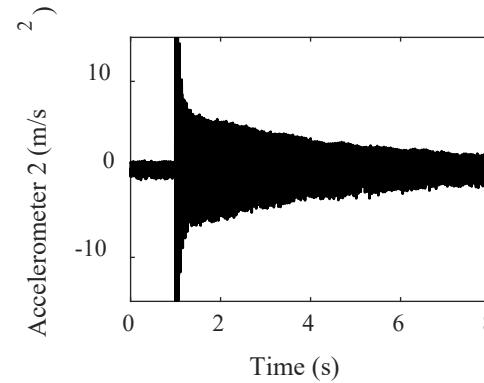
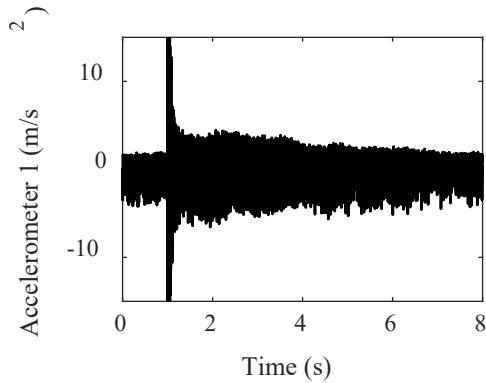
Applications

Datasets

## DATASET 1 – TEST 5

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $3970 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

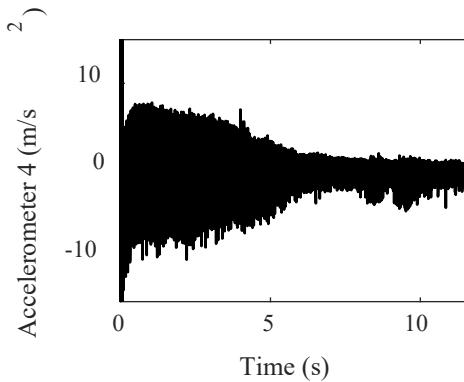
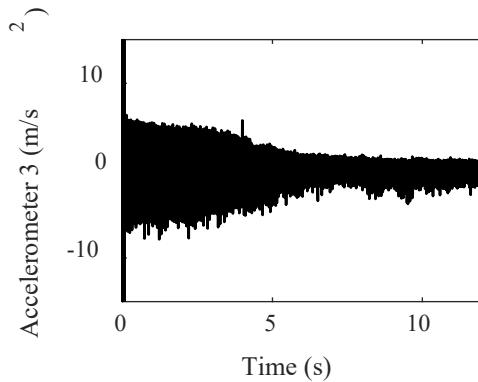
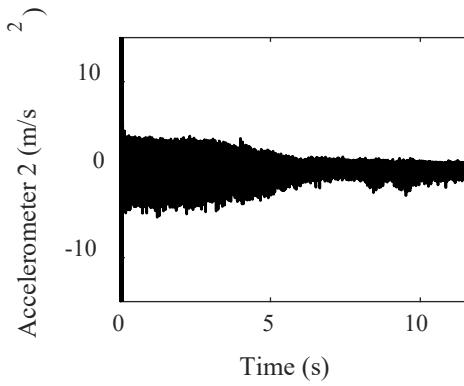
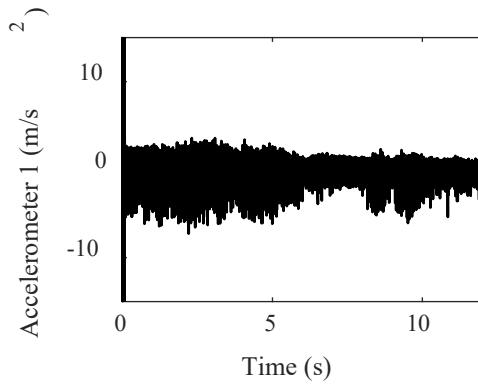
Applications

Datasets

## DATASET 1 – TEST 6

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2020 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

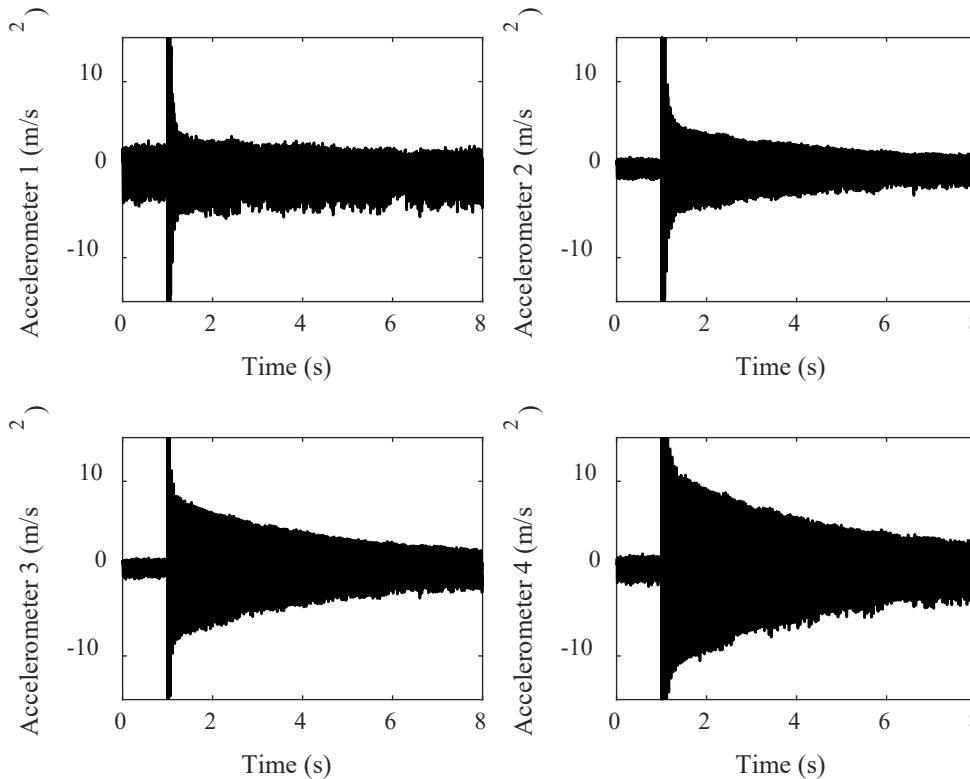
Applications

Datasets

## DATASET 1 – TEST 7

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2020 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

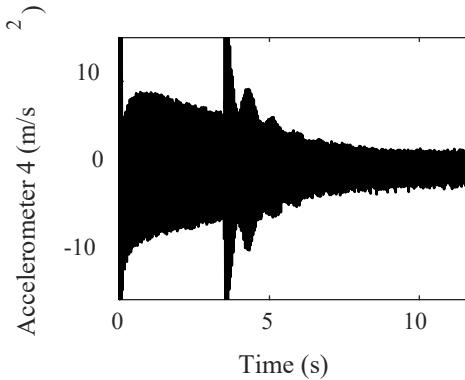
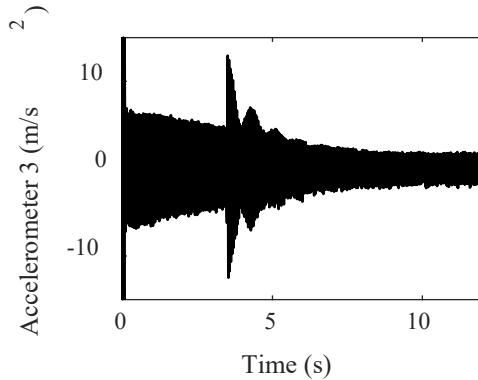
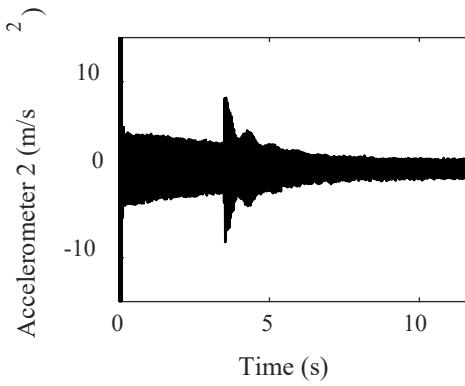
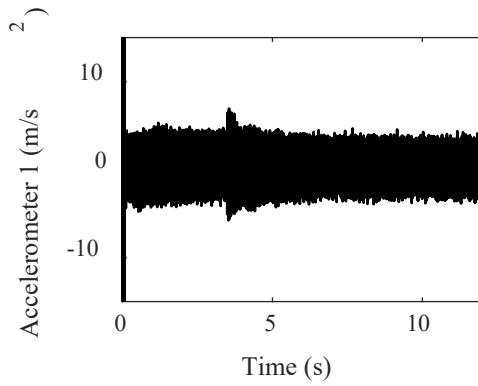
Applications

Datasets

## DATASET 1 – TEST 8

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $3840 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

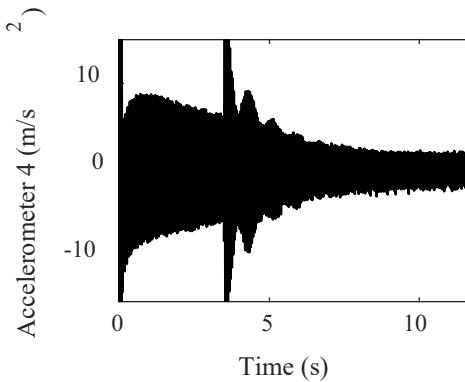
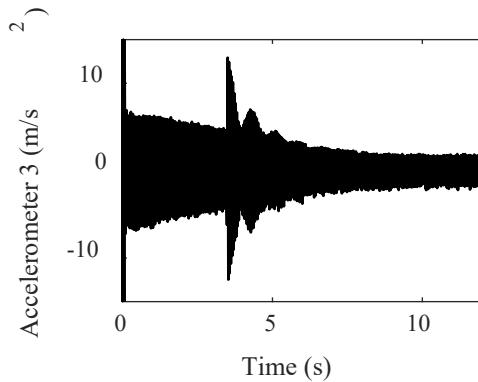
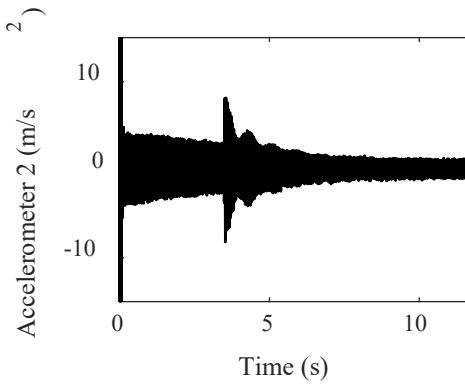
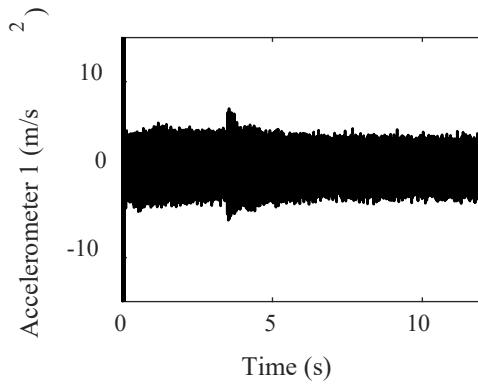
Applications

Datasets

## DATASET 1 – TEST 9

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $3470 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

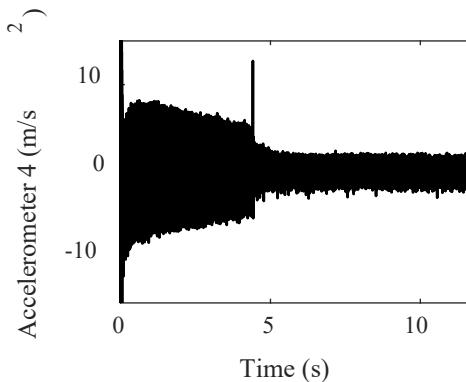
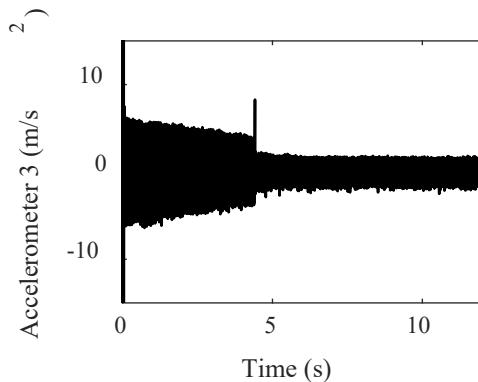
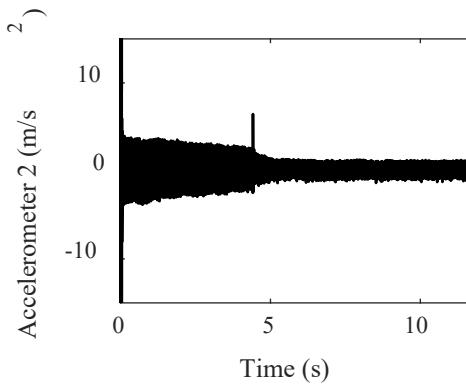
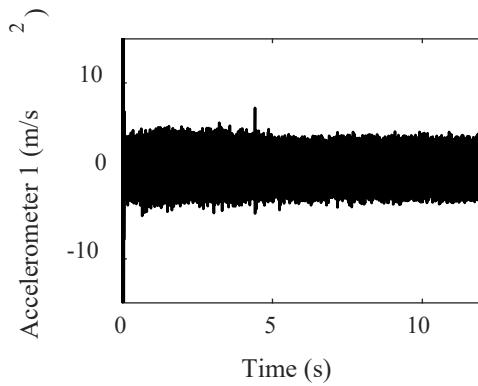
Applications

Datasets

## DATASET 1 – TEST 10

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $3950 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

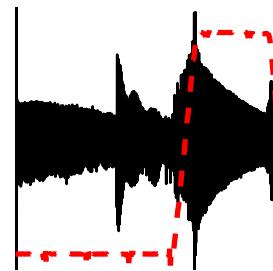
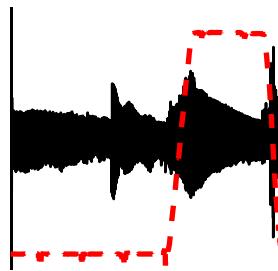
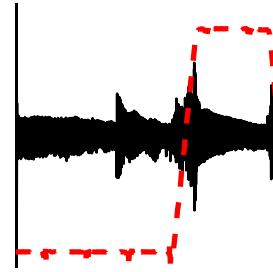
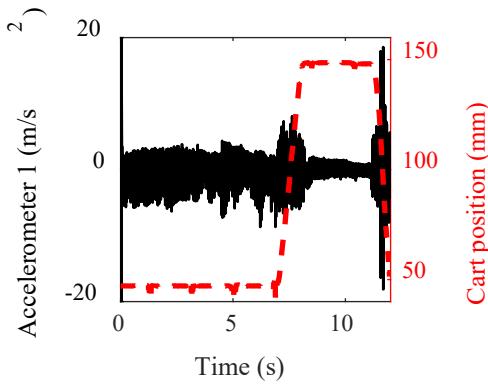
Applications

Datasets

## DATASET 1 – TEST 11

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
  - Single hammer impact
  - Electromagnet mass drop
- Max acceleration :  $4570 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: 4.38 s



# Datasets

High-Rate  
Overview

Benchmark

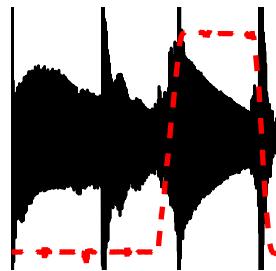
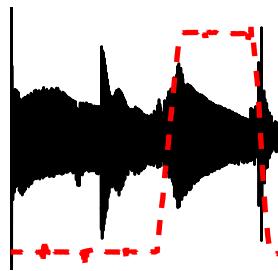
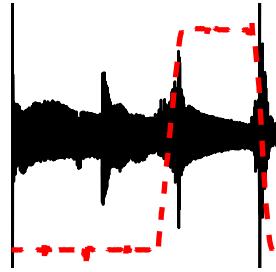
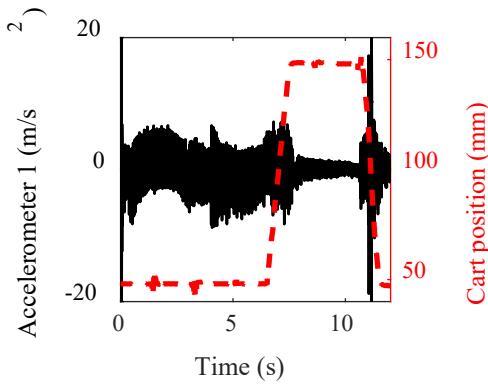
Applications

Datasets

## DATASET 1 – TEST 12

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
  - Single hammer impact
  - Electromagnet mass drop
- Max acceleration :  $4890 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: 4.00 s



# Datasets

High-Rate  
Overview

Benchmark

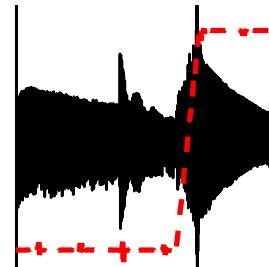
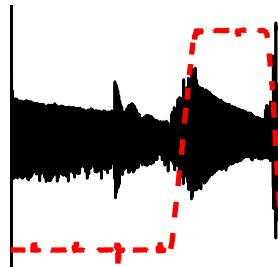
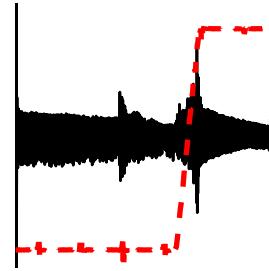
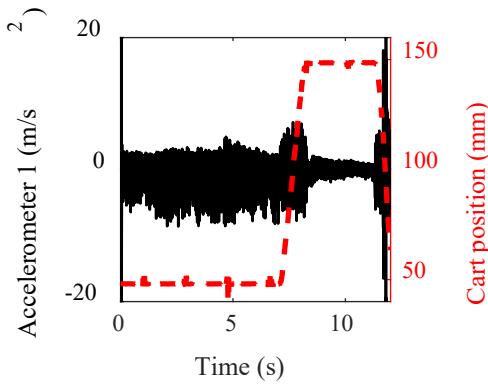
Applications

Datasets

## DATASET 1 – TEST 13

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
  - Single hammer impact
  - Electromagnet mass drop
- Max acceleration :  $4470 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: 4.60 s



# Datasets

High-Rate  
Overview

Benchmark

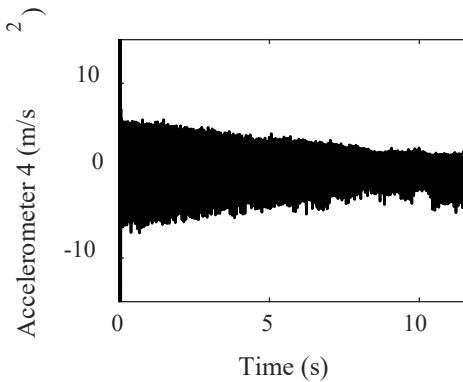
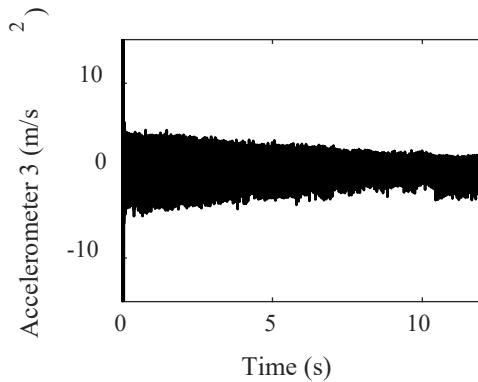
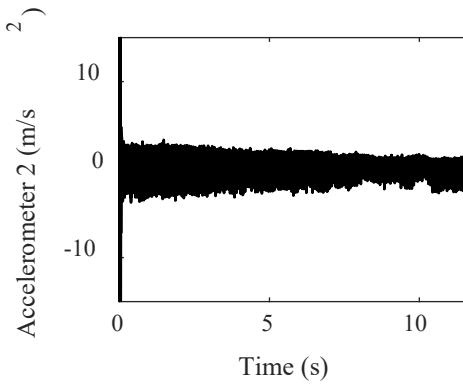
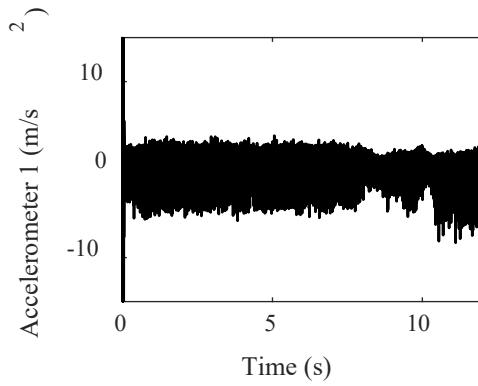
Applications

Datasets

## DATASET 1 – TEST 14

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4440 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

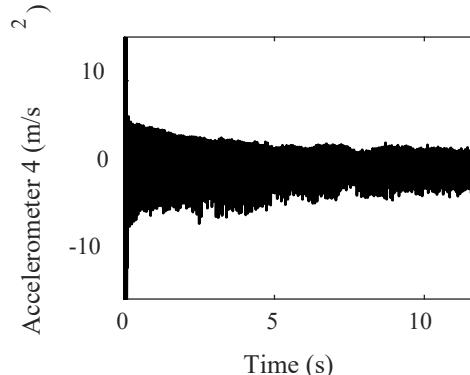
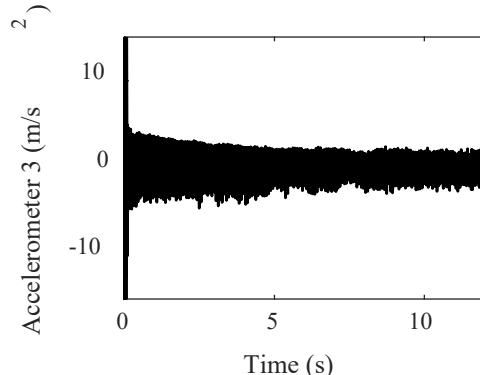
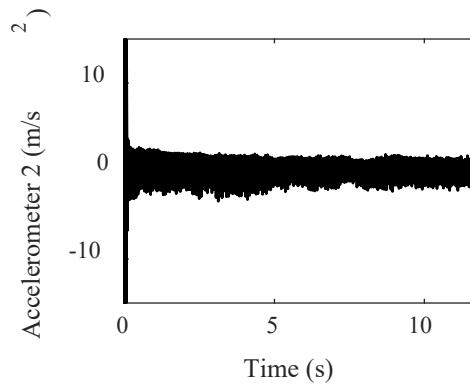
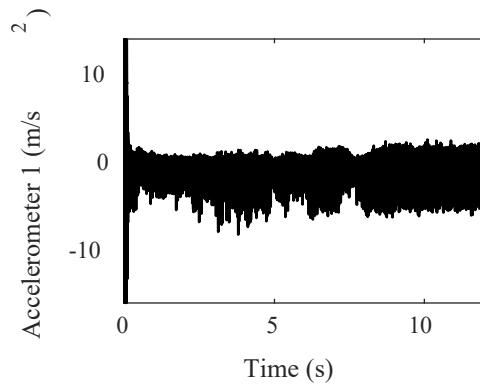
Applications

Datasets

## DATASET 1 – TEST 15

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4550 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

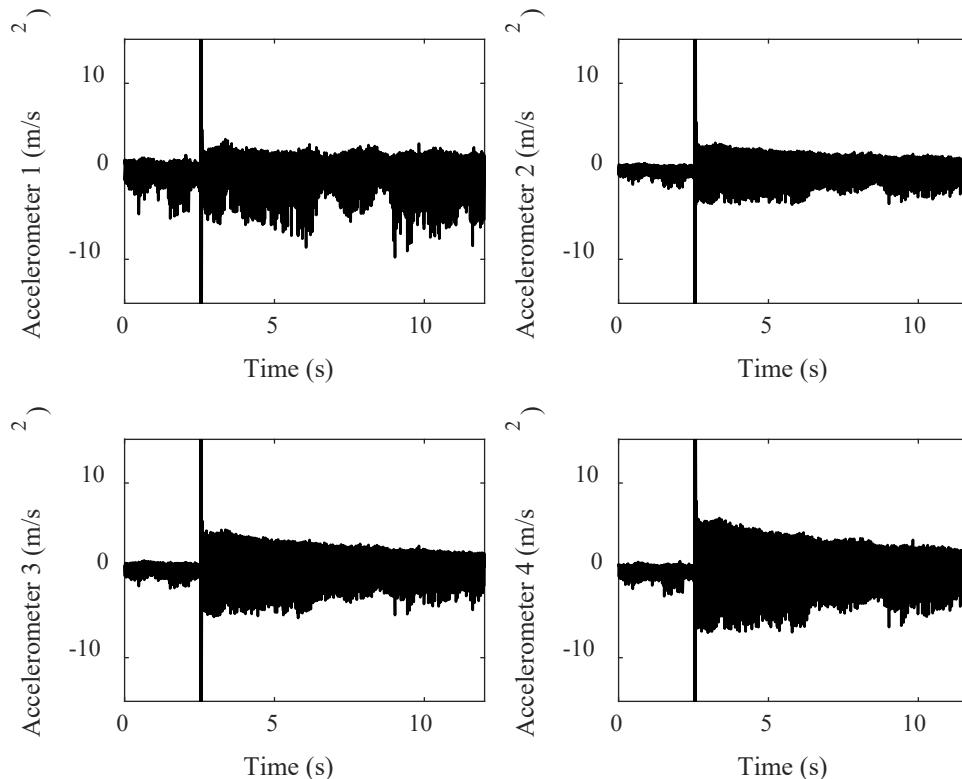
Applications

Datasets

## DATASET 1 – TEST 16

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4070 \text{ m/s}^2$
  - Hammer impact time: 2.54 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

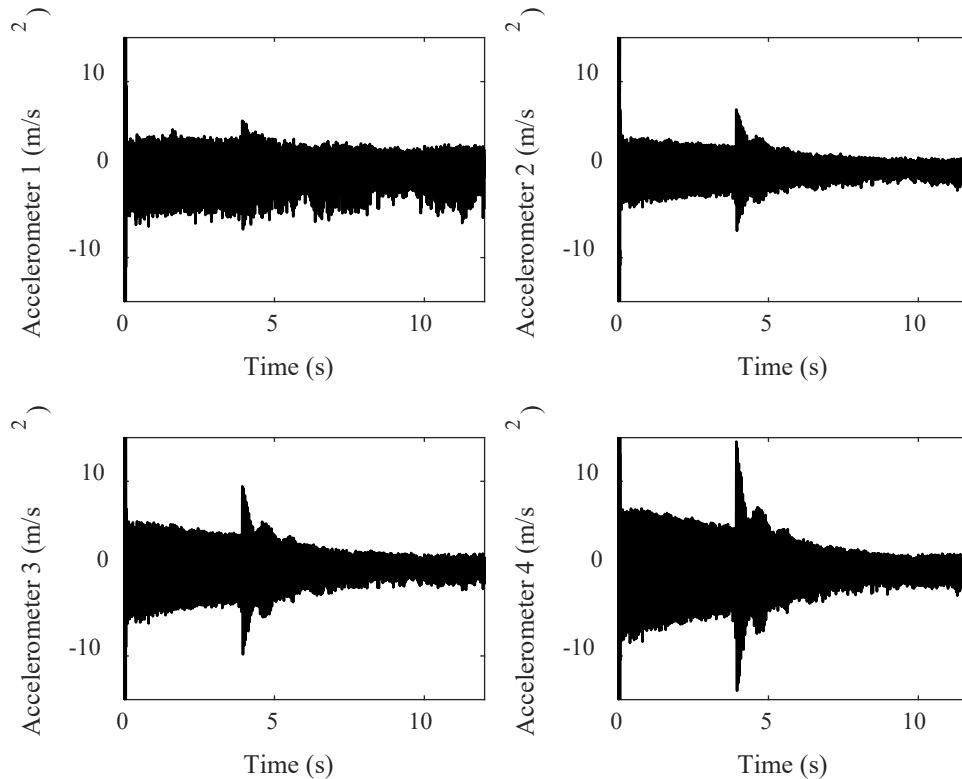
Applications

Datasets

## DATASET 1 – TEST 17

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4700 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.89 s



# Datasets

High-Rate  
Overview

Benchmark

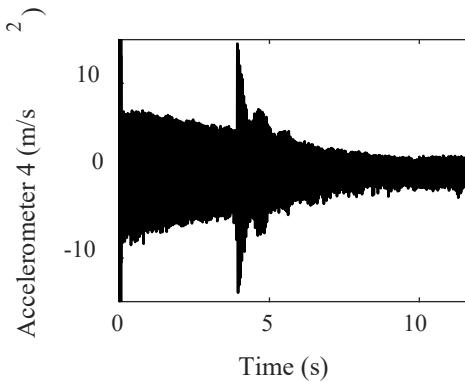
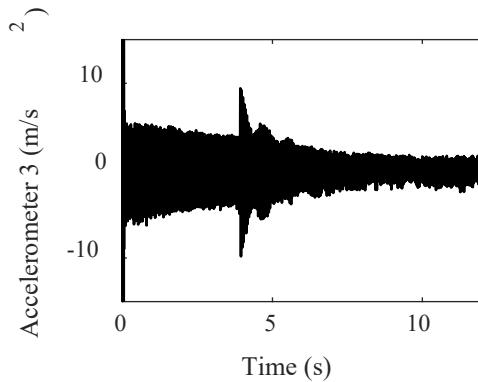
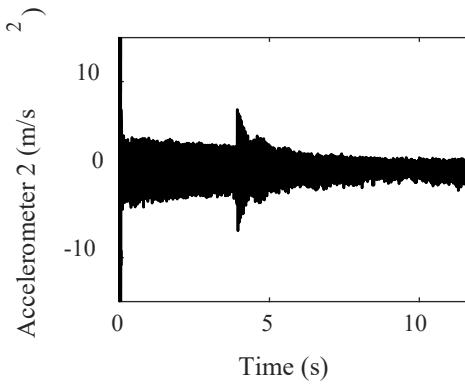
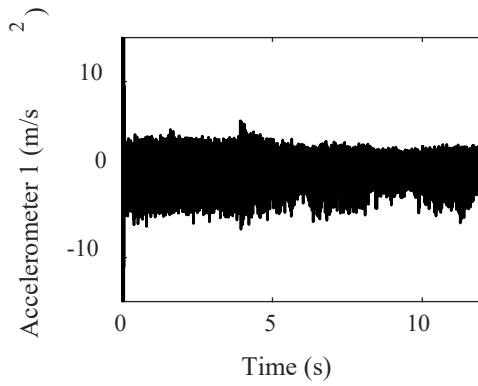
Applications

Datasets

## DATASET 1 – TEST 18

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4700 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.89 s



# Datasets

High-Rate  
Overview

Benchmark

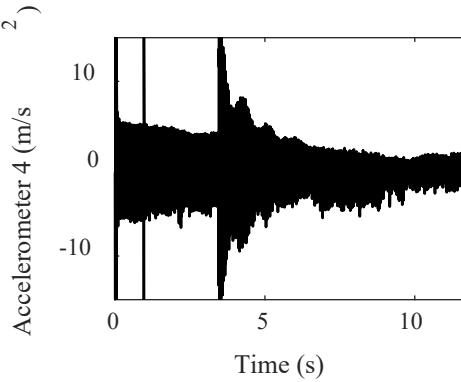
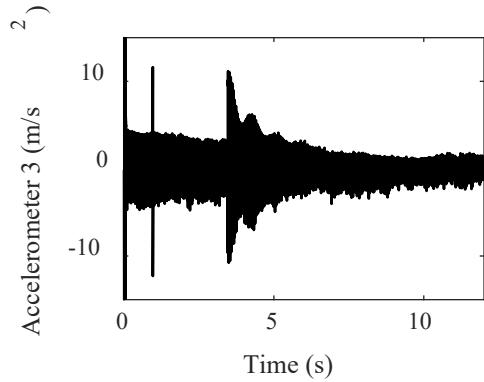
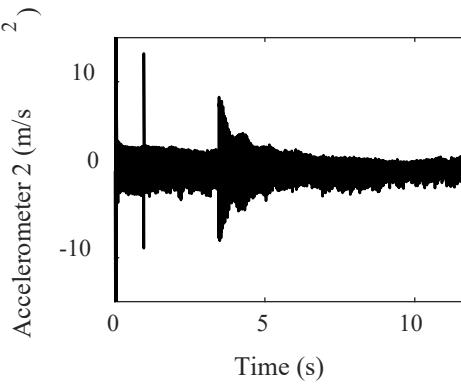
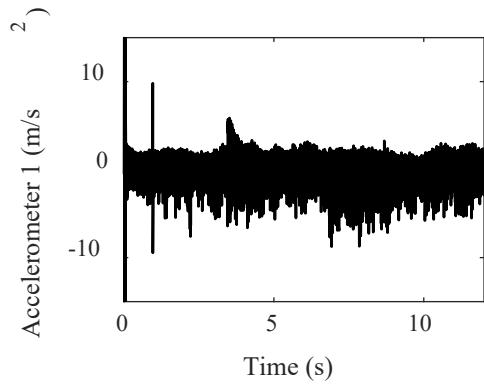
Applications

Datasets

## DATASET 1 – TEST 19

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4570 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.42 s



# Datasets

High-Rate  
Overview

Benchmark

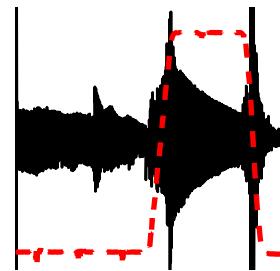
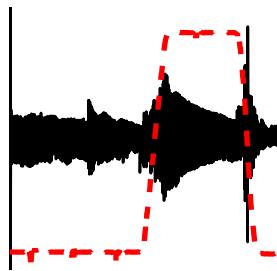
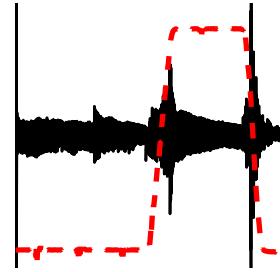
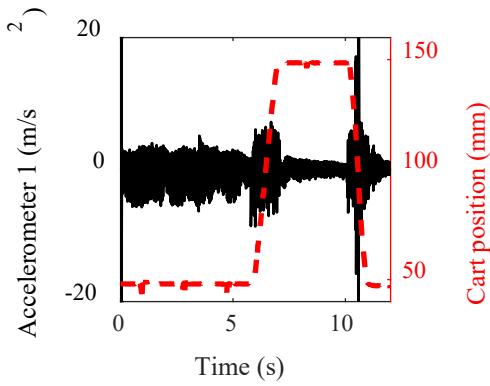
Applications

Datasets

## DATASET 1 – TEST 20

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $3130 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.48 s



# Datasets

High-Rate  
Overview

Benchmark

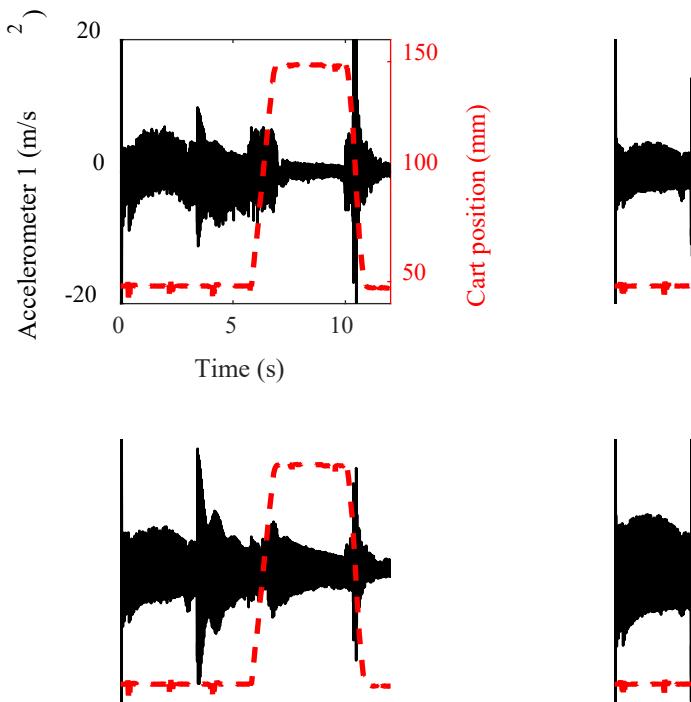
Applications

Datasets

## DATASET 1 – TEST 21

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4730 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.39 s



# Datasets

High-Rate  
Overview

Benchmark

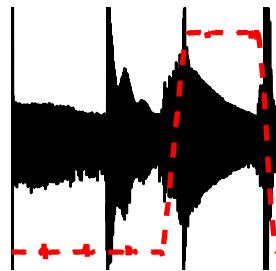
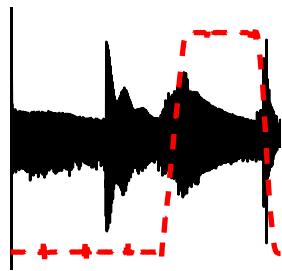
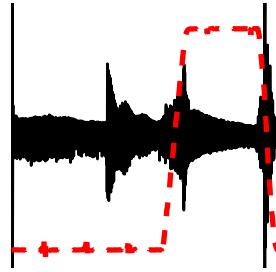
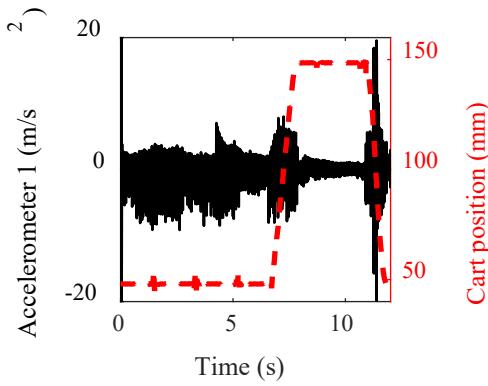
Applications

Datasets

## DATASET 1 – TEST 21

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4700 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 4.22 s



# Datasets

High-Rate  
Overview

Benchmark

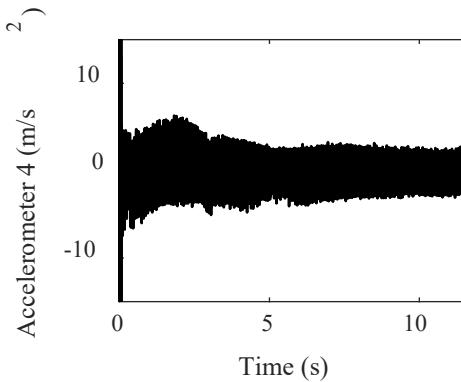
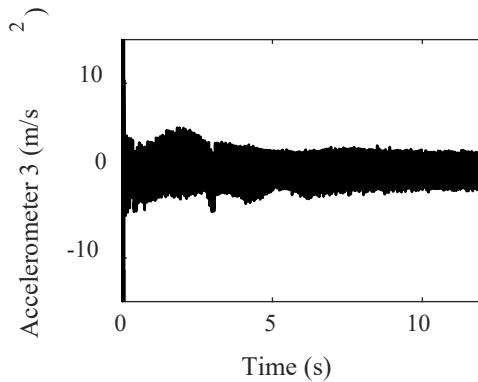
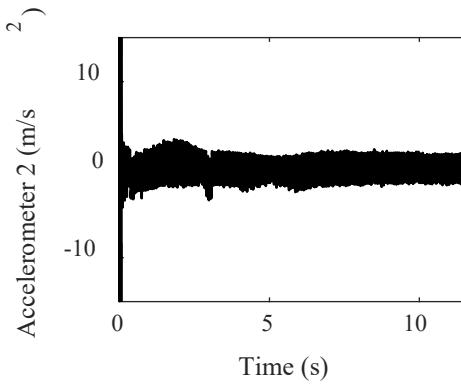
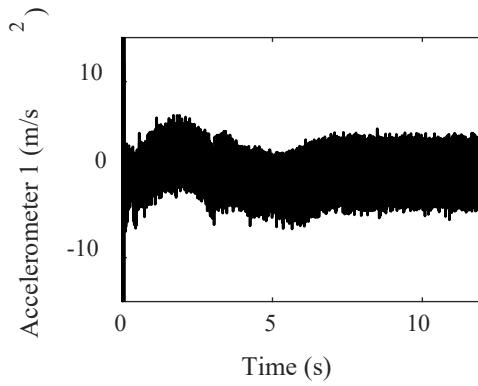
Applications

Datasets

## DATASET 1 – TEST 23

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4310 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

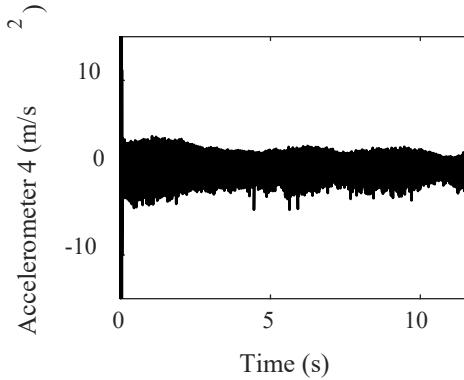
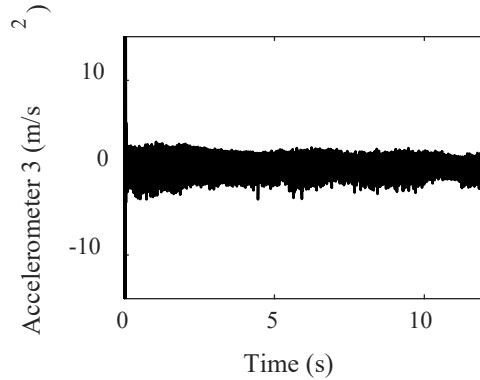
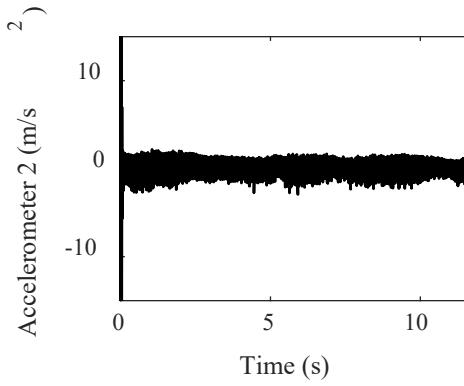
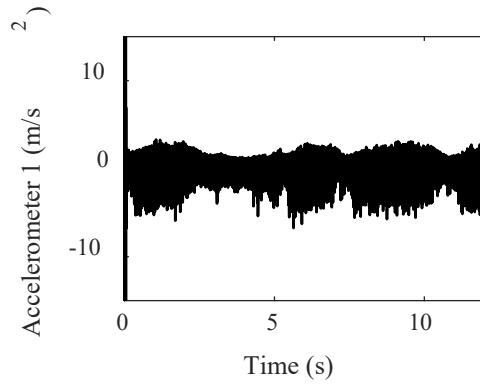
Applications

Datasets

## DATASET 1 – TEST 24

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4380 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

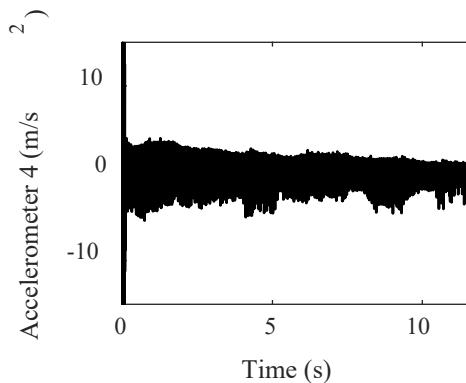
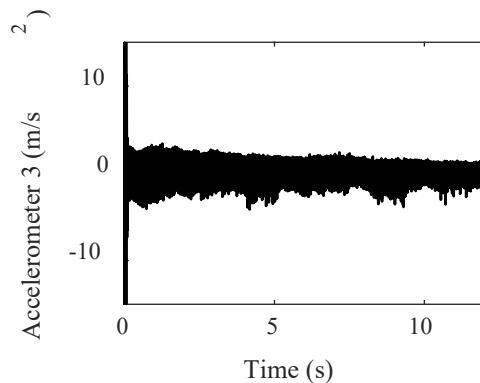
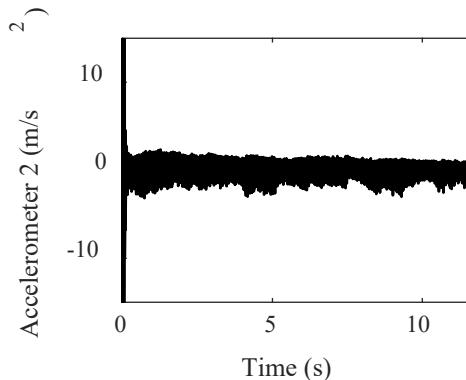
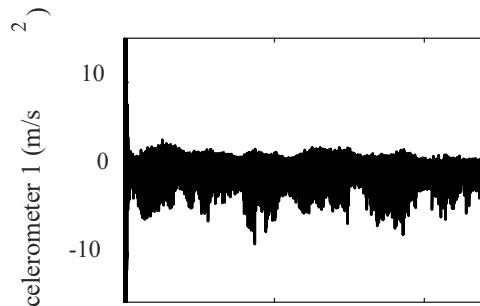
Applications

Datasets

## DATASET 1 – TEST 25

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4830 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

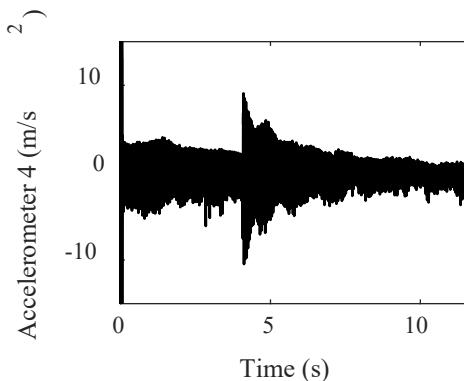
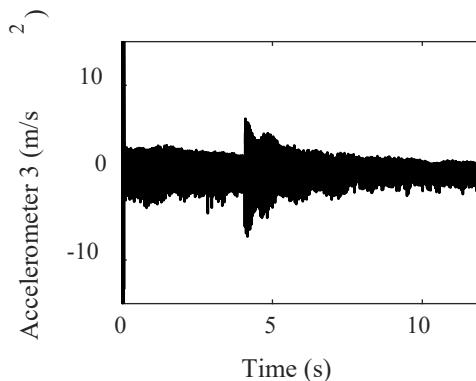
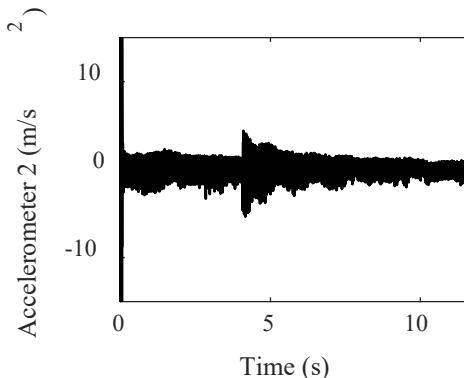
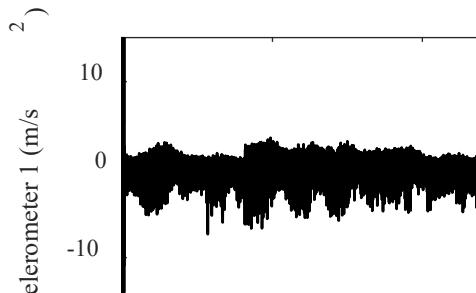
Applications

Datasets

## DATASET 1 – TEST 26

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4600 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 4.05 s



# Datasets

High-Rate  
Overview

Benchmark

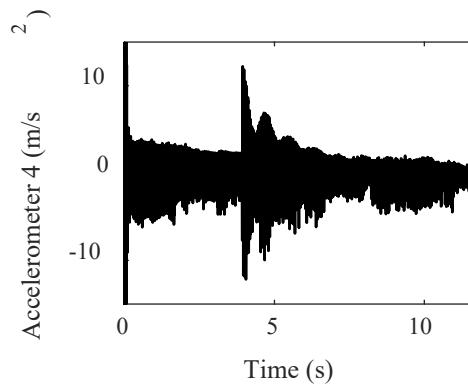
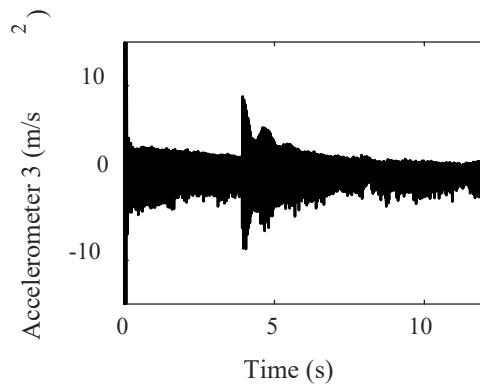
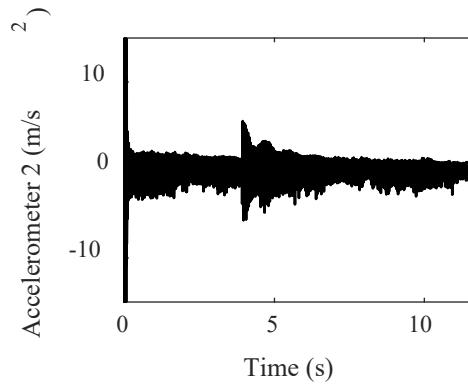
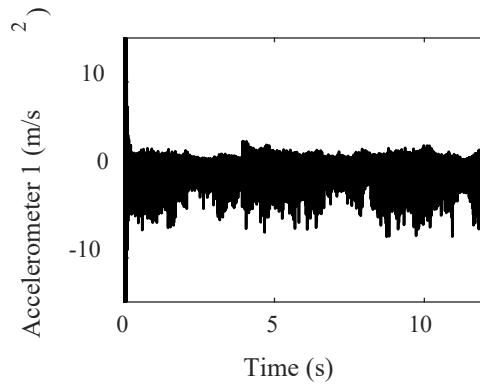
Applications

Datasets

## DATASET 1 – TEST 27

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4890 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.91 s



# Datasets

High-Rate  
Overview

Benchmark

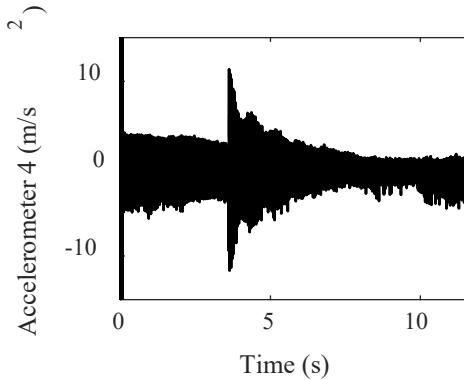
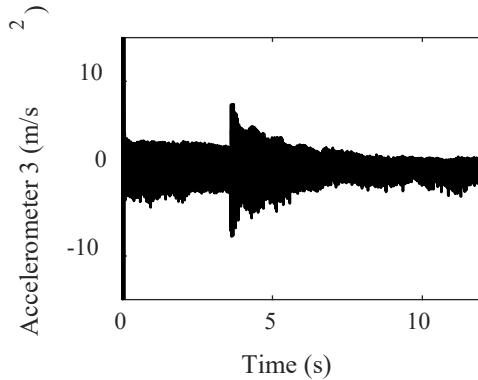
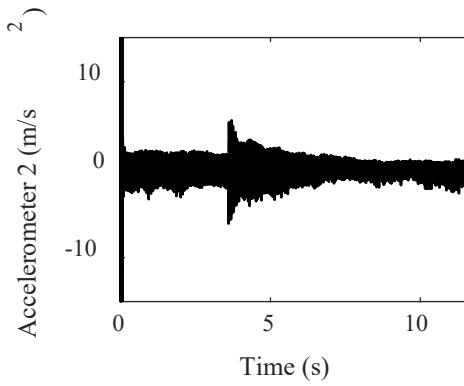
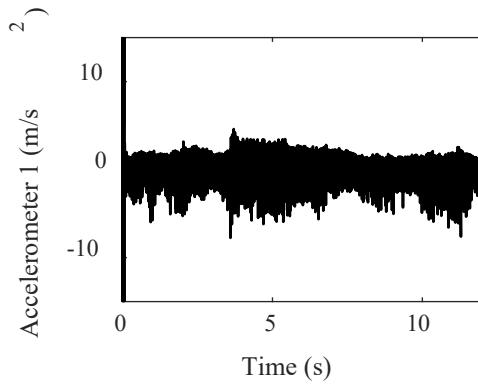
Applications

Datasets

## DATASET 1 – TEST 28

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4890 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.51 s



# Datasets

High-Rate  
Overview

Benchmark

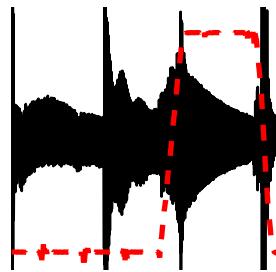
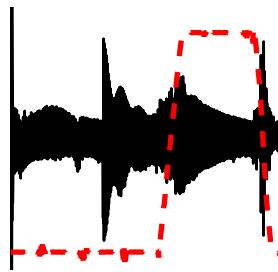
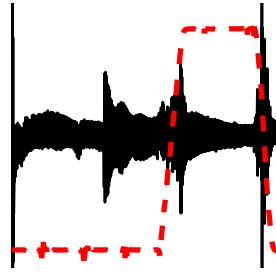
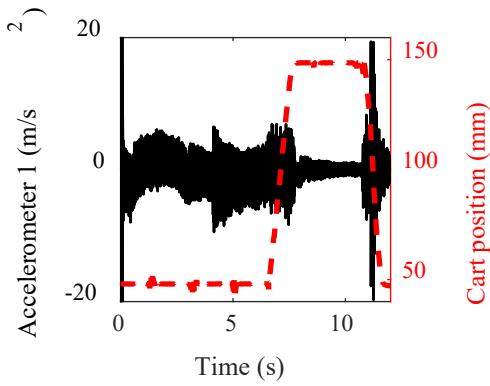
Applications

Datasets

## DATASET 1 – TEST 29

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4890 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.55 s



# Datasets

High-Rate  
Overview

Benchmark

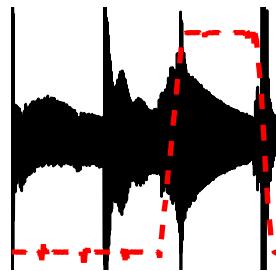
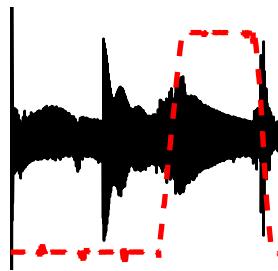
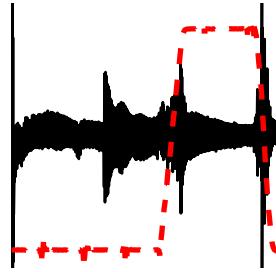
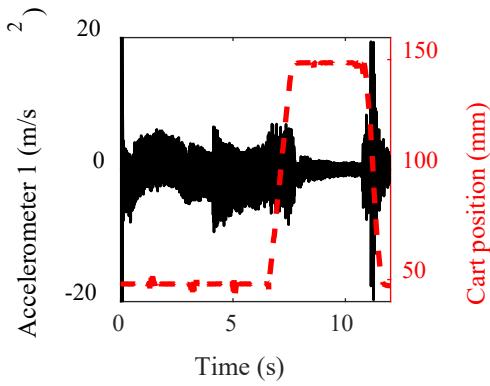
Applications

Datasets

## DATASET 1 – TEST 30

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4620 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 4.10 s



# Datasets

High-Rate  
Overview

Benchmark

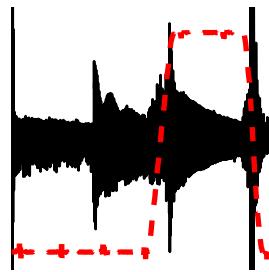
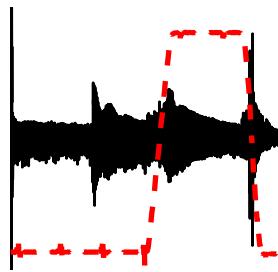
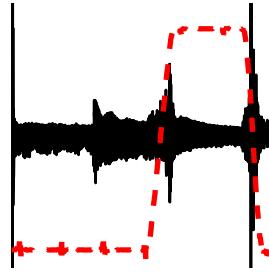
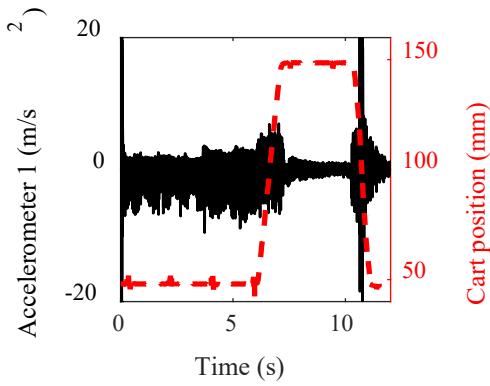
Applications

Datasets

## DATASET 1 – TEST 31

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4200 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.63 s



# Datasets

High-Rate  
Overview

Benchmark

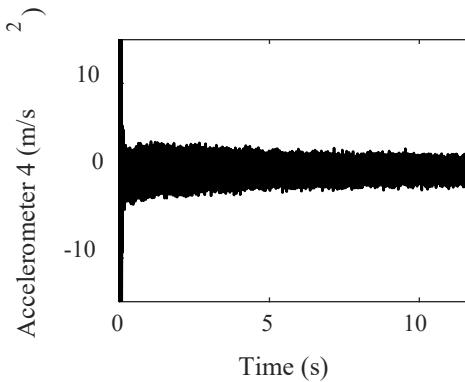
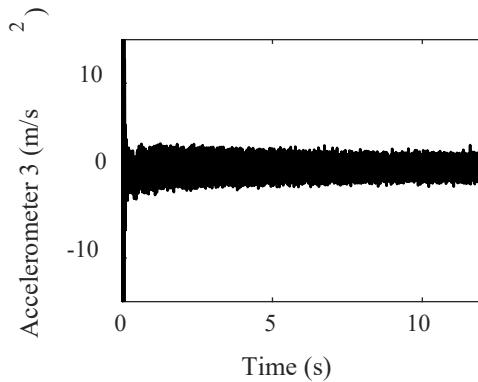
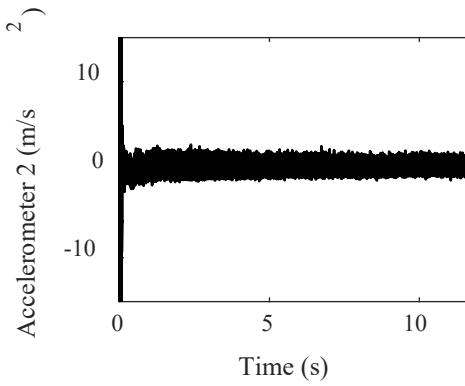
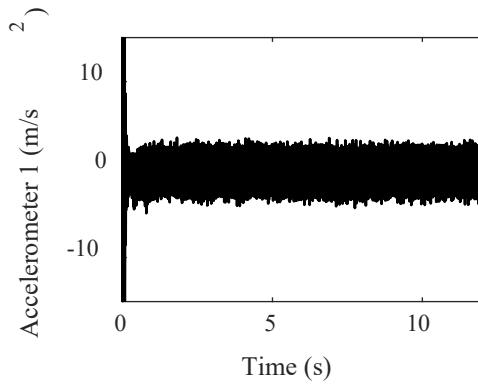
Applications

Datasets

## DATASET 1 – TEST 32

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4730 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

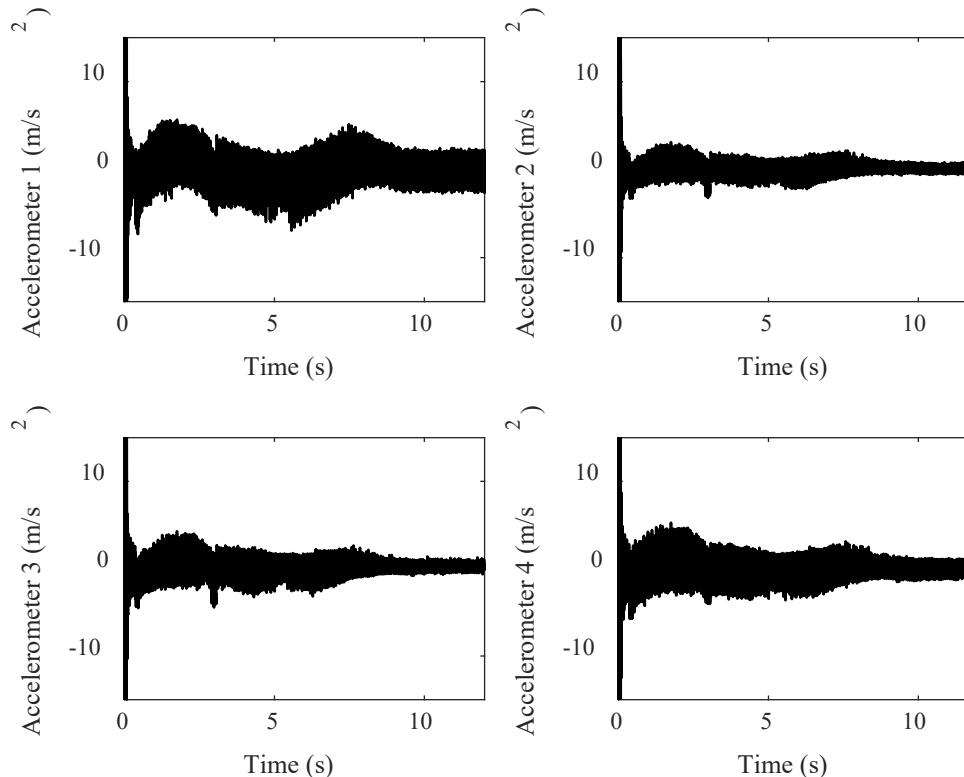
Applications

Datasets

## DATASET 1 – TEST 33

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4730 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

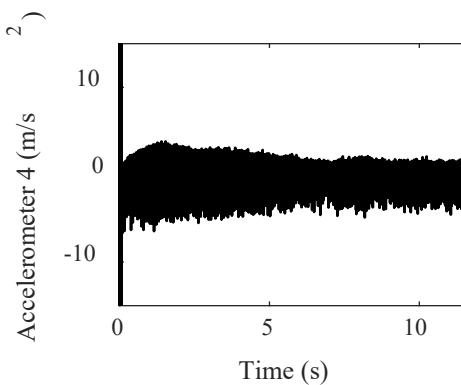
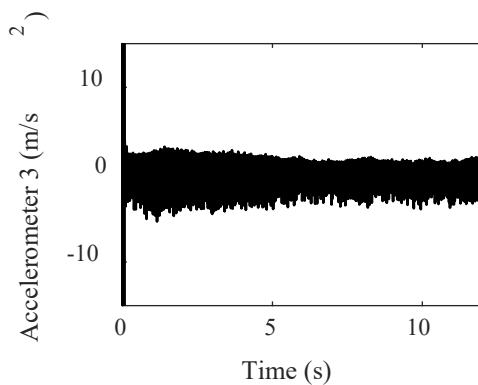
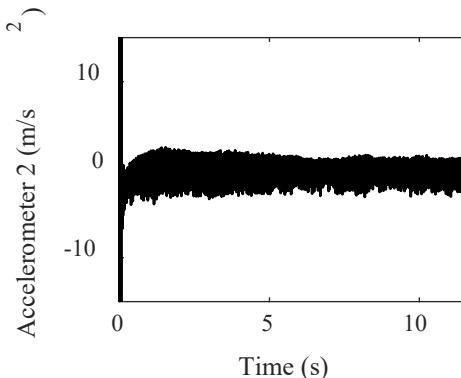
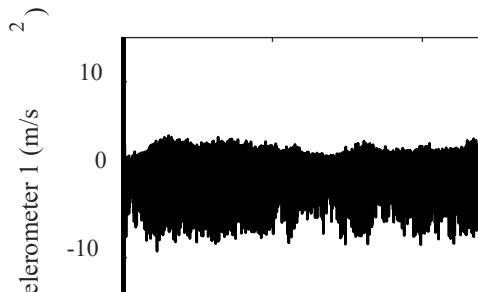
Applications

Datasets

## DATASET 1 – TEST 34

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4830 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

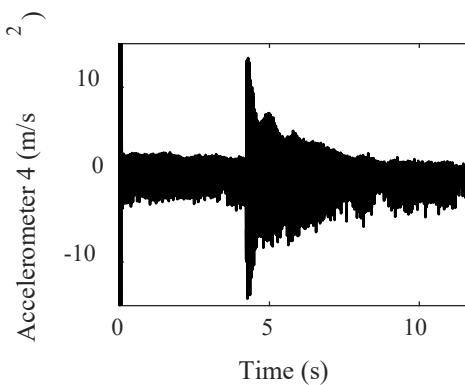
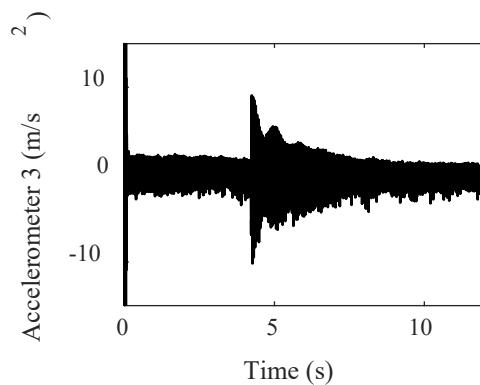
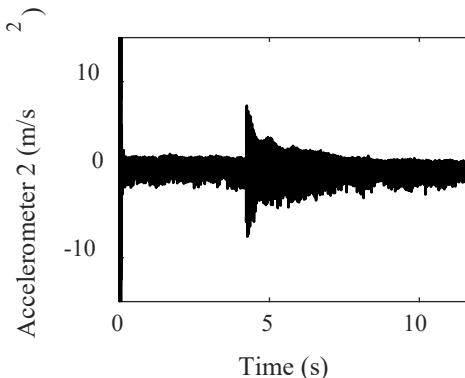
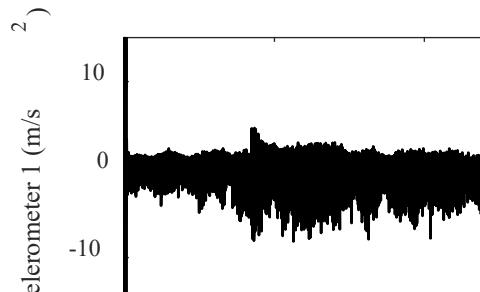
Applications

Datasets

## DATASET 1 – TEST 35

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4730 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 4.19



# Datasets

High-Rate  
Overview

Benchmark

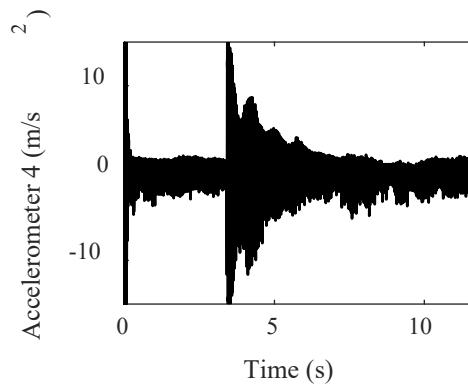
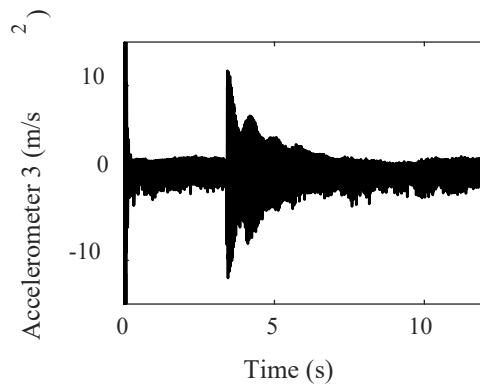
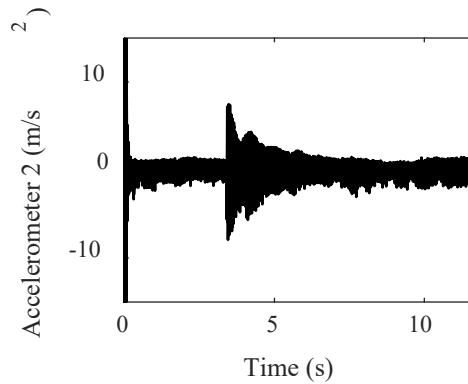
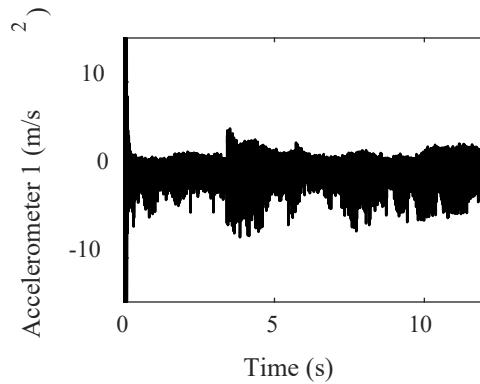
Applications

Datasets

## DATASET 1 – TEST 36

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4150 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.84



# Datasets

High-Rate  
Overview

Benchmark

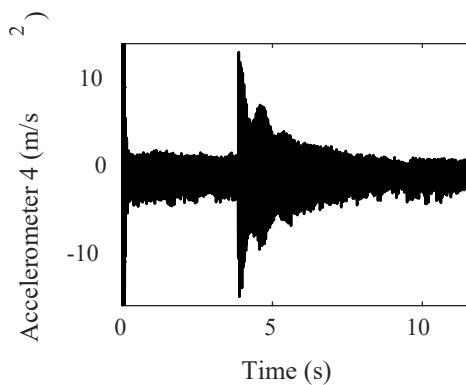
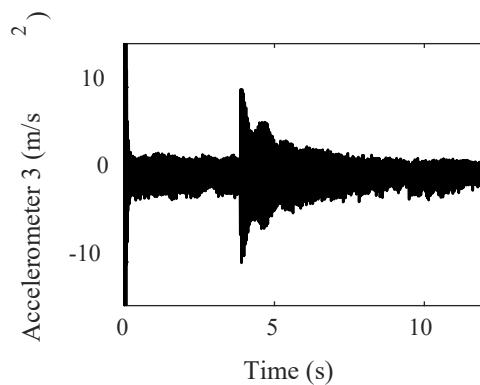
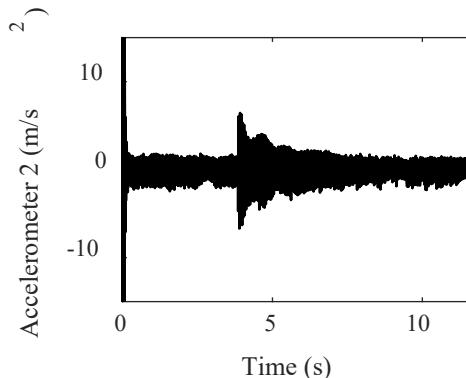
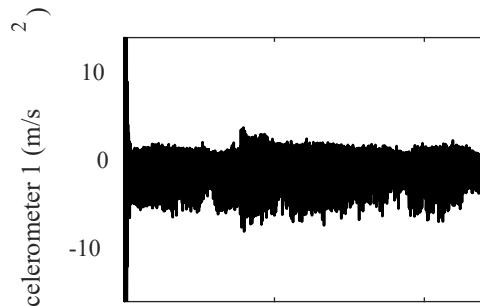
Applications

Datasets

## DATASET 1 – TEST 37

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $3750 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.84



# Datasets

High-Rate  
Overview

Benchmark

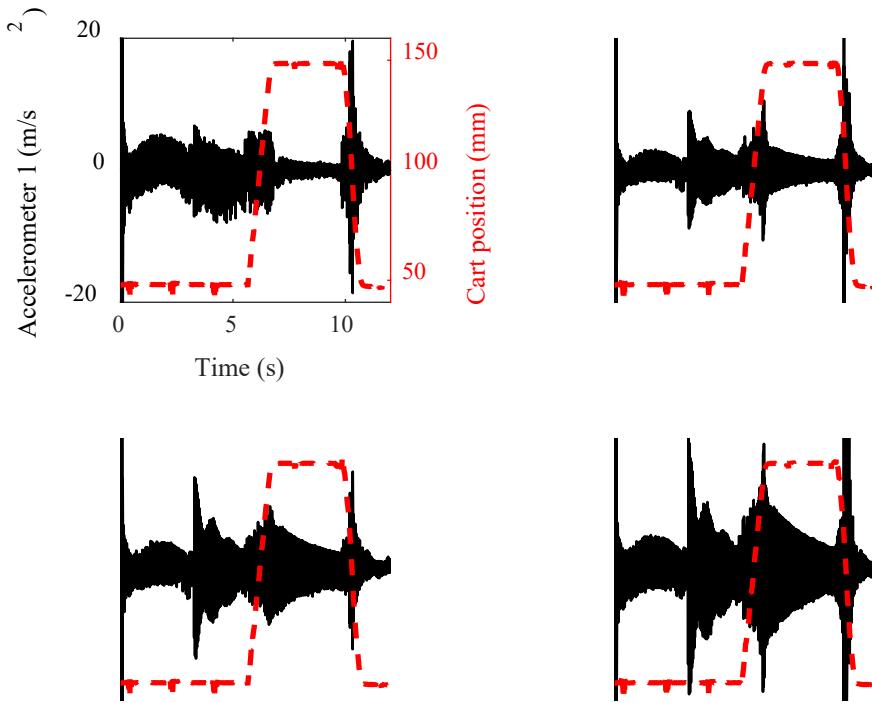
Applications

Datasets

## DATASET 1 – TEST 38

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4890 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.24 s



# Datasets

High-Rate  
Overview

Benchmark

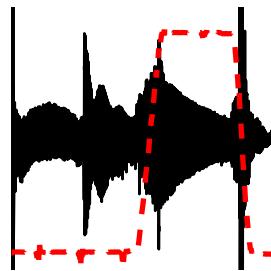
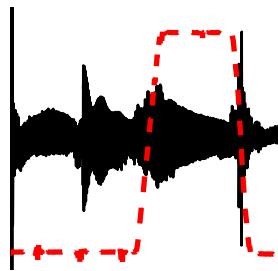
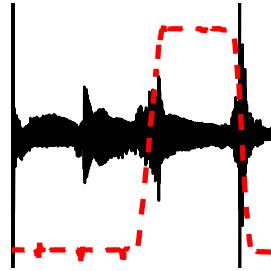
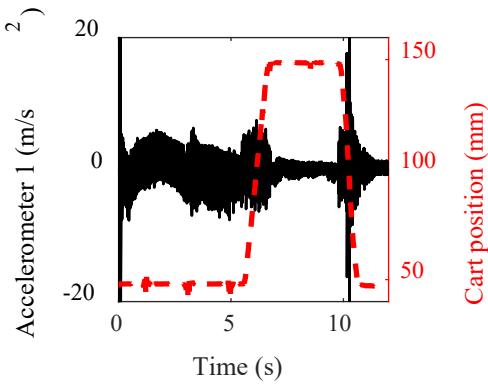
Applications

Datasets

## DATASET 1 – TEST 39

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4890 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.20 s



# Datasets

High-Rate  
Overview

Benchmark

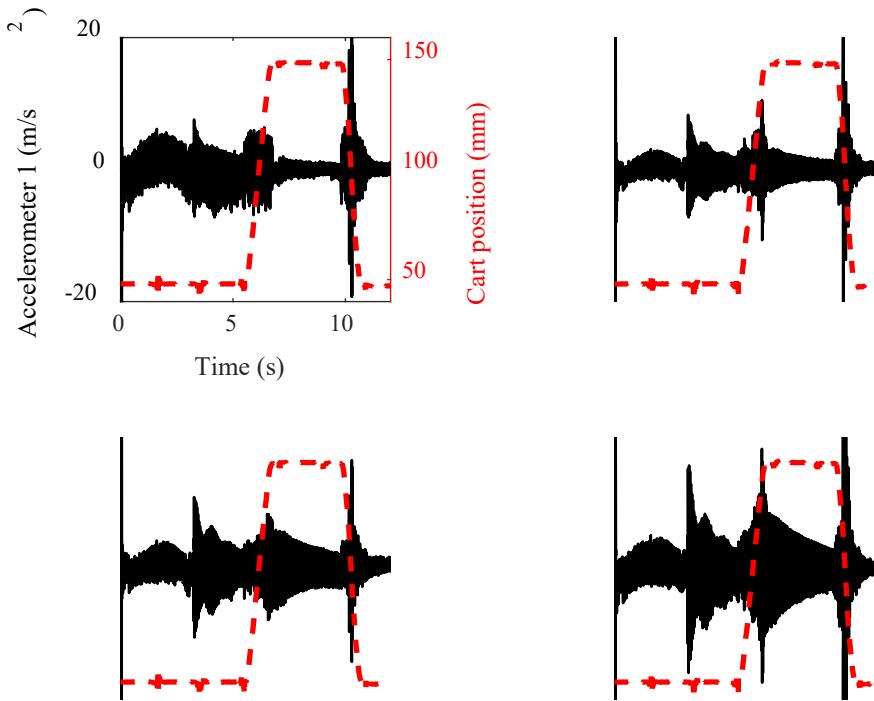
Applications

Datasets

## DATASET 1 – TEST 40

### EXCITATIONS:

- Dynamic cart action (47-147 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4570 \text{ m/s}^2$
- Hammer impact time: 0.01 s
- Mass drop time: 3.22 s



# Datasets

High-Rate  
Overview

Benchmark

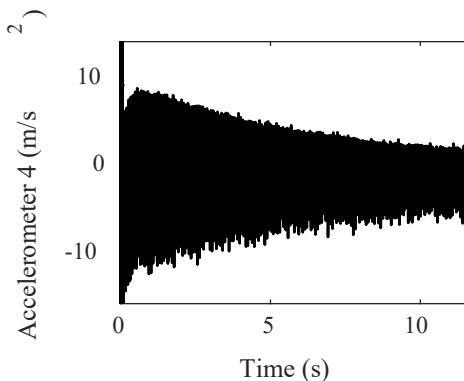
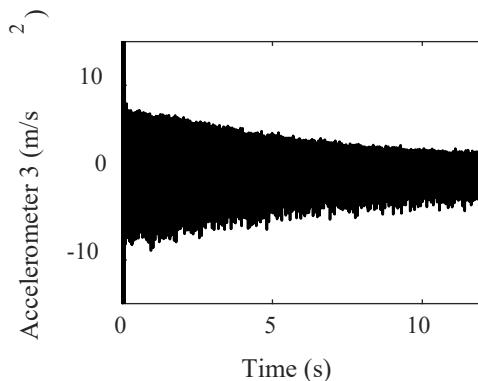
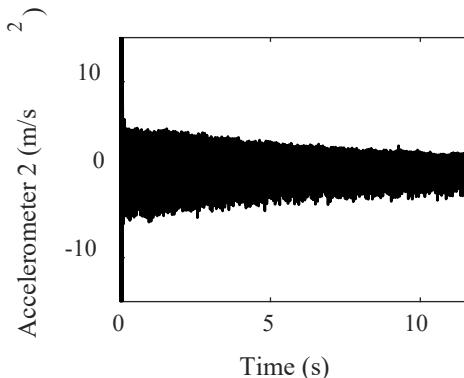
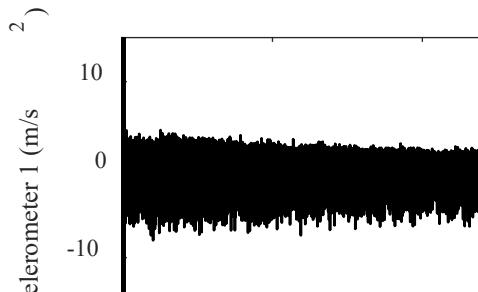
Applications

Datasets

## DATASET 1 – TEST 41

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4670 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

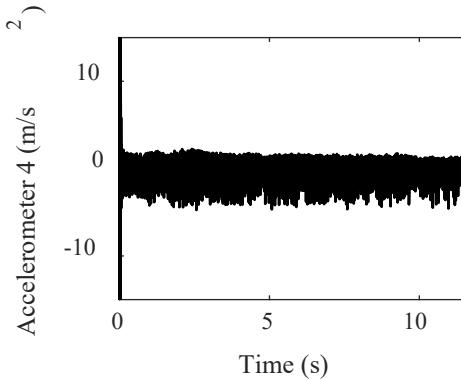
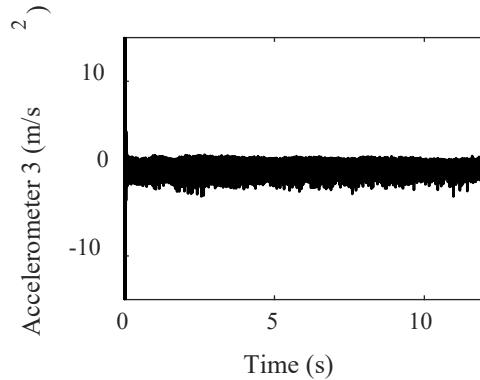
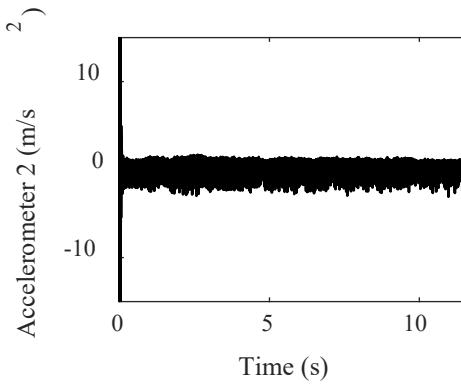
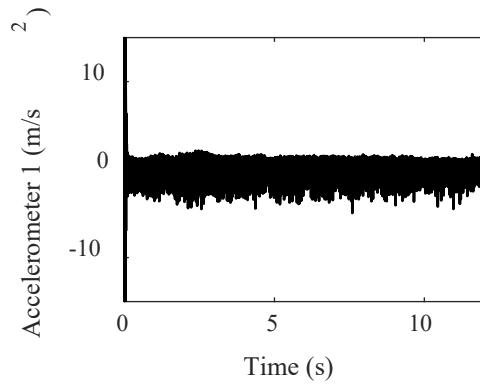
Applications

Datasets

## DATASET 1 – TEST 42

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $918 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

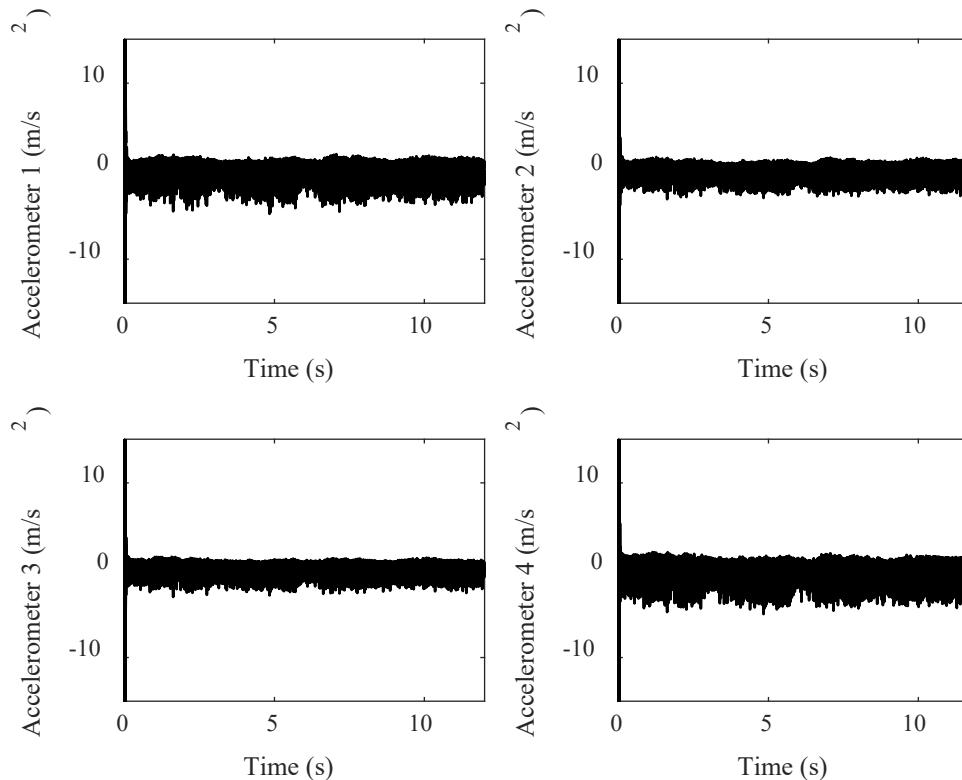
Applications

Datasets

## DATASET 1 – TEST 43

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $775 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

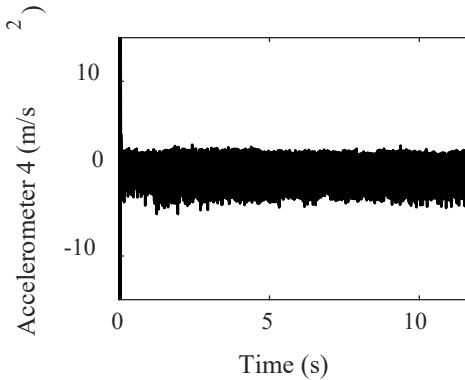
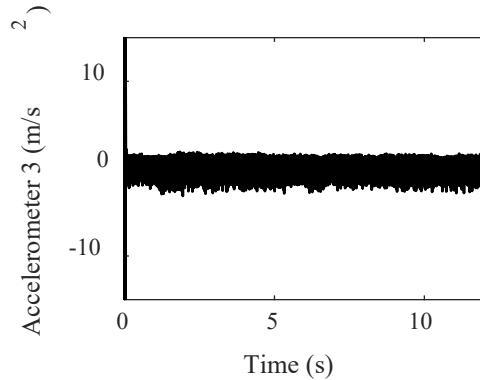
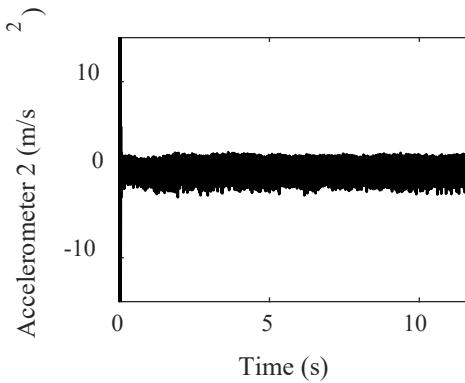
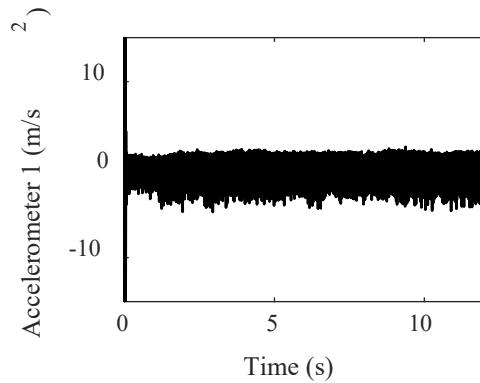
Applications

Datasets

## DATASET 1 – TEST 44

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1820 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

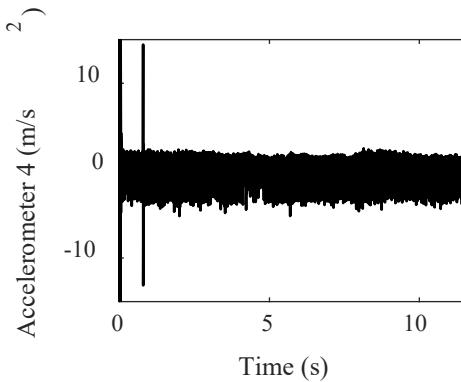
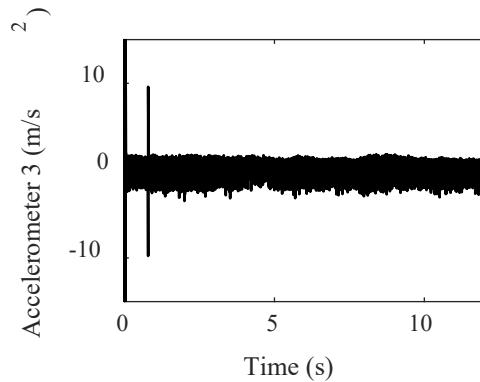
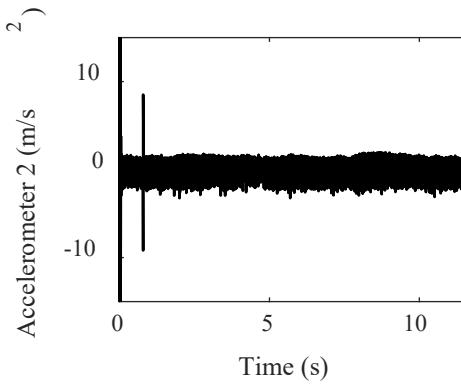
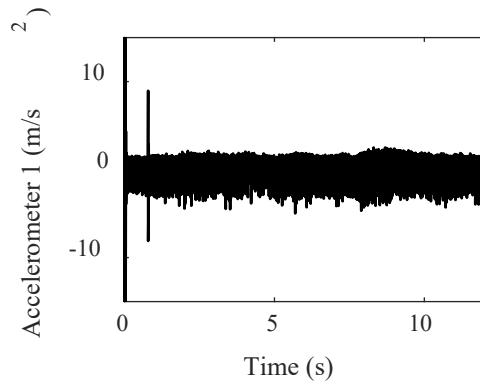
Applications

Datasets

## DATASET 1 – TEST 45

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1700 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

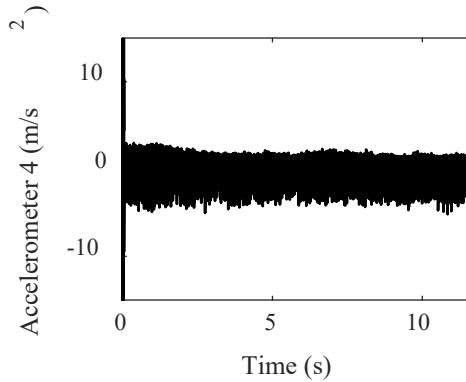
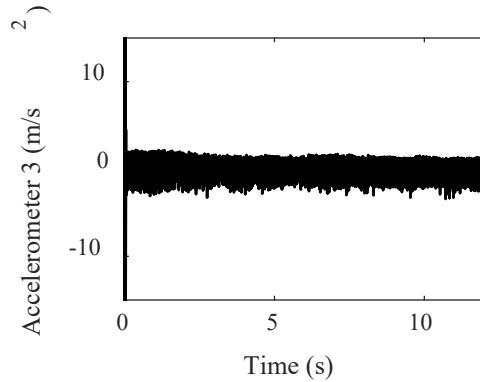
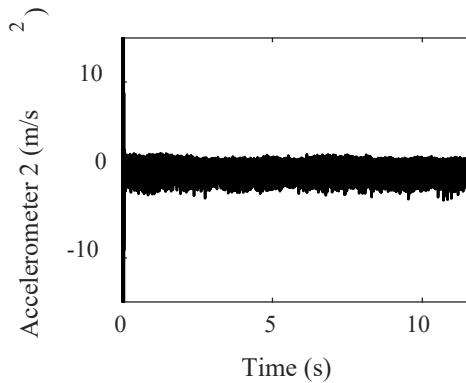
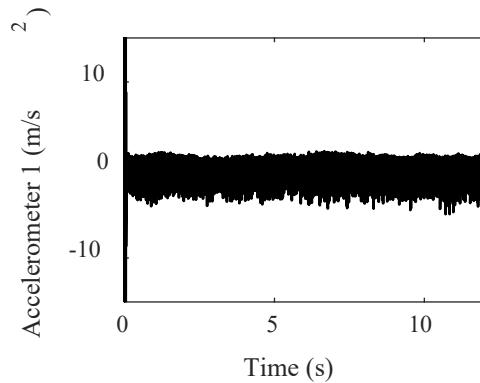
Applications

Datasets

## DATASET 1 – TEST 46

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2450 \text{ m/s}^2$
  - Hammer impact time: 0.01 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

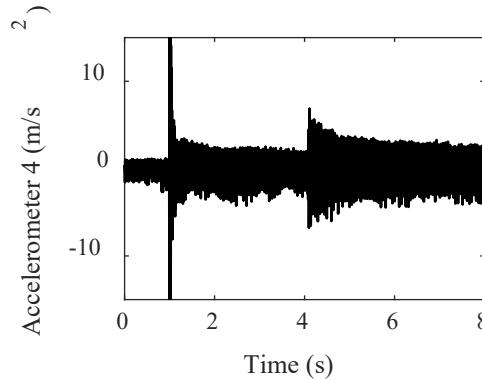
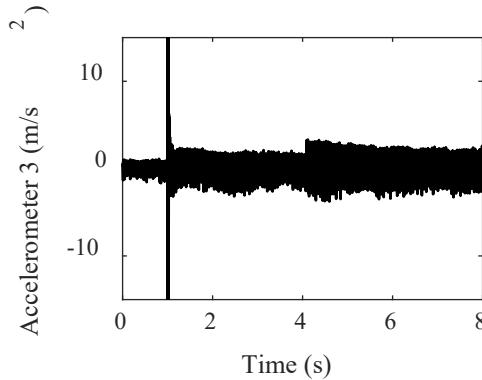
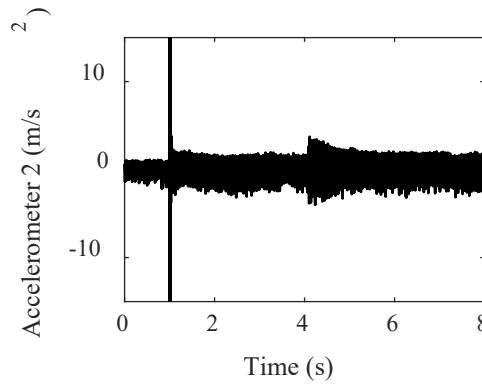
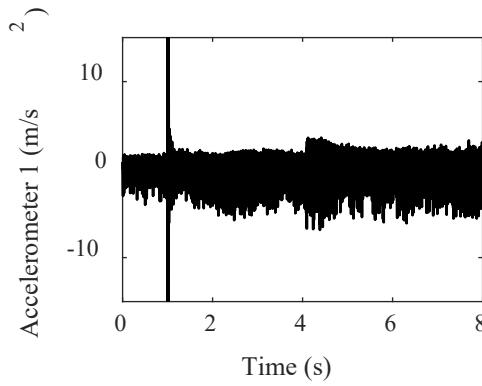
Applications

Datasets

## DATASET 1 – TEST 47

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $1110 \text{ m/s}^2$
- Hammer impact time: 1.00 s
- Mass drop time: 4.07 s



# Datasets

High-Rate  
Overview

Benchmark

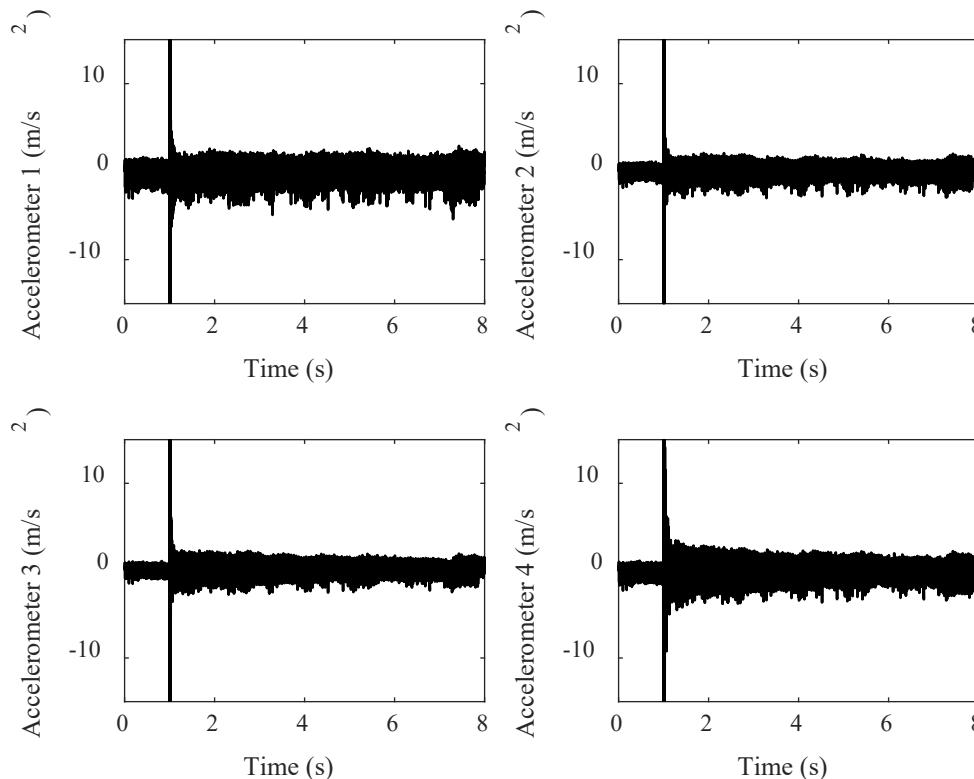
Applications

Datasets

## DATASET 1 – TEST 48

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $920 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

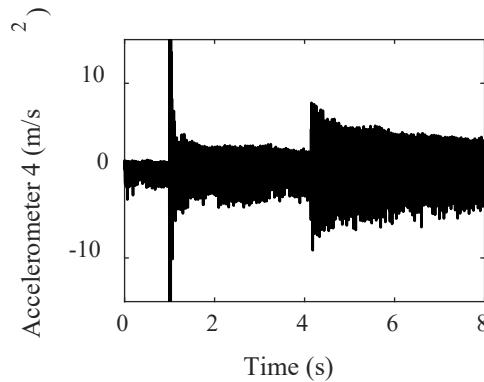
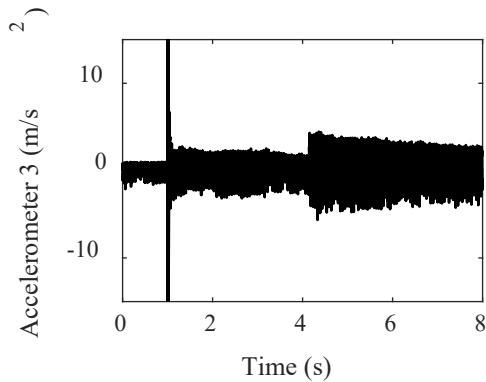
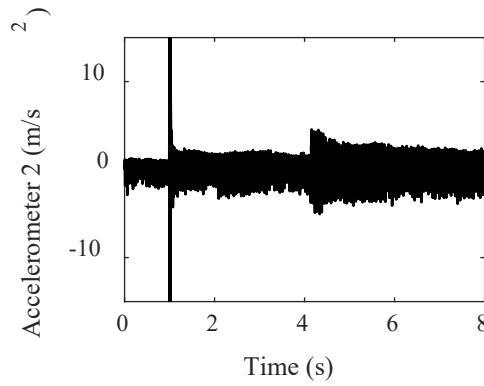
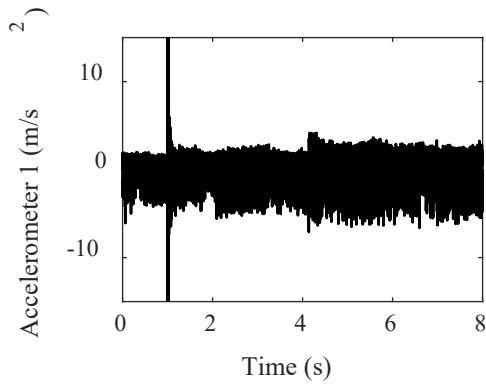
Applications

Datasets

## DATASET 1 – TEST 49

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1310 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

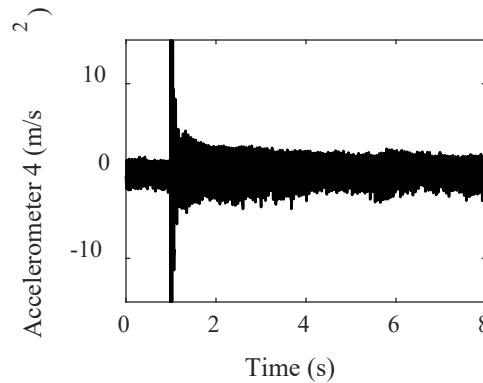
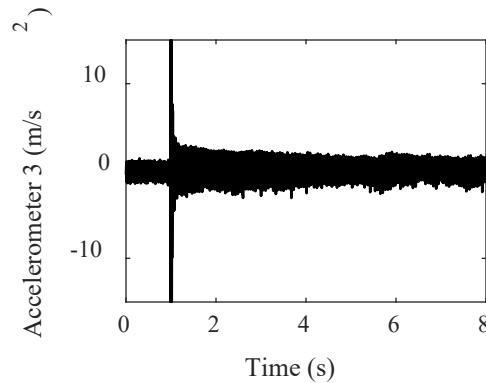
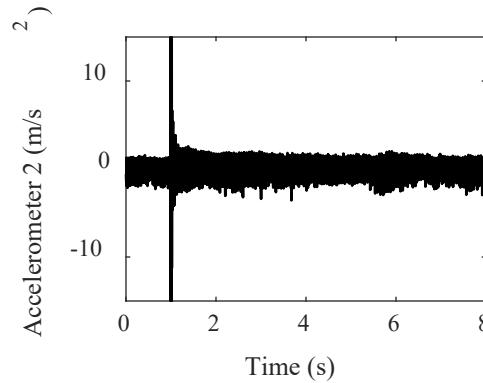
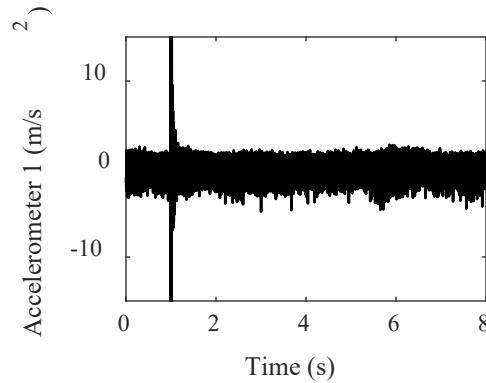
Applications

Datasets

## DATASET 1 – TEST 50

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1260 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

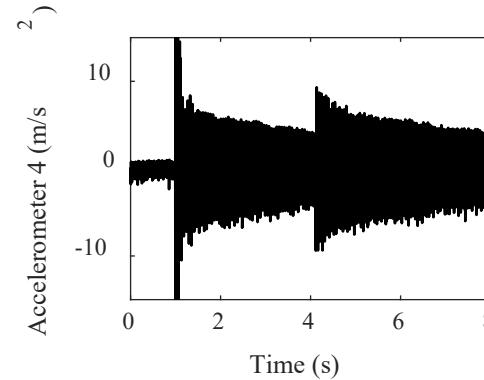
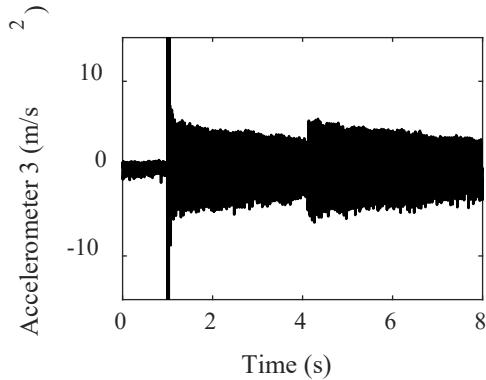
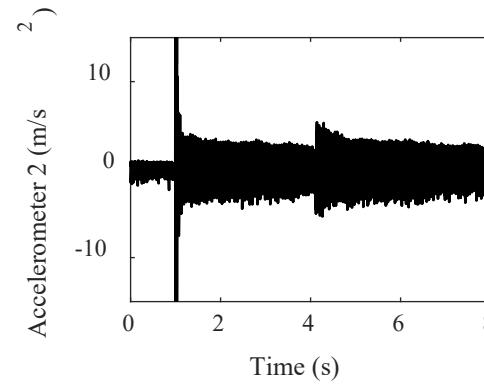
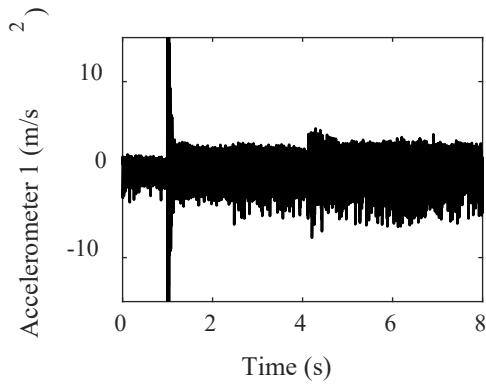
Applications

Datasets

## DATASET 1 – TEST 51

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4570 \text{ m/s}^2$
- Hammer impact time: 1.00 s
- Mass drop time: 4.08



# Datasets

High-Rate  
Overview

Benchmark

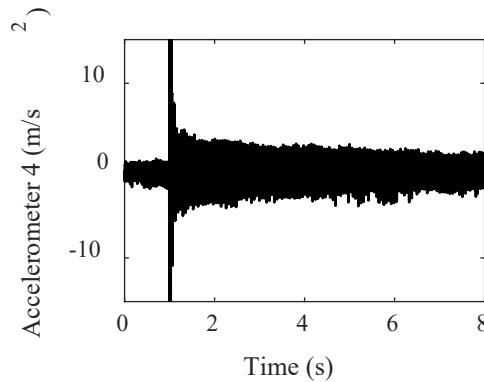
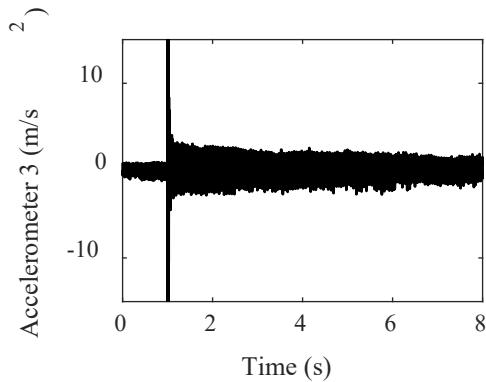
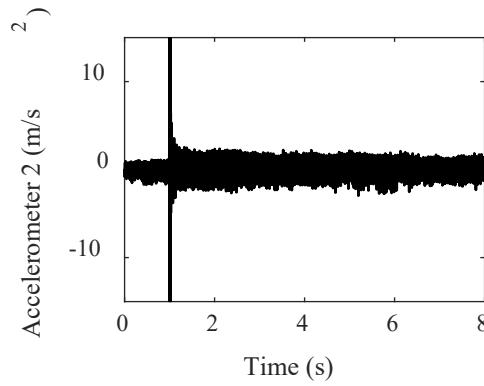
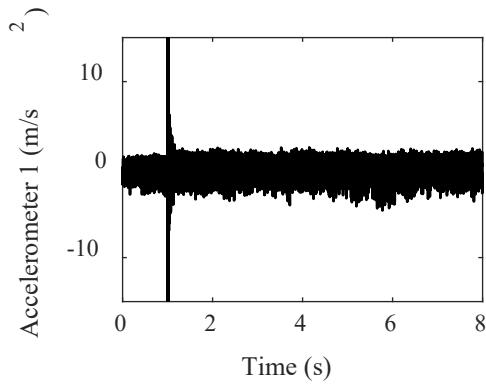
Applications

Datasets

## DATASET 1 – TEST 52

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1780 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

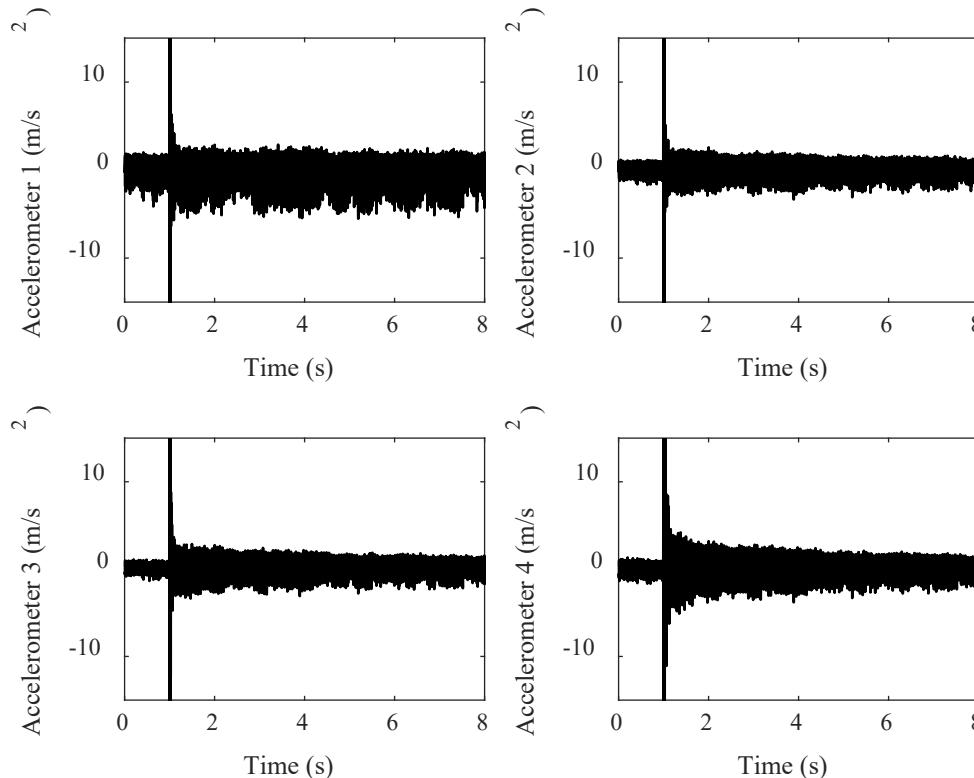
Applications

Datasets

## DATASET 1 – TEST 53

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1360 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

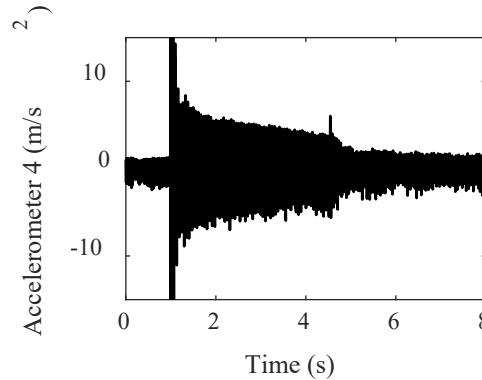
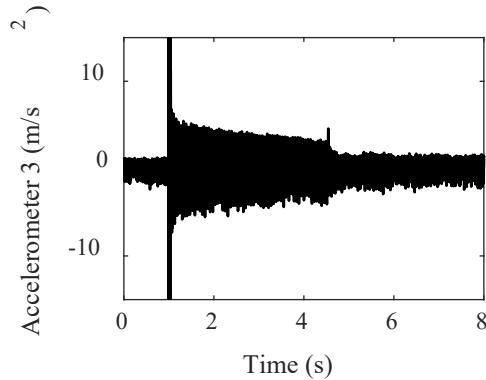
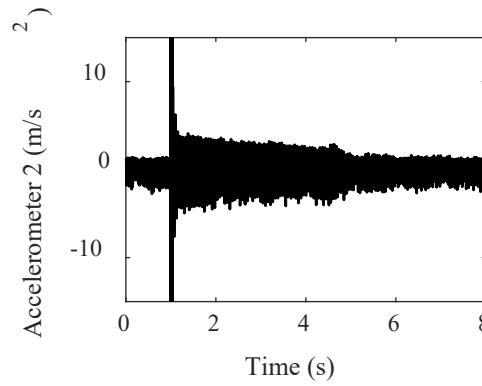
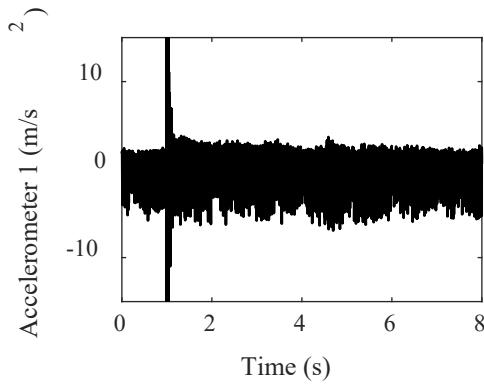
Applications

Datasets

## DATASET 1 – TEST 54

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4510 \text{ m/s}^2$
- Hammer impact time: 1.00 s
- Mass drop time: 4.51 s



# Datasets

High-Rate  
Overview

Benchmark

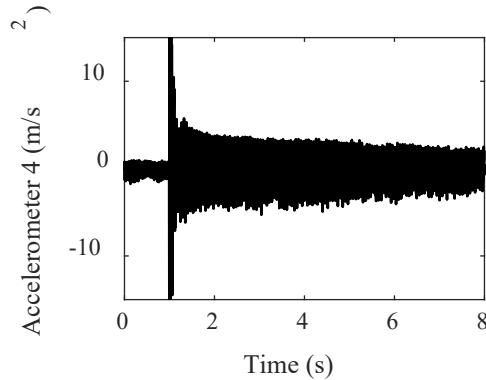
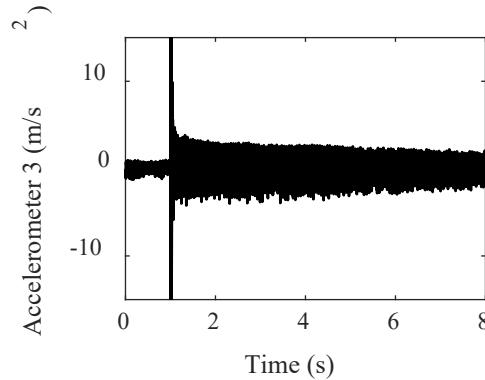
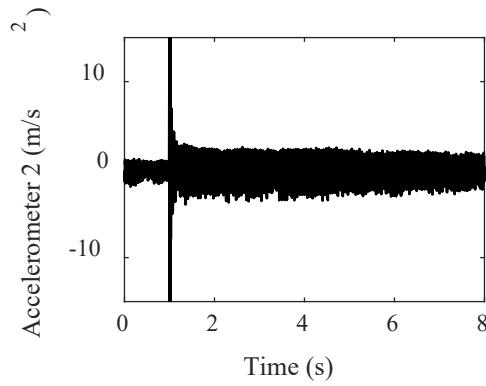
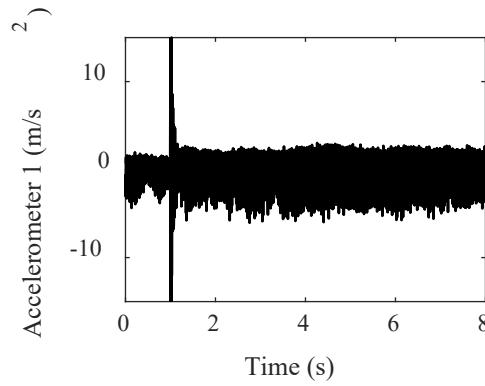
Applications

Datasets

## DATASET 1 – TEST 55

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $4230 \text{ m/s}^2$
- Hammer impact time: 1.00 s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

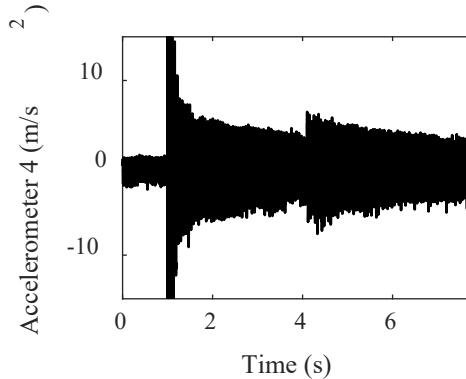
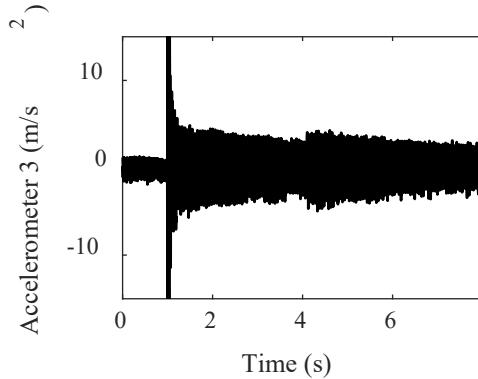
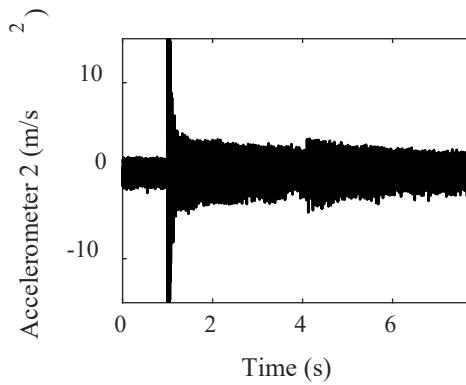
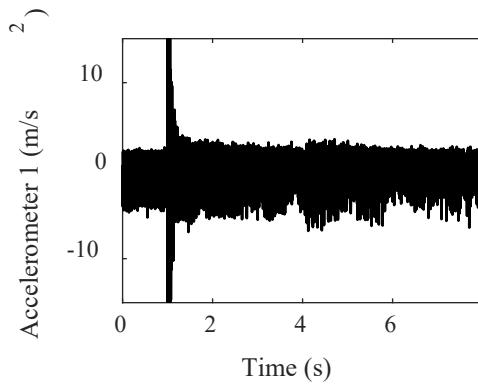
Applications

Datasets

## DATASET 1 – TEST 56

### EXCITATIONS:

- Static cart action (47 mm)
- Single hammer impact
- Electromagnet mass drop
- Max acceleration :  $4570 \text{ m/s}^2$
- Hammer impact time: 1.00 s
- Mass drop time: 4.06 s



# Datasets

High-Rate  
Overview

Benchmark

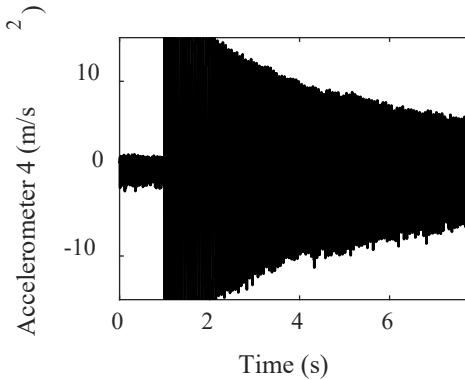
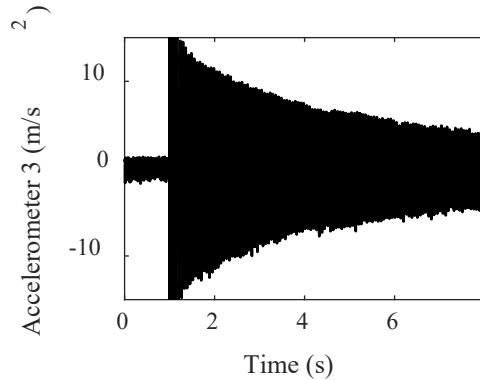
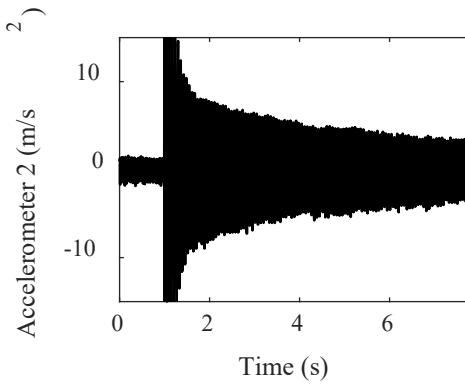
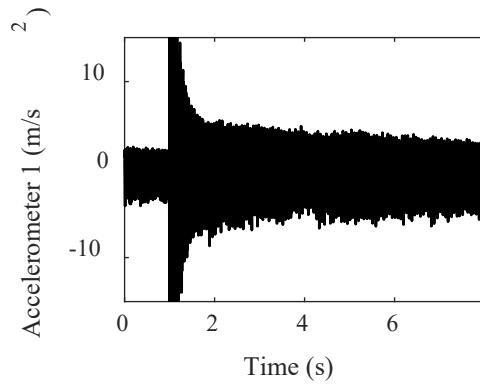
Applications

Datasets

## DATASET 1 – TEST 57

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4220 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

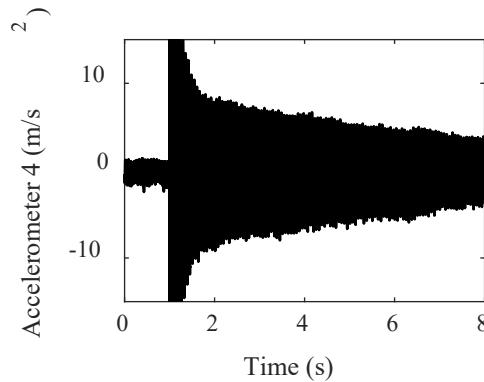
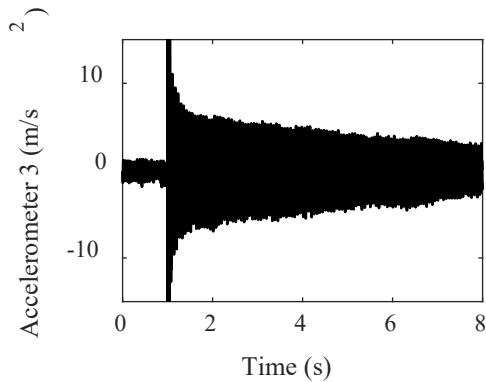
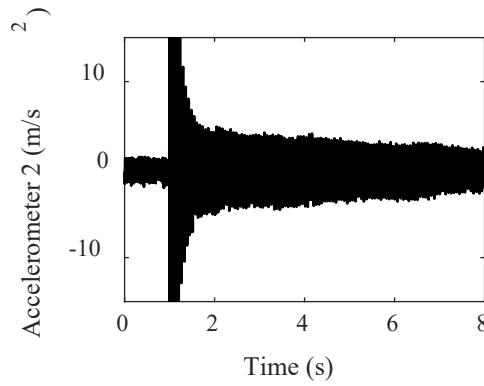
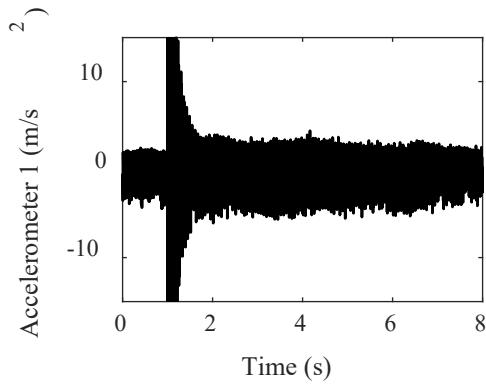
Applications

Datasets

## DATASET 1 – TEST 58

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2960 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

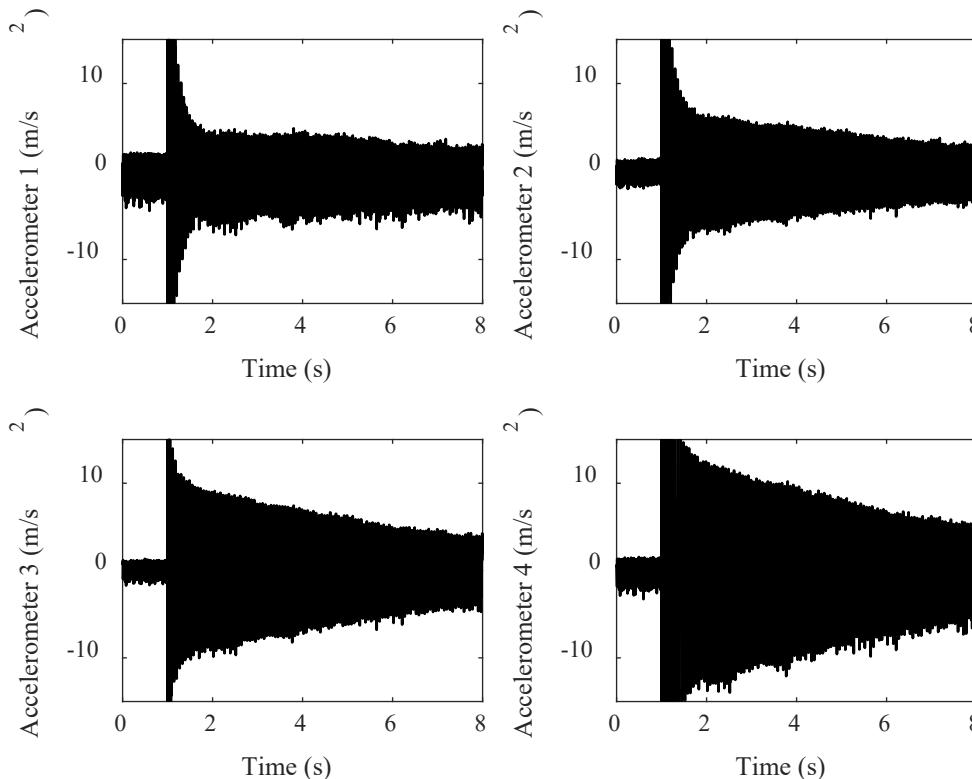
Applications

Datasets

## DATASET 1 – TEST 59

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4570 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

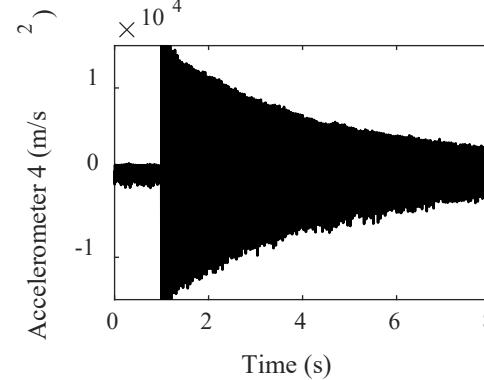
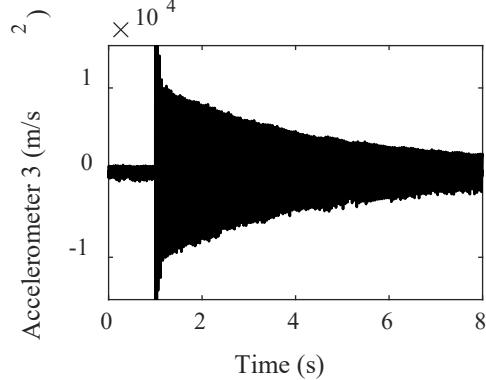
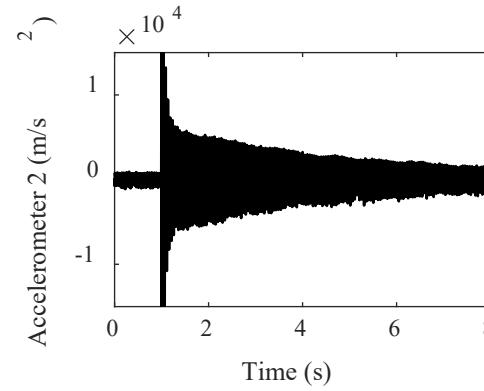
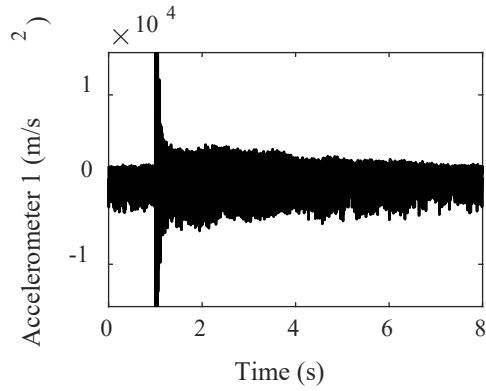
Applications

Datasets

## DATASET 1 – TEST 60

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4310 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

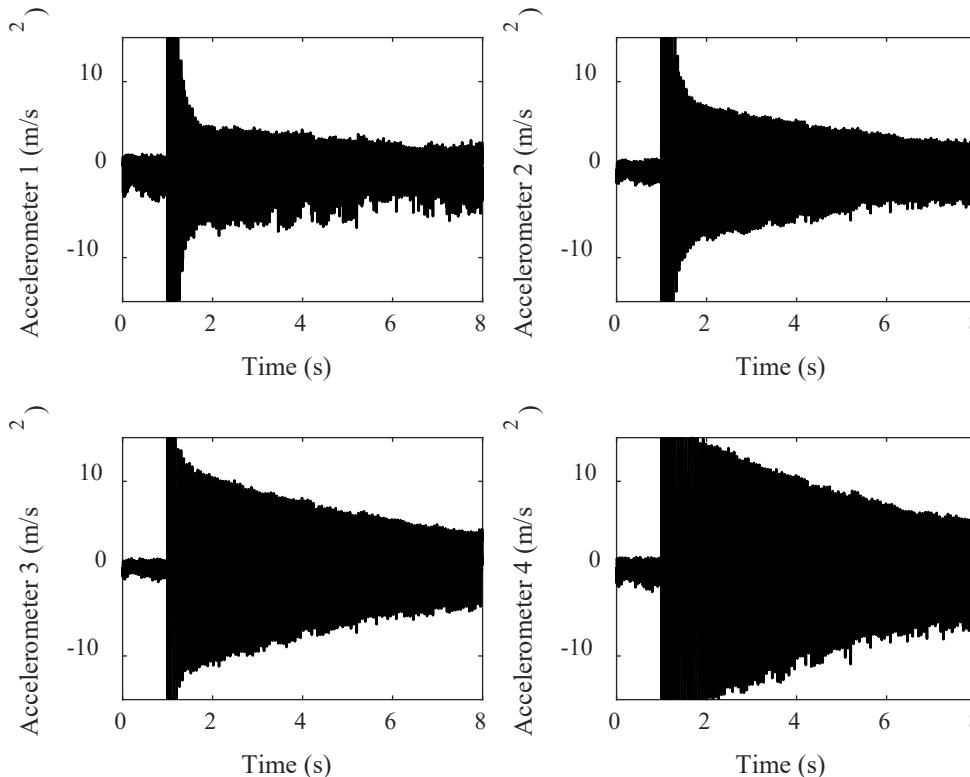
Applications

Datasets

## DATASET 1 – TEST 61

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4650 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

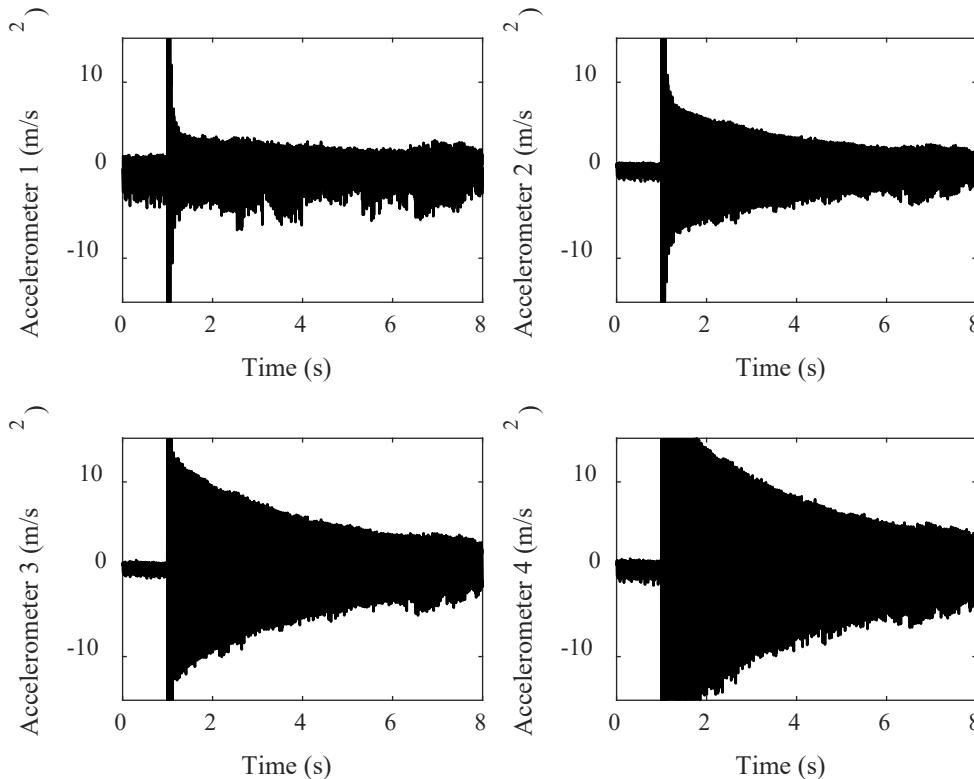
Applications

Datasets

## DATASET 1 – TEST 62

### EXCITATIONS:

- Static cart action (47 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $4420 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

A horizontal navigation bar consisting of four black chevron-shaped arrows pointing right. The first arrow contains the text "High-Rate Overview". The second arrow contains the text "Benchmark". The third arrow contains the text "Applications". The fourth arrow contains the text "Datasets".

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 2 – SENSORS

### SENSORS:

4x Accelerometer (PCB 353B17)

1. SN 127691 – 300 mm
2. SN 139351 – 400 mm

### Excitation notes

- Single hammer impact to begin test 500 mm from clamp
- Mass remains for whole test duration

Sampling frequency: 25,600 samples/s

# Datasets

High-Rate  
Overview

Benchmark

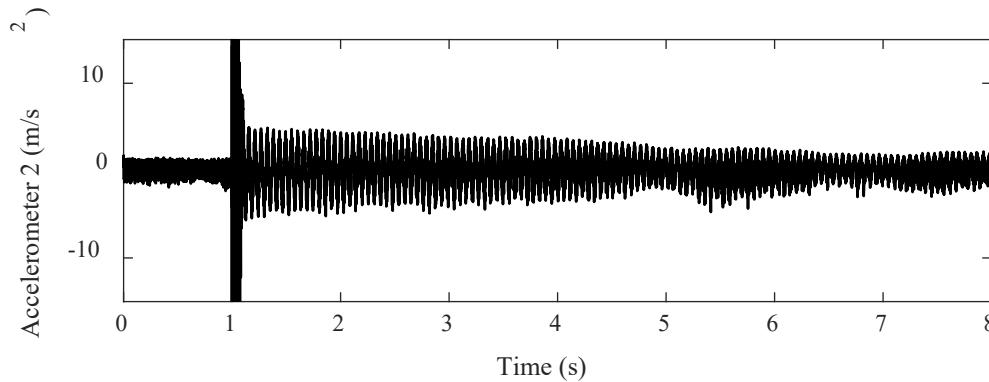
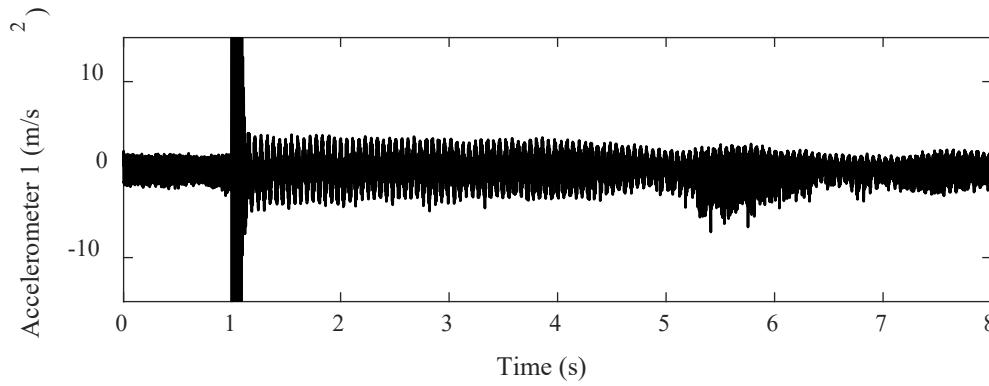
Applications

Datasets

## DATASET 2 – TEST 1

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1087 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

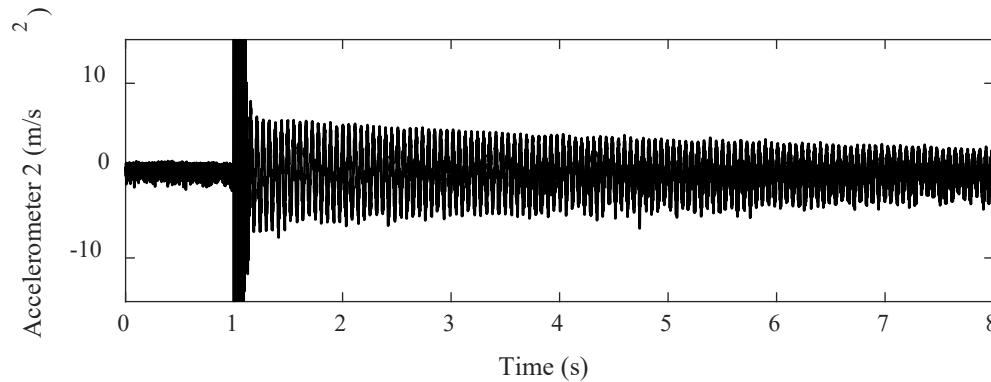
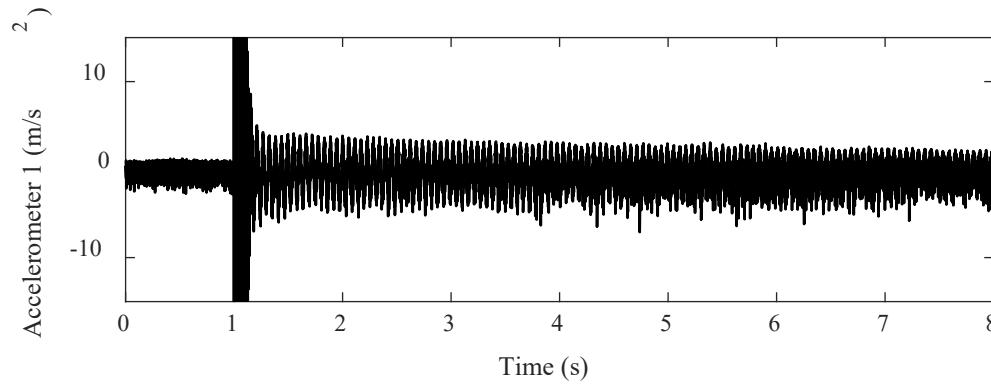
Applications

Datasets

## DATASET 2 – TEST 2

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1448 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

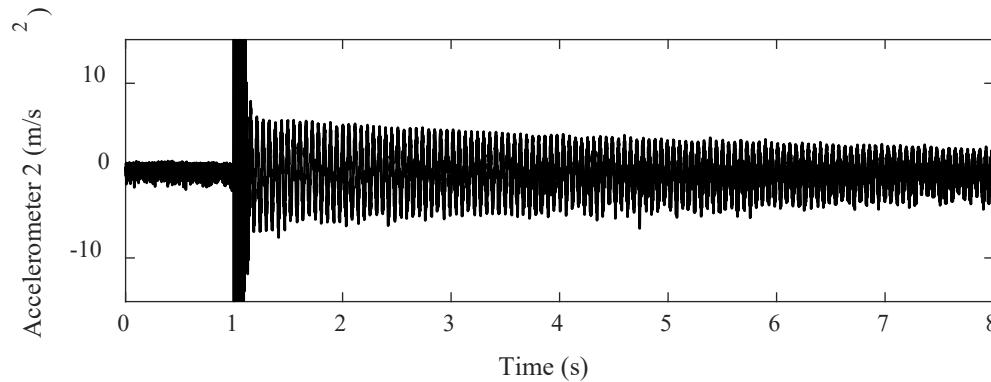
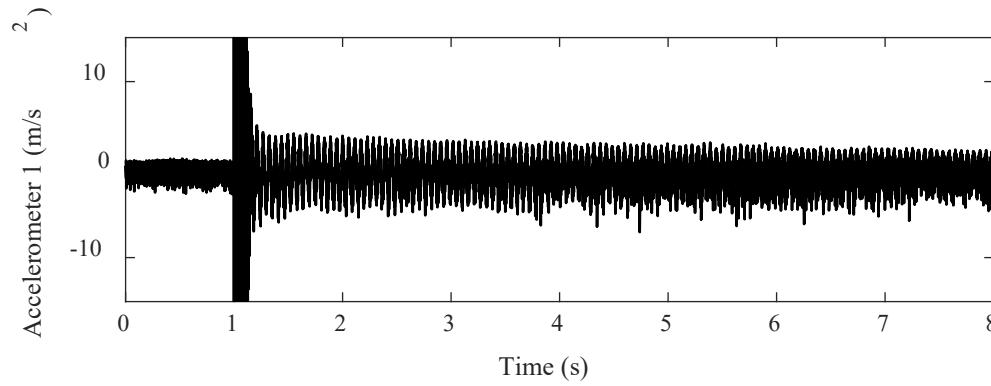
Applications

Datasets

## DATASET 2 – TEST 3

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1547 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

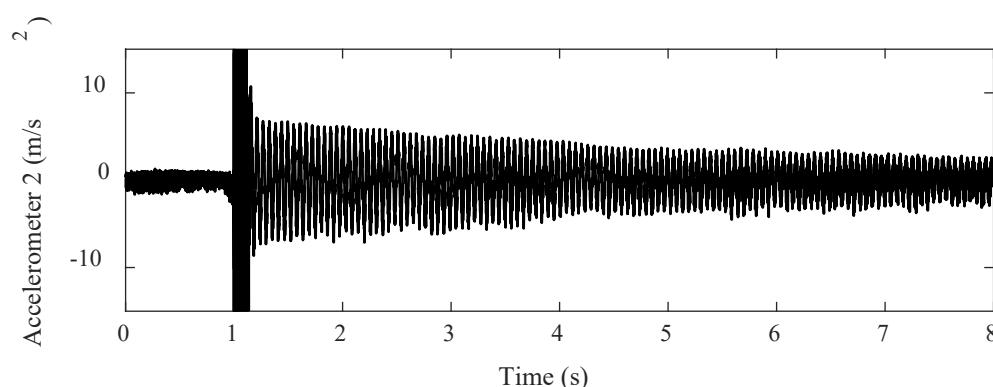
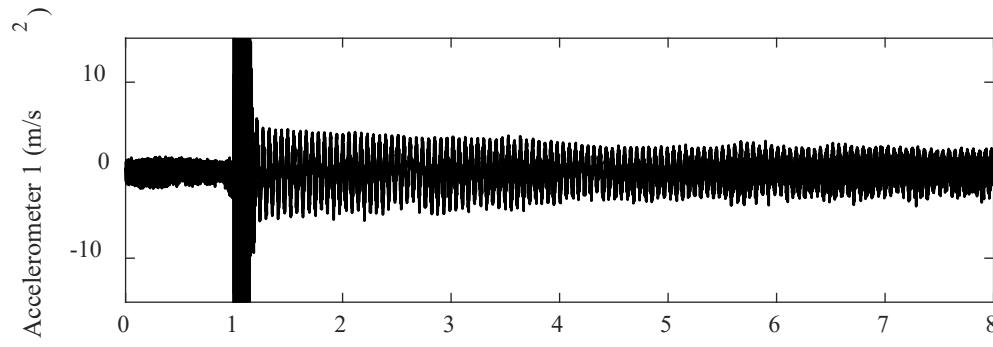
Applications

Datasets

## DATASET 2 – TEST 4

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1869 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

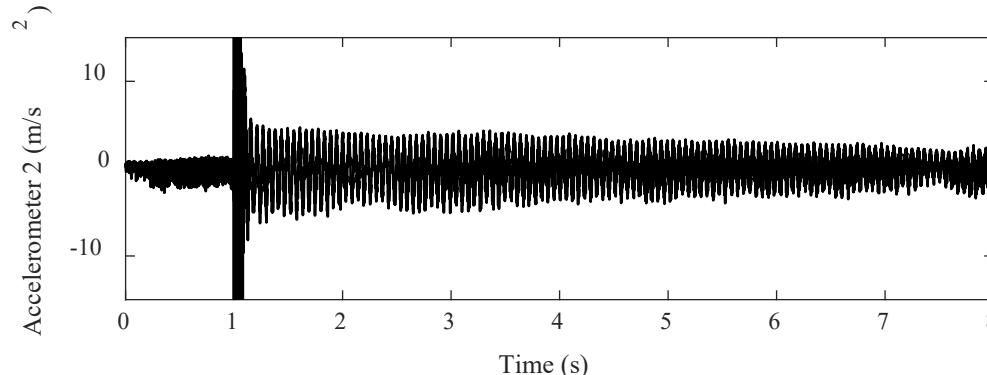
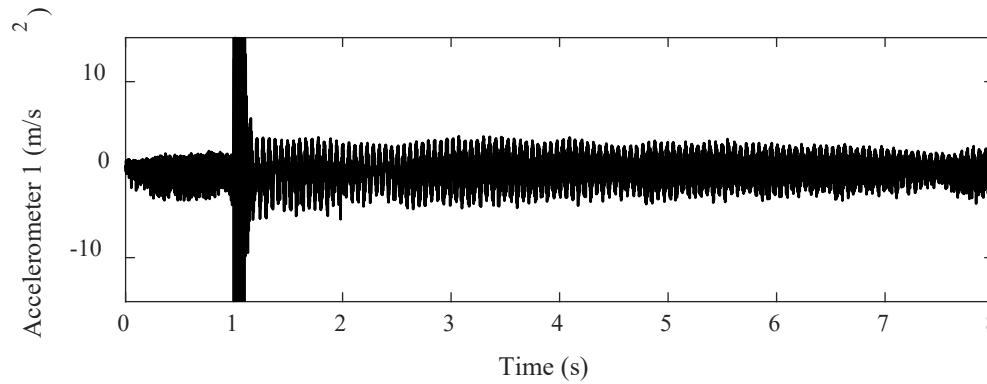
Applications

Datasets

## DATASET 2 – TEST 5

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1107 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

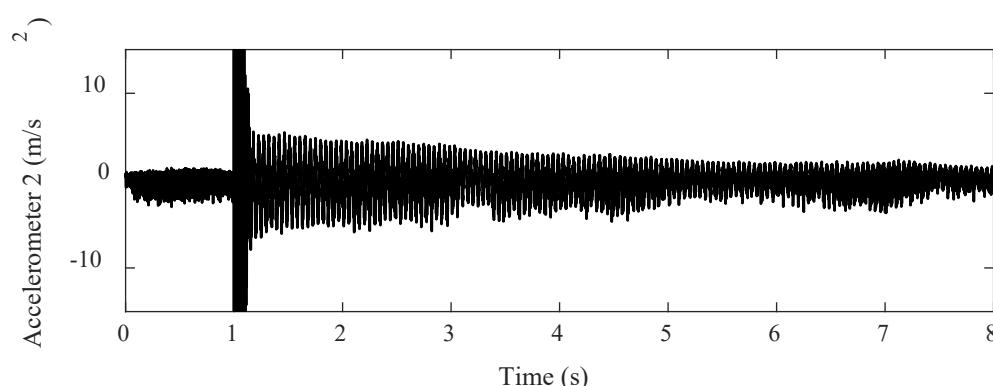
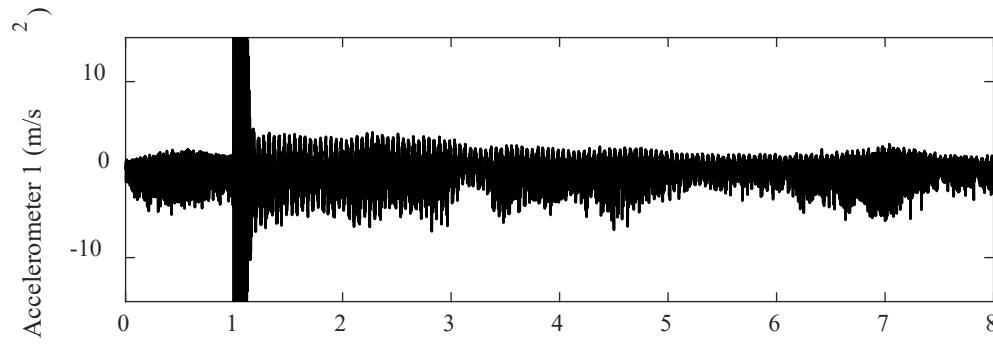
Applications

Datasets

## DATASET 2 – TEST 6

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1139 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

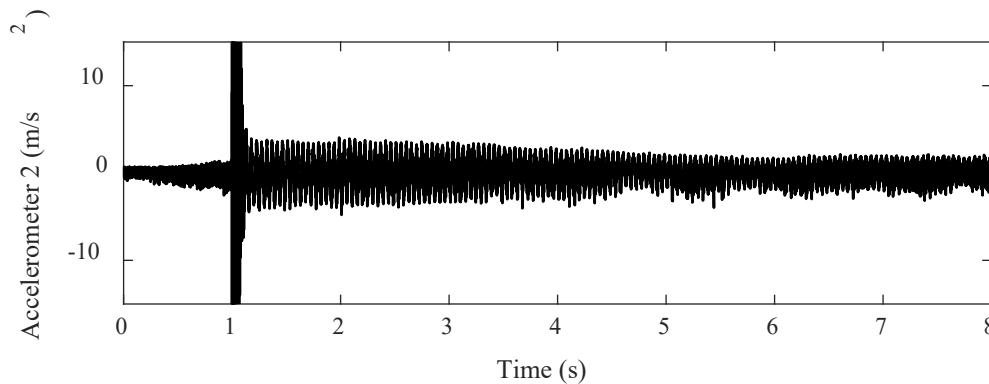
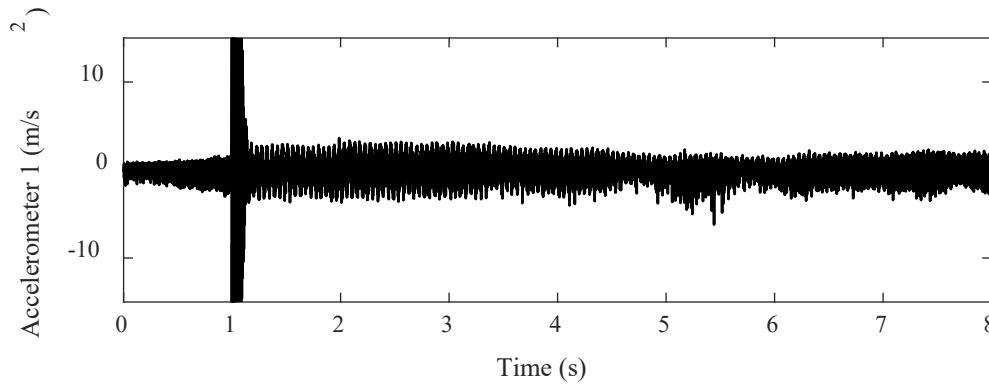
Applications

Datasets

## DATASET 2 – TEST 7

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $718 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

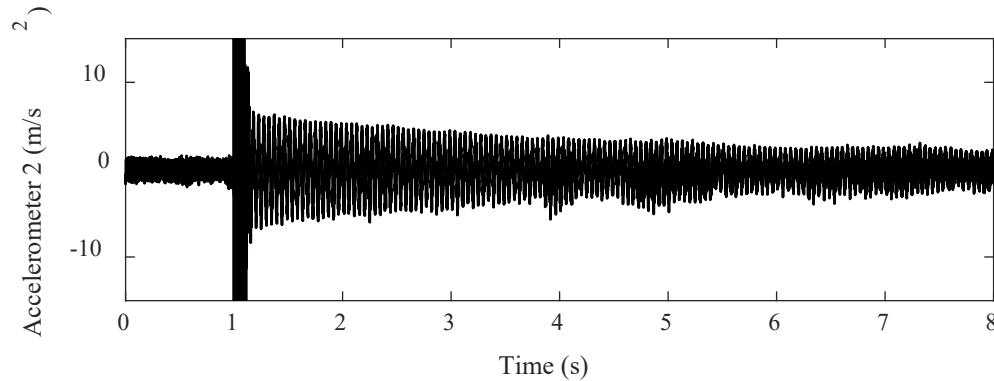
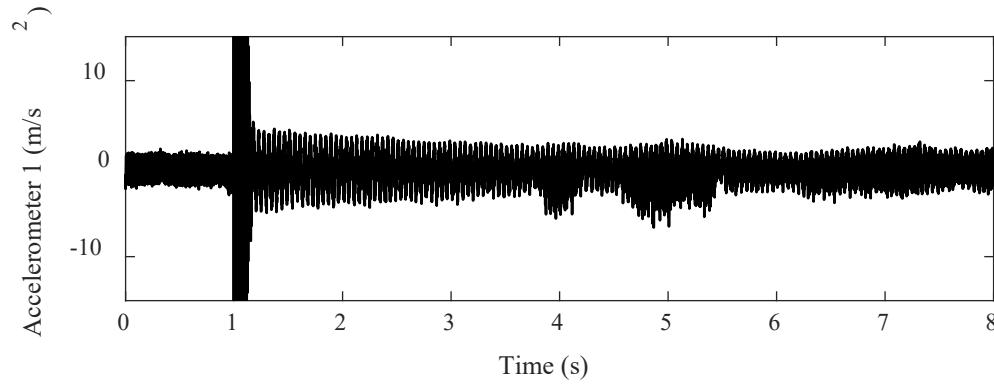
Applications

Datasets

## DATASET 2 – TEST 8

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1288 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

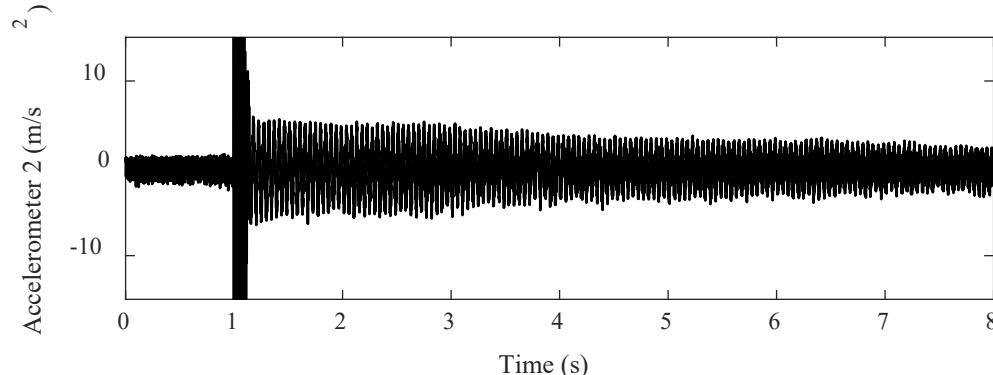
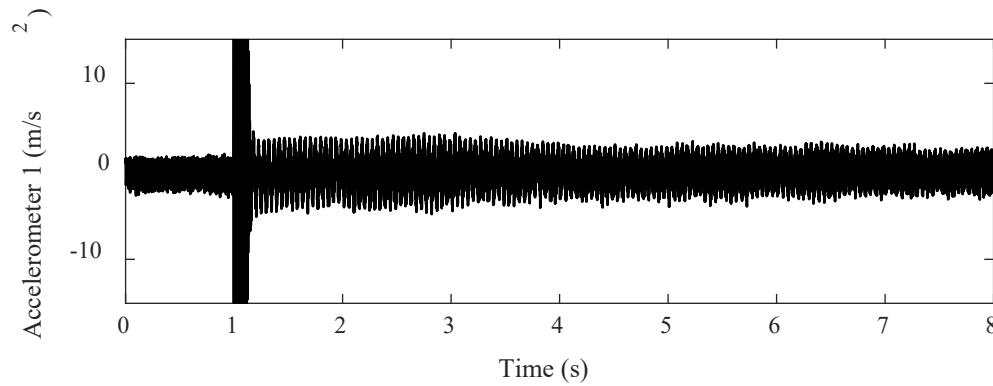
Applications

Datasets

## DATASET 2 – TEST 9

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1291 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

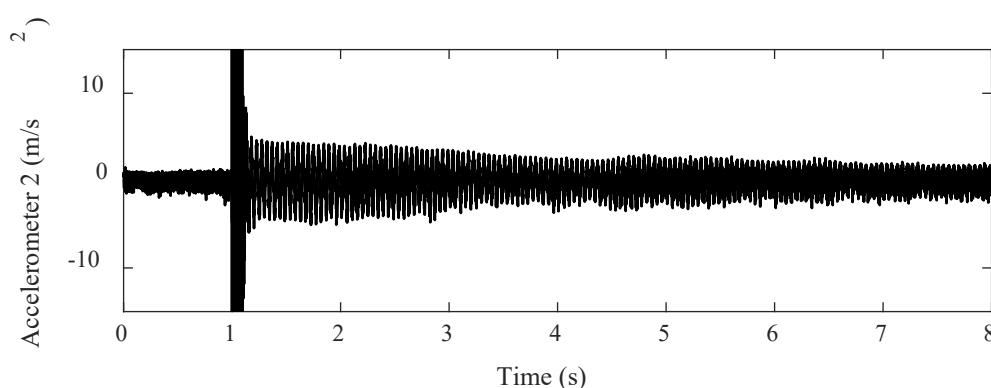
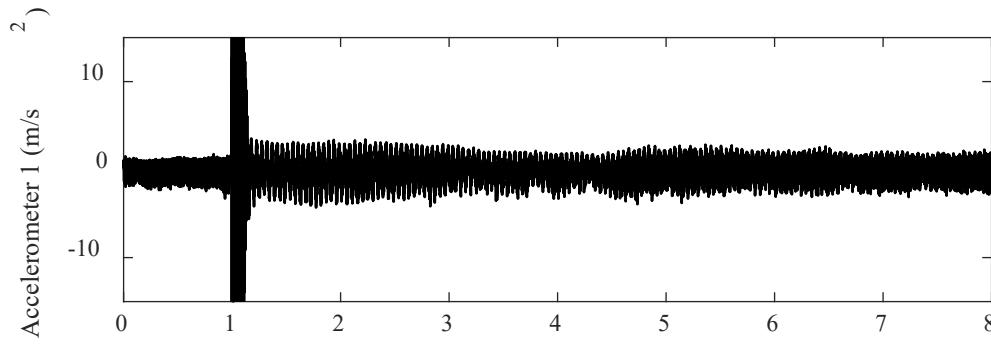
Applications

Datasets

## DATASET 2 – TEST 10

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1036 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

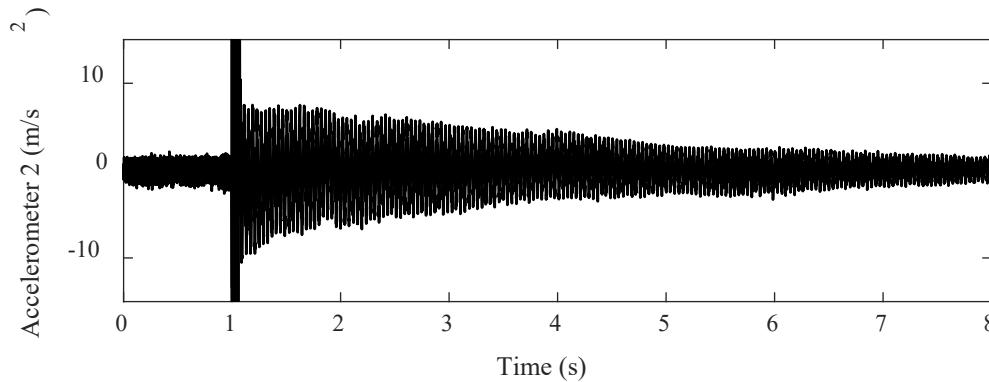
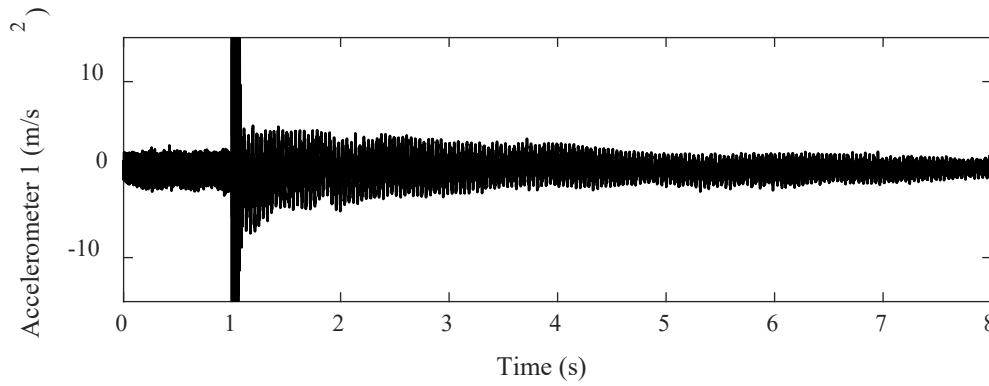
Applications

Datasets

## DATASET 2 – TEST 11

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1359 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

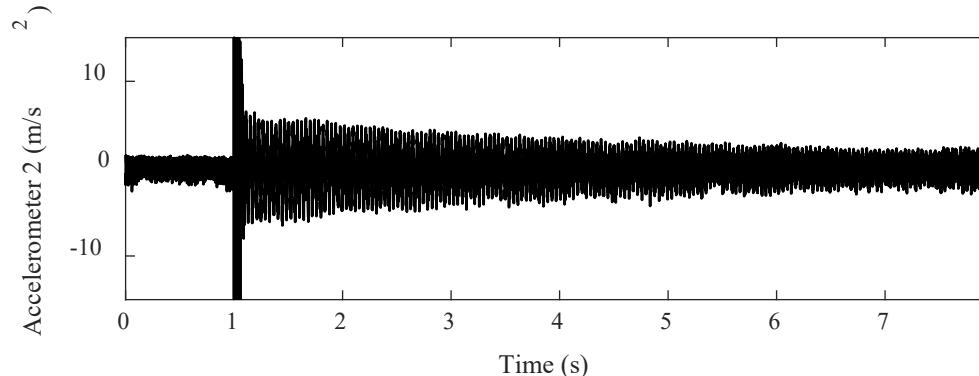
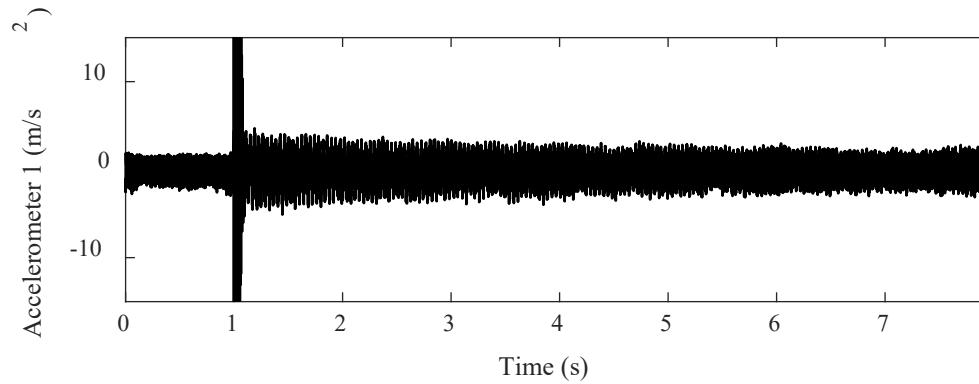
Applications

Datasets

## DATASET 2 – TEST 12

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1359 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

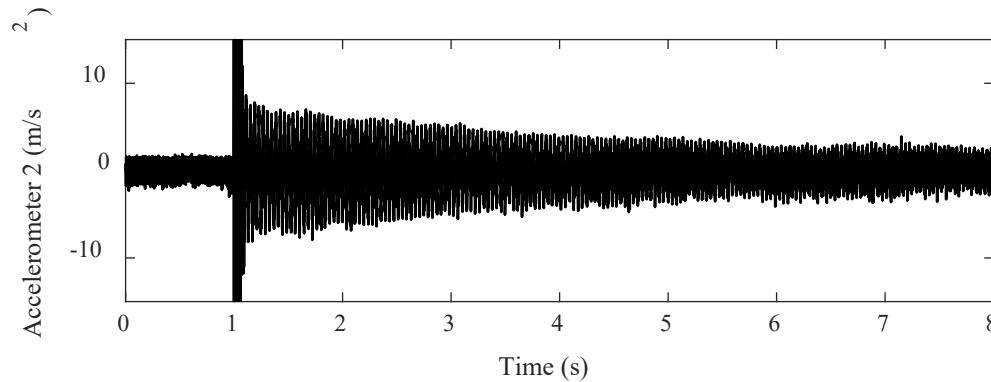
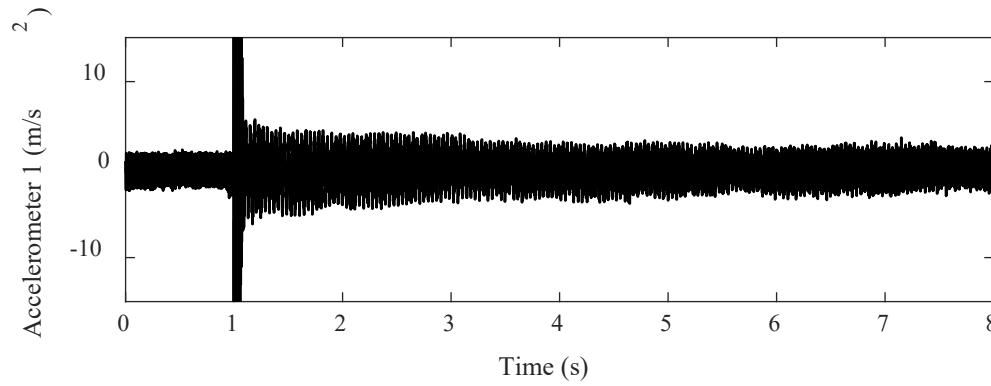
Applications

Datasets

## DATASET 2 – TEST 13

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1571 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

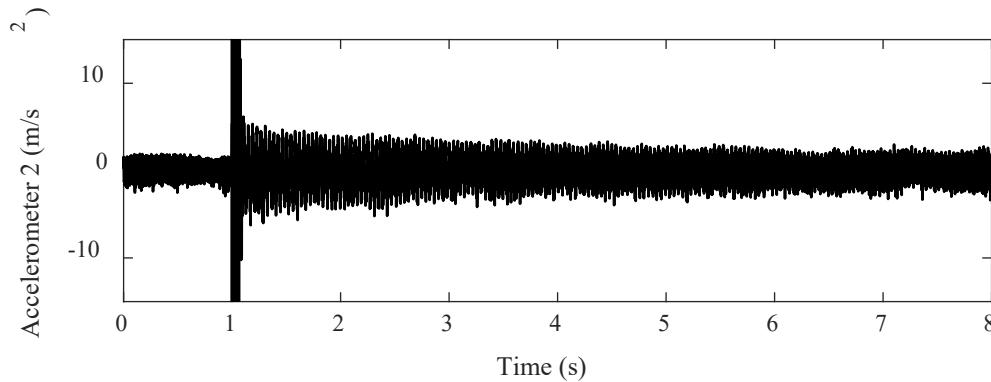
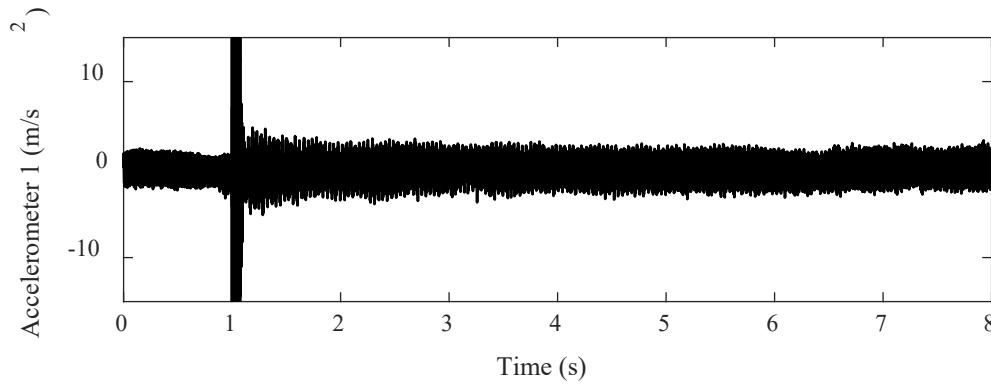
Applications

Datasets

## DATASET 2 – TEST 14

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $765 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

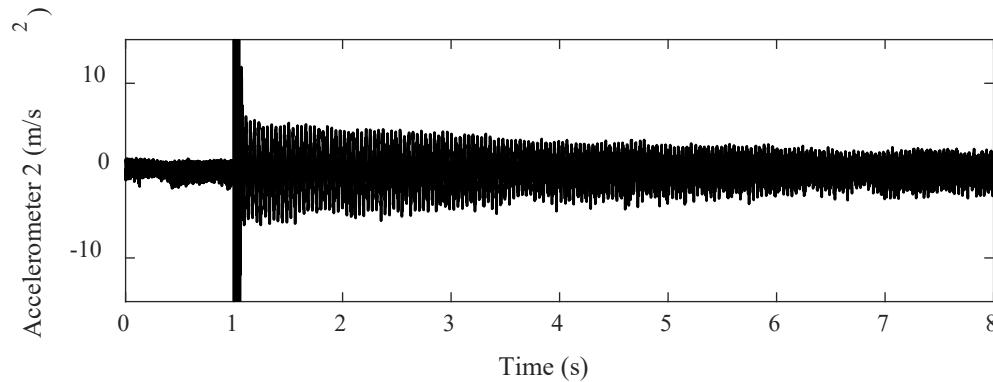
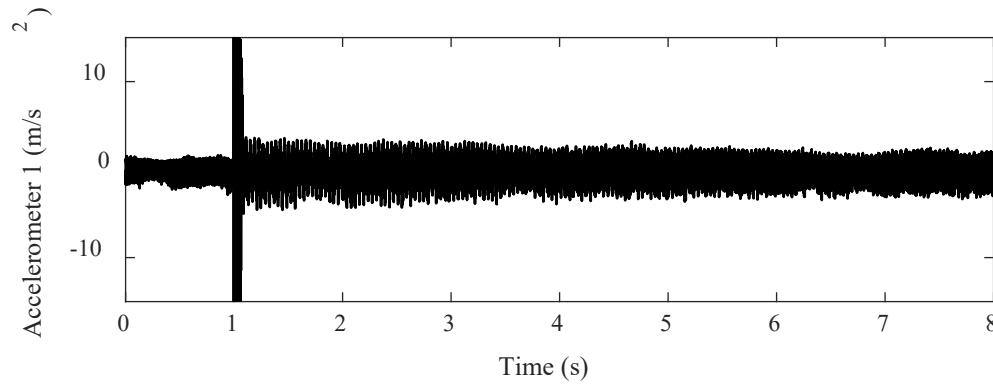
Applications

Datasets

## DATASET 2 – TEST 15

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1122 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

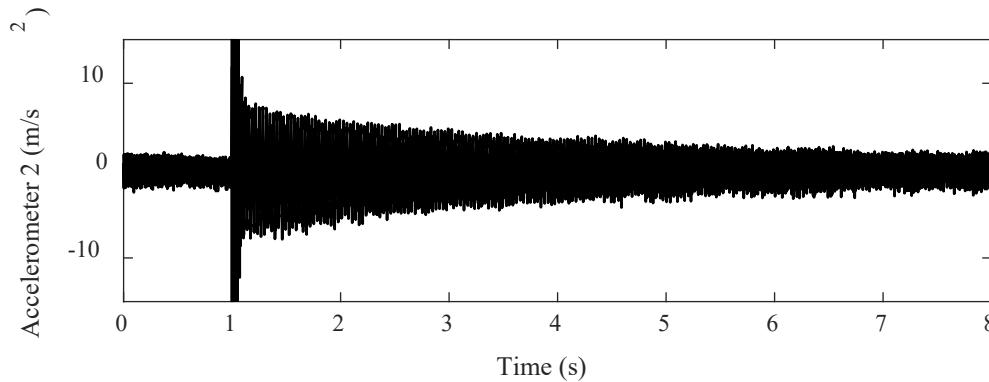
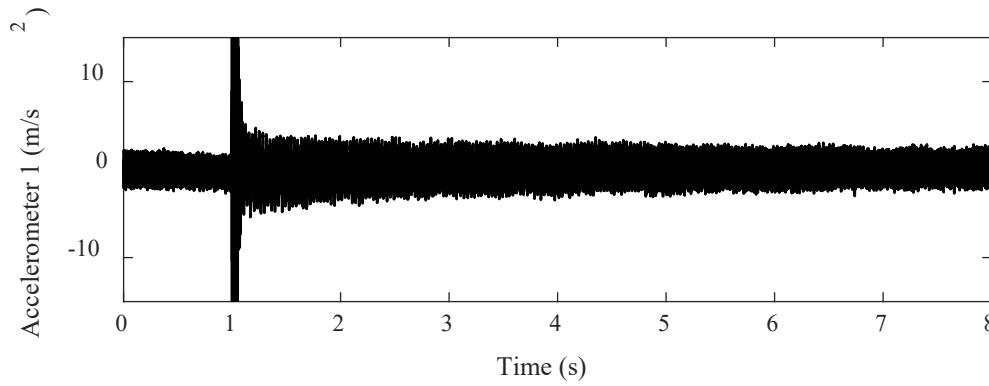
Applications

Datasets

## DATASET 2 – TEST 16

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1238 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

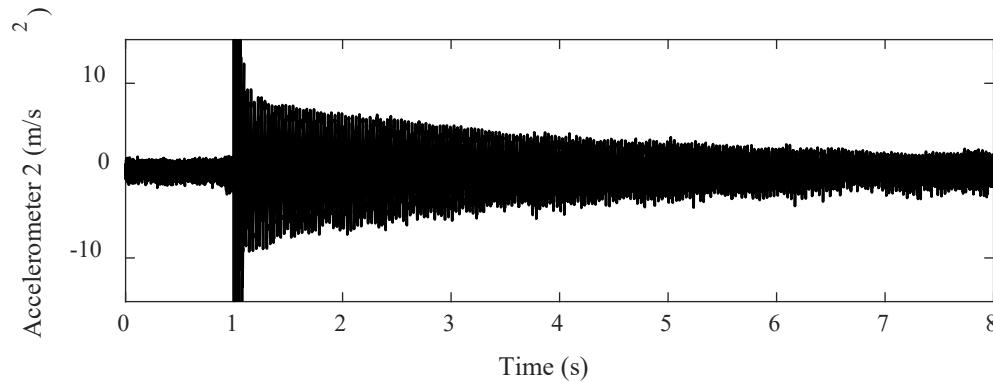
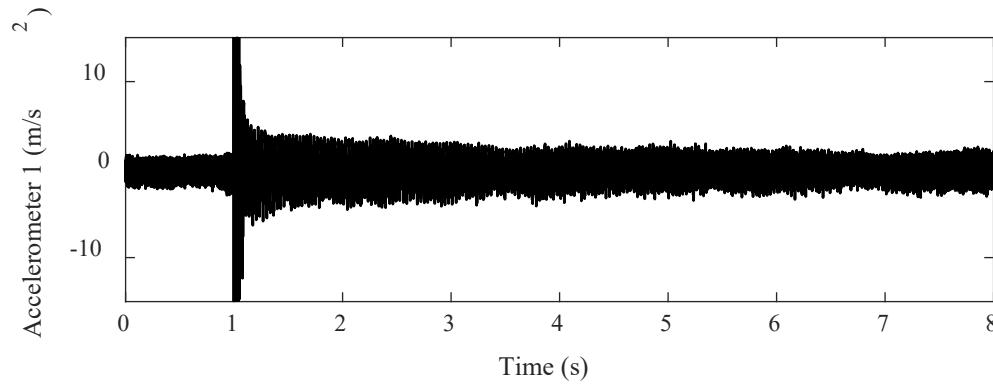
Applications

Datasets

## DATASET 2 – TEST 17

### EXCITATIONS:

- Static cart action (200 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $1657 \text{ m/s}^2$
- Hammer impact time: 1.00 s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

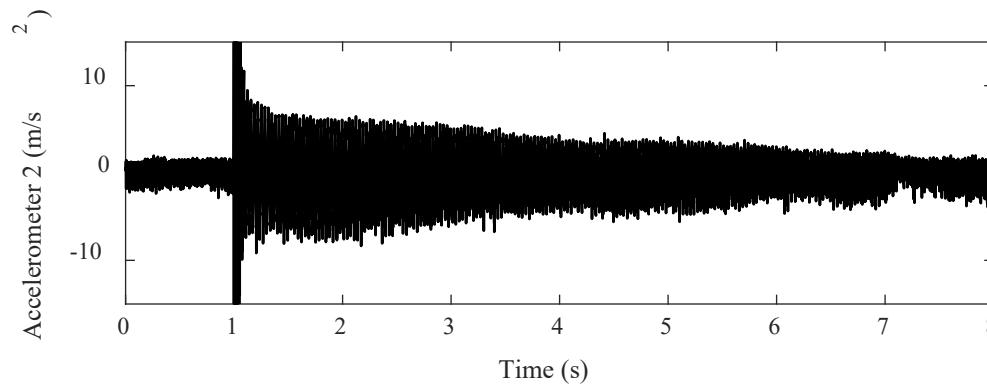
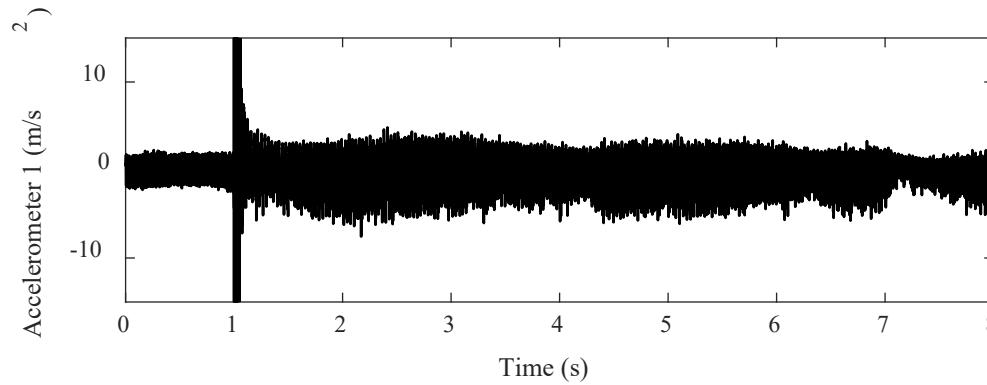
Applications

Datasets

## DATASET 2 – TEST 18

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1495 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

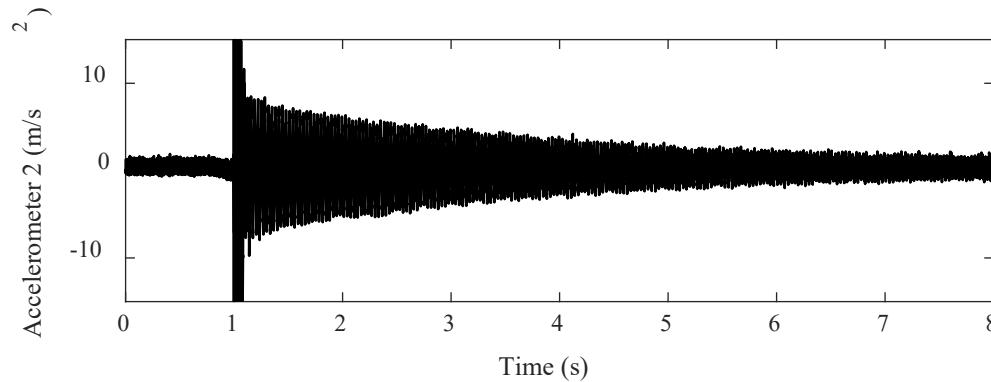
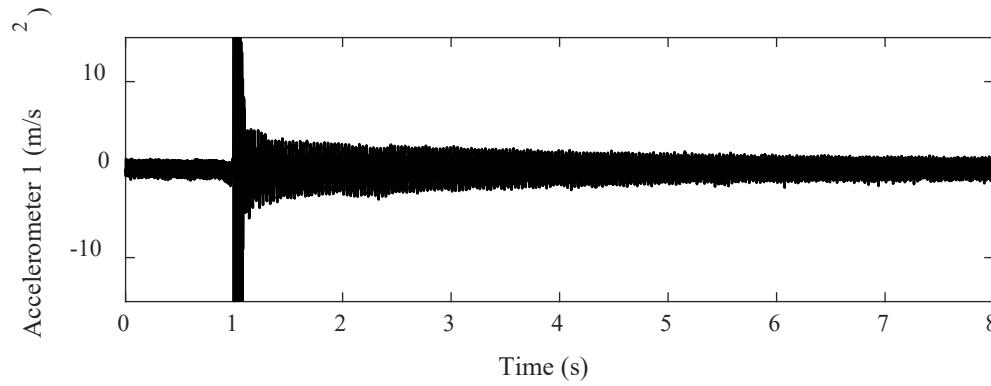
Applications

Datasets

## DATASET 2 – TEST 19

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1598 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

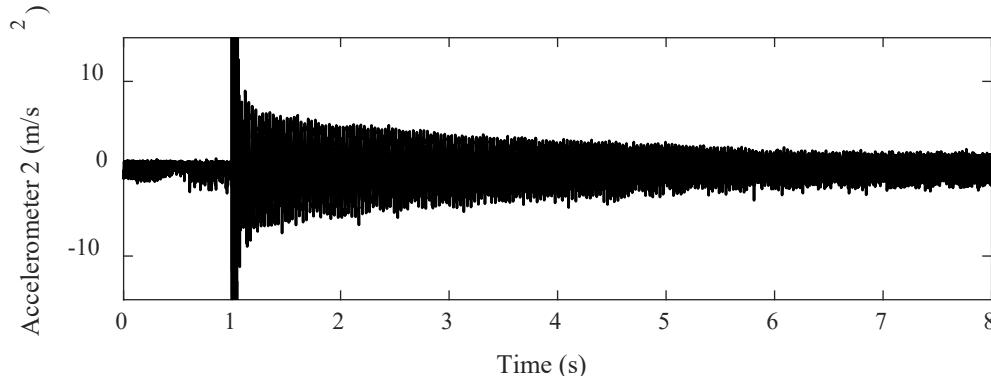
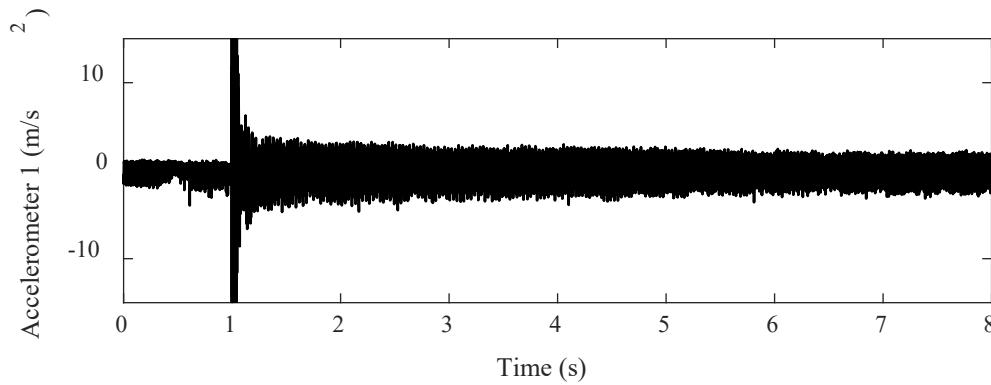
Applications

Datasets

## DATASET 2 – TEST 20

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1597 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

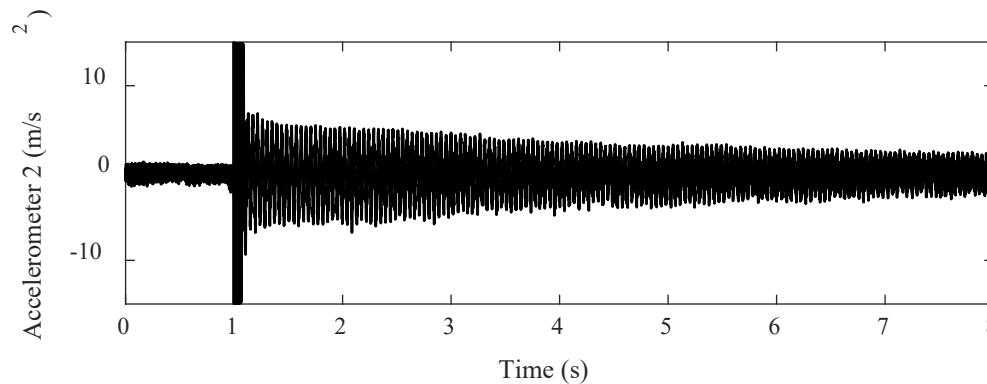
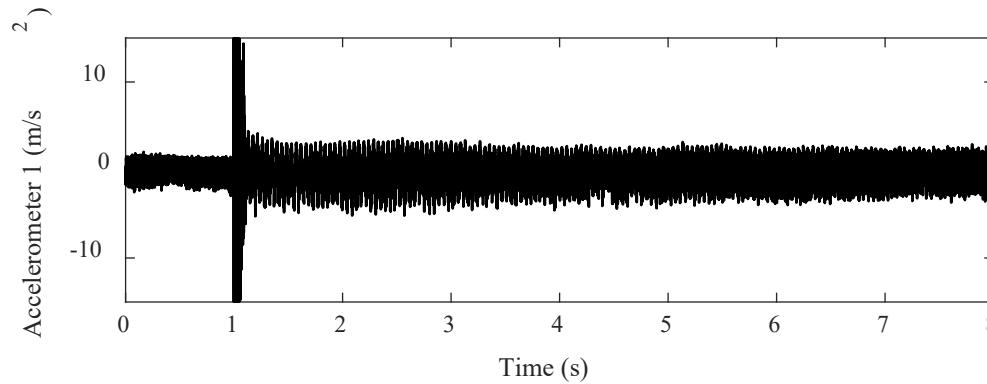
Applications

Datasets

## DATASET 2 – TEST 21

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1783 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

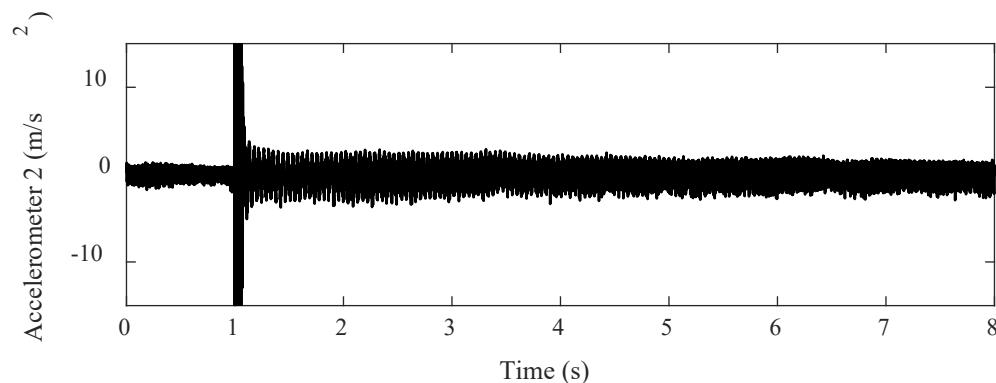
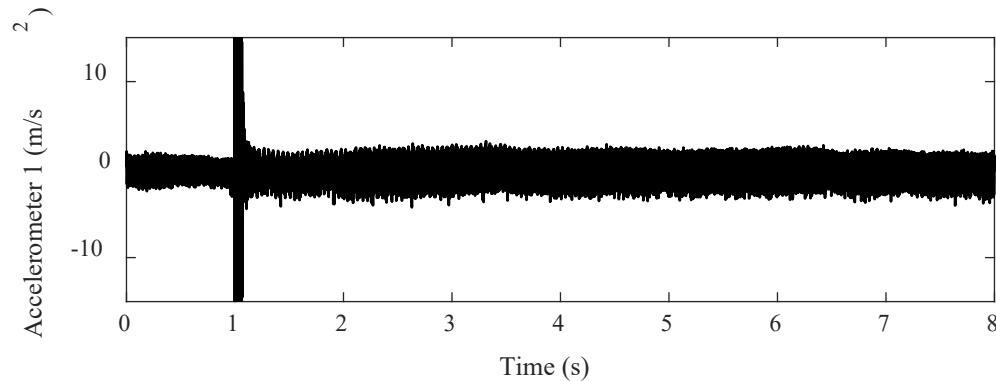
Applications

Datasets

## DATASET 2 – TEST 22

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1834 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

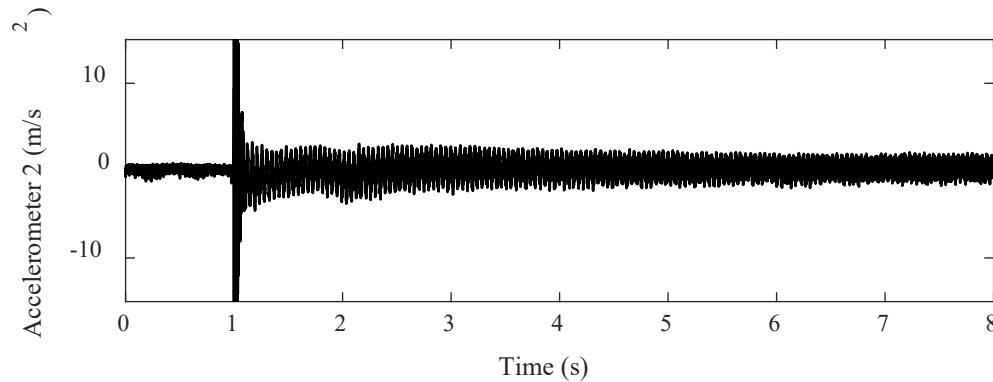
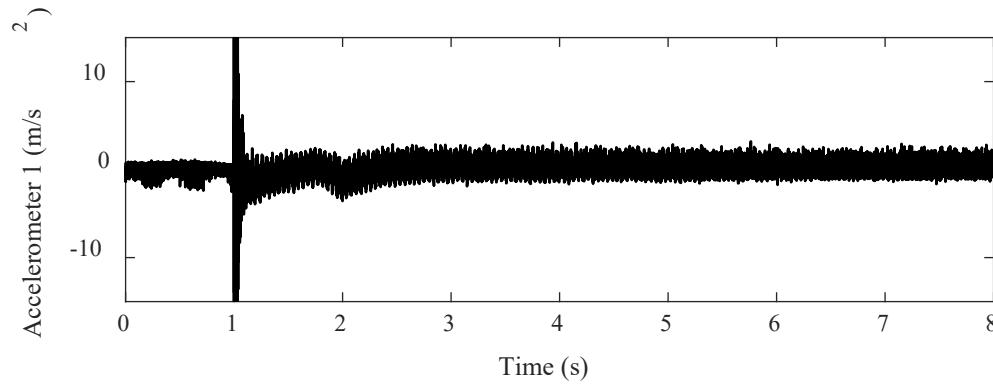
Applications

Datasets

## DATASET 2 – TEST 23

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1431 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

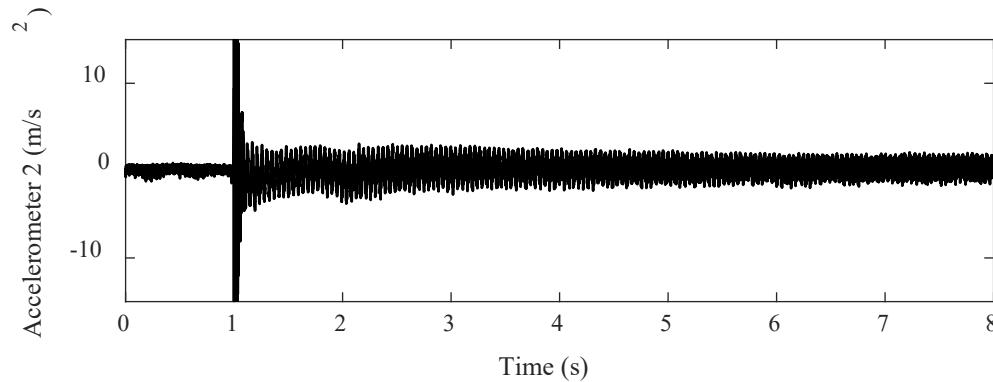
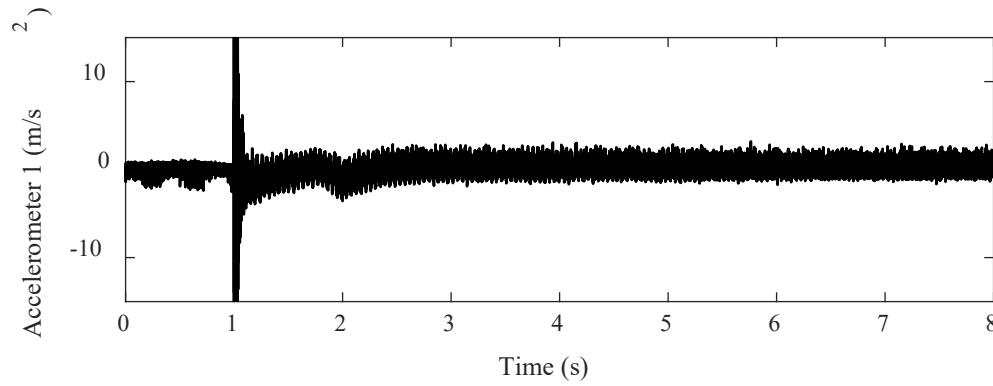
Applications

Datasets

## DATASET 2 – TEST 24

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1431 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

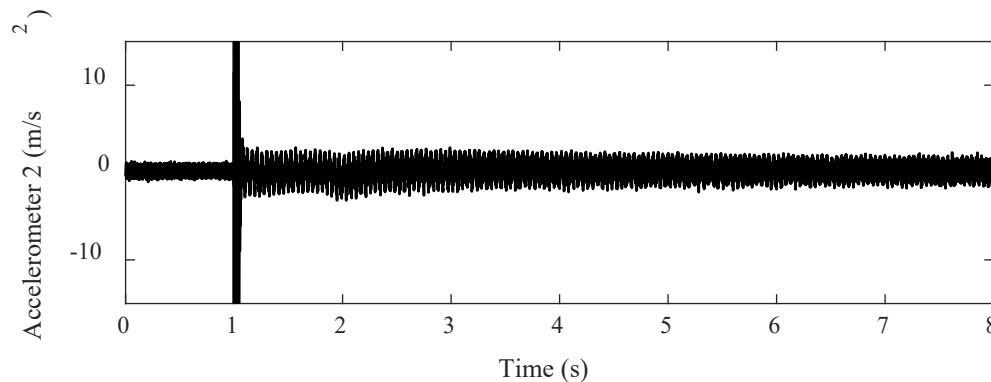
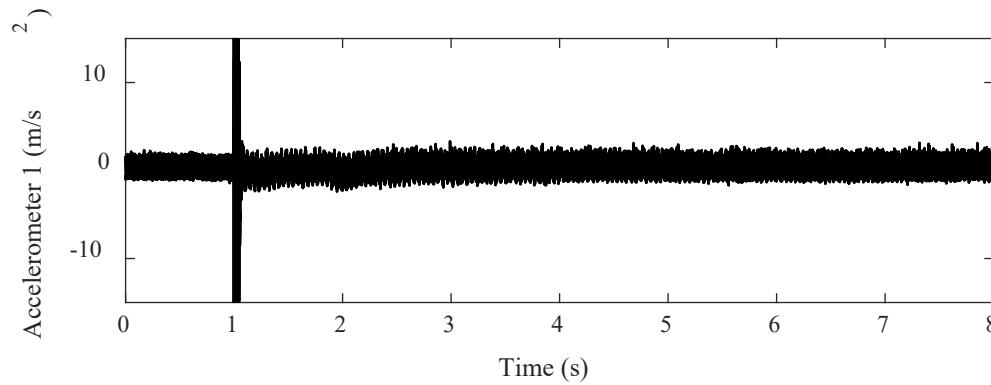
Applications

Datasets

## DATASET 2 – TEST 25

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $3069 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

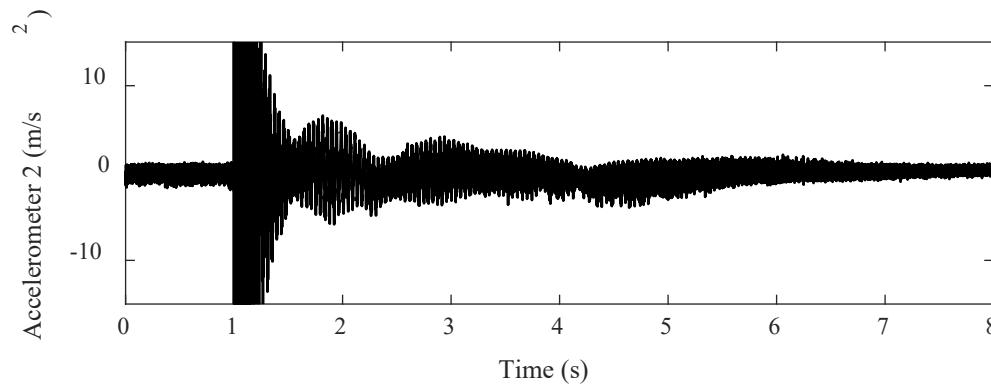
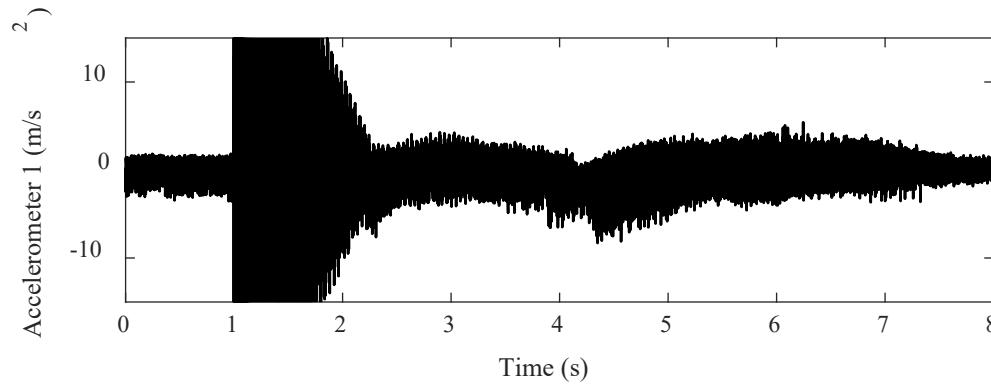
Applications

Datasets

## DATASET 2 – TEST 26

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1413 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

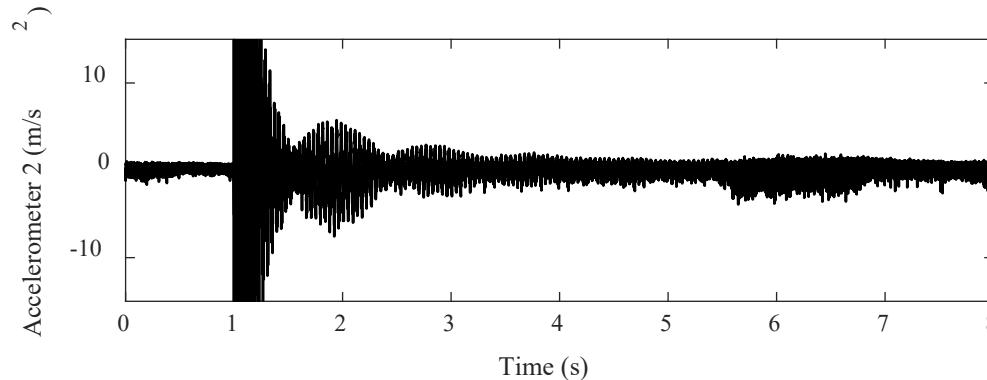
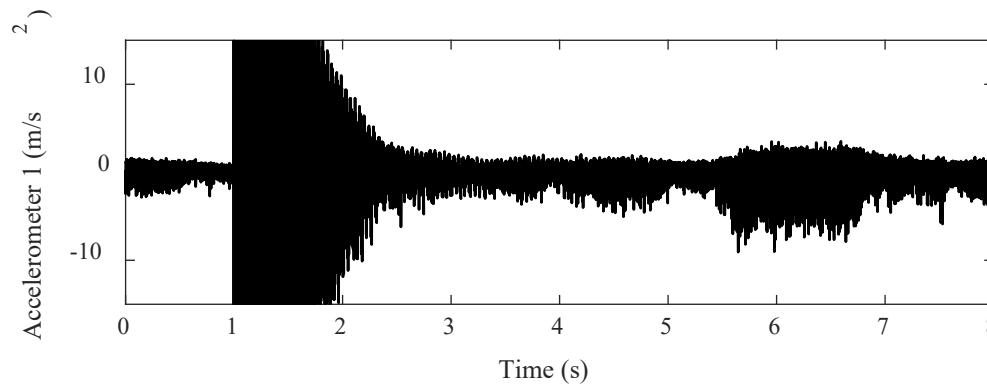
Applications

Datasets

## DATASET 2 – TEST 27

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1367 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

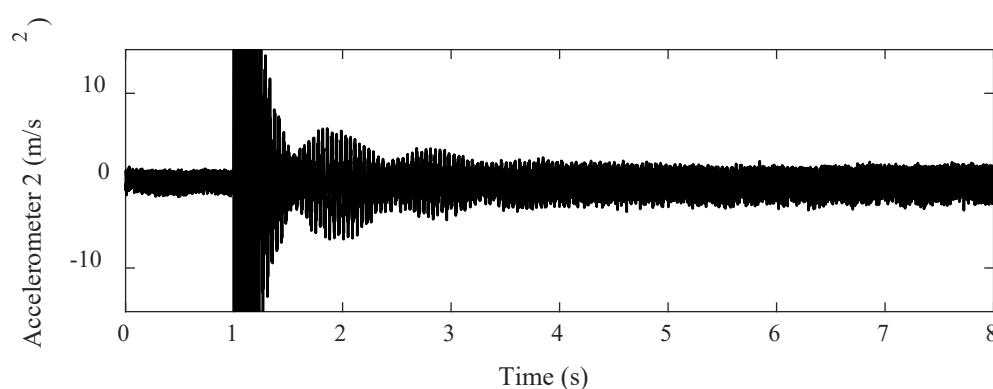
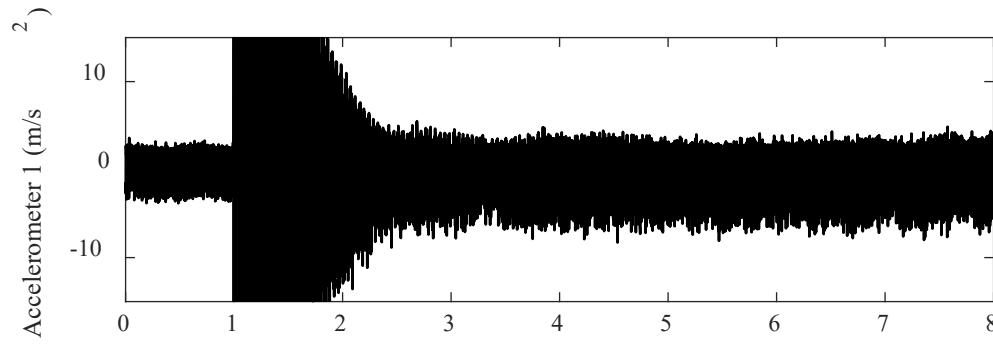
Applications

Datasets

## DATASET 2 – TEST 28

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1455 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

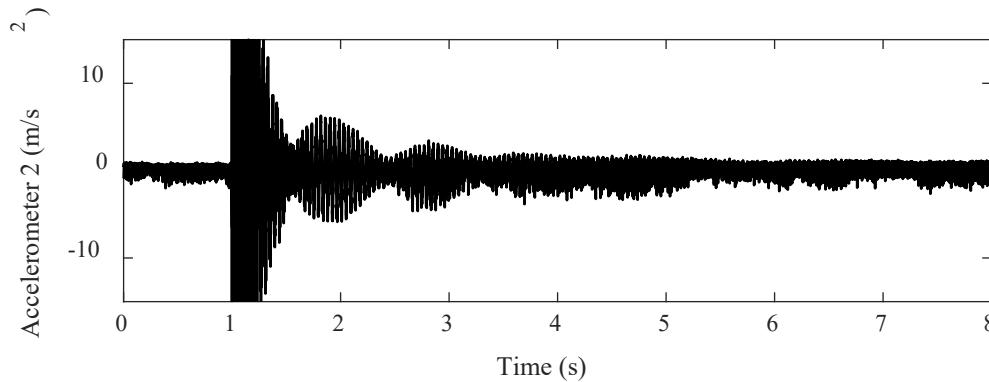
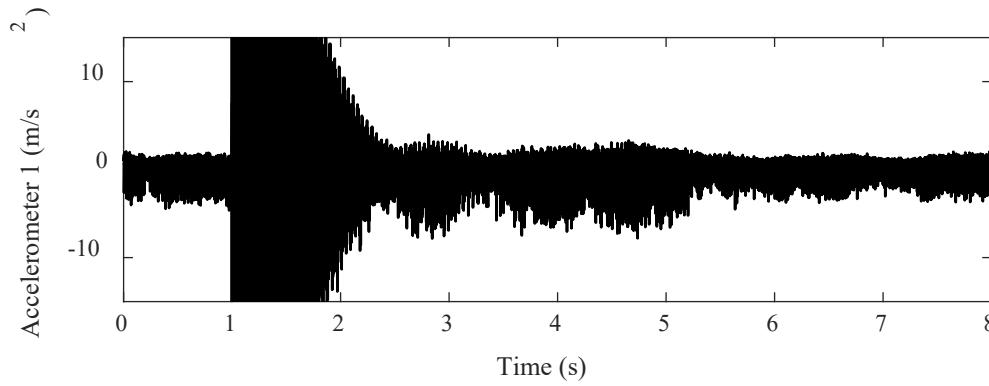
Applications

Datasets

## DATASET 2 – TEST 29

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1668 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

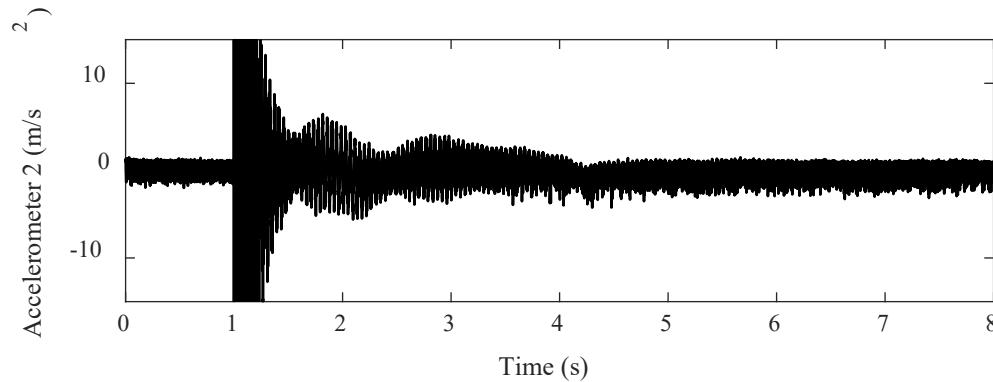
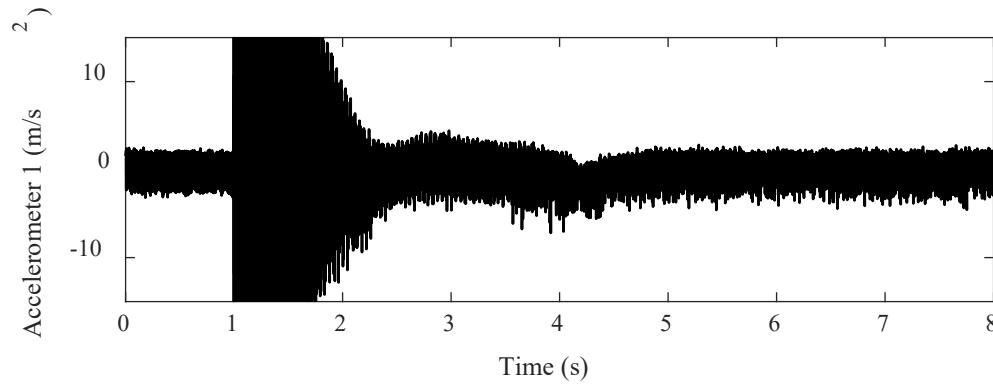
Applications

Datasets

## DATASET 2 – TEST 30

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1271 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

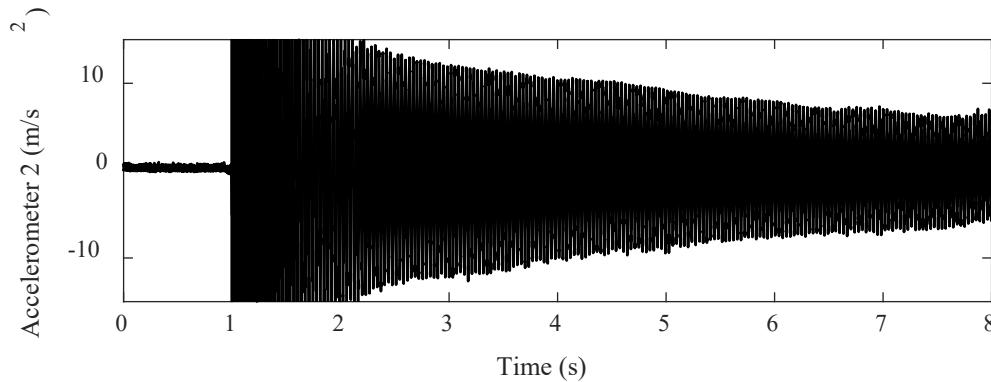
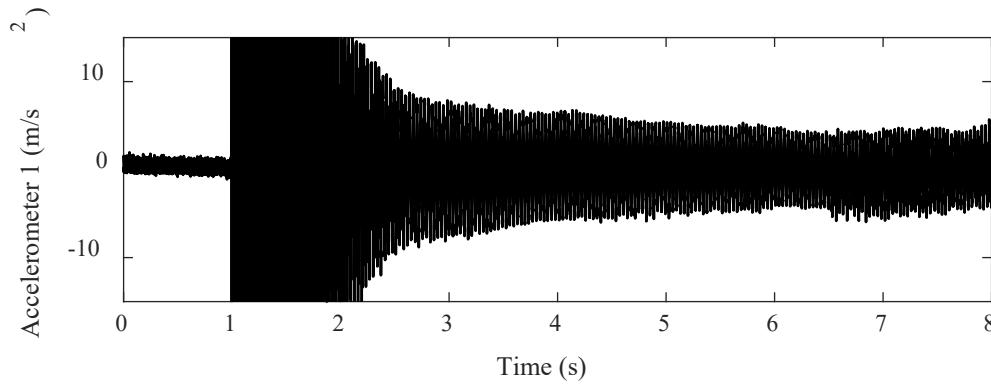
Applications

Datasets

## DATASET 2 – TEST 31

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1731 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

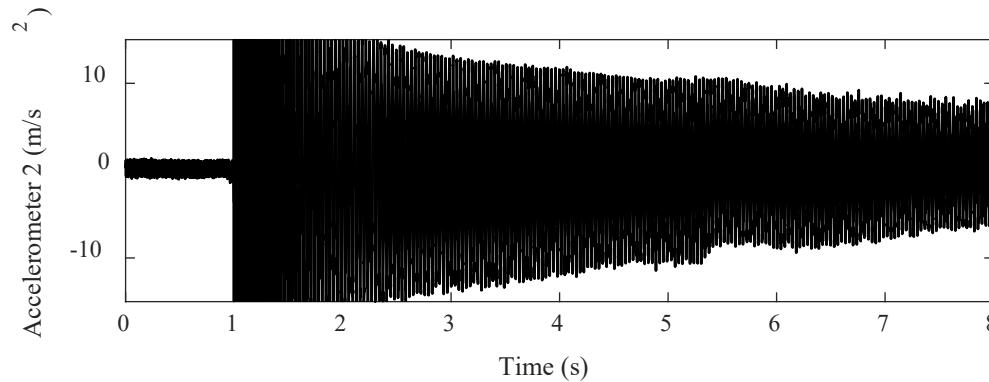
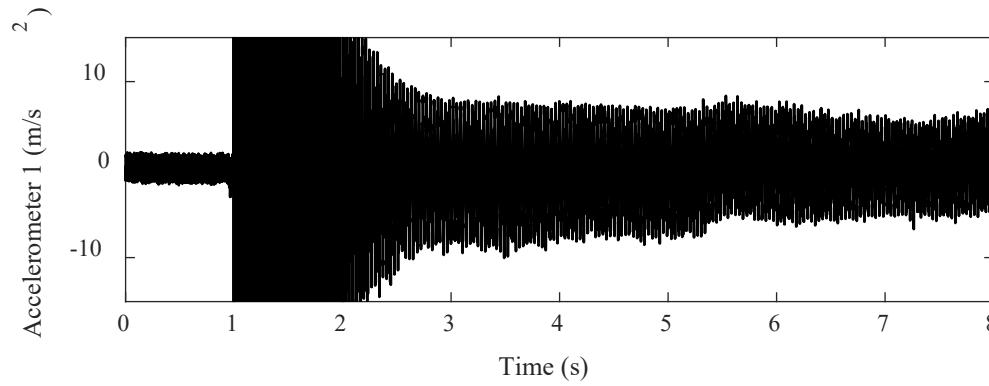
Applications

Datasets

## DATASET 2 – TEST 32

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1896 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

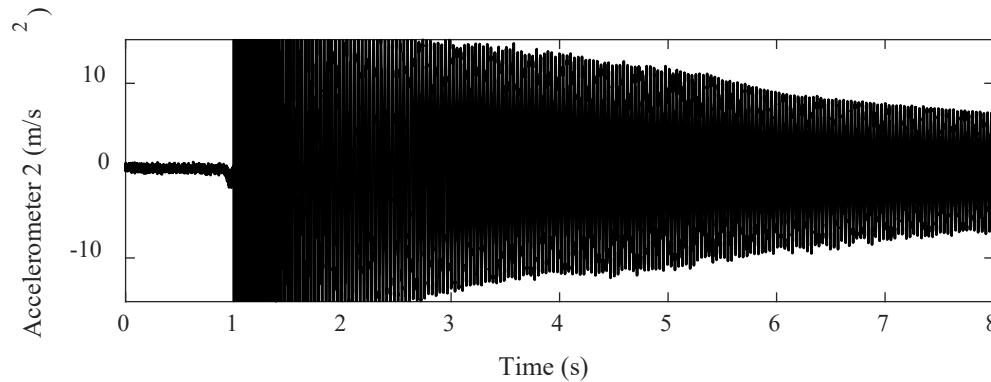
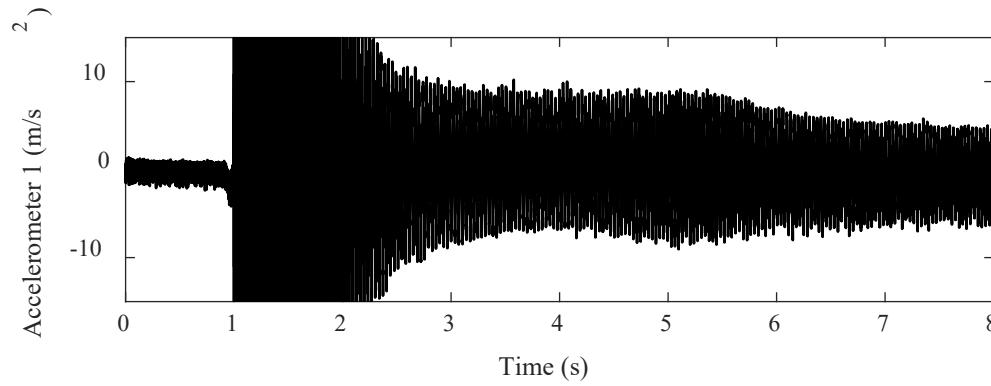
Applications

Datasets

## DATASET 2 – TEST 33

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2483 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

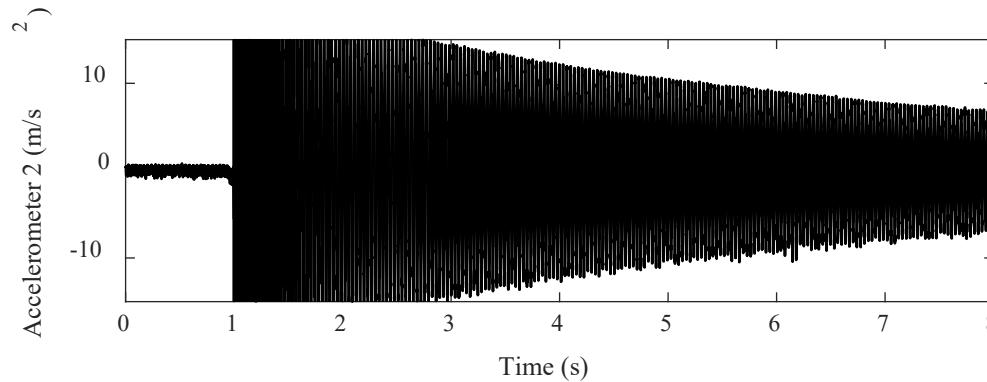
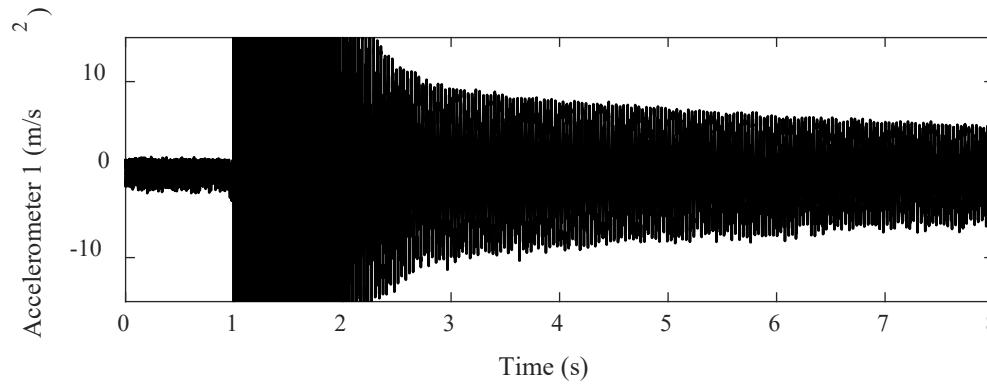
Applications

Datasets

## DATASET 2 – TEST 34

### EXCITATIONS:

- Static cart action (100 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2437 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

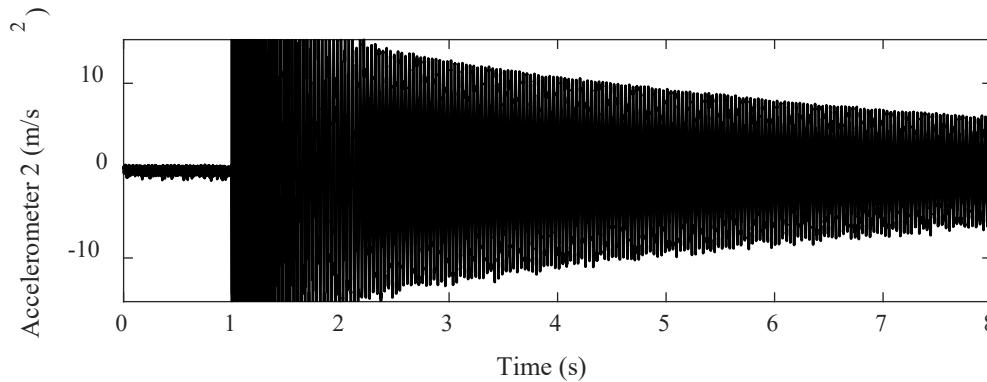
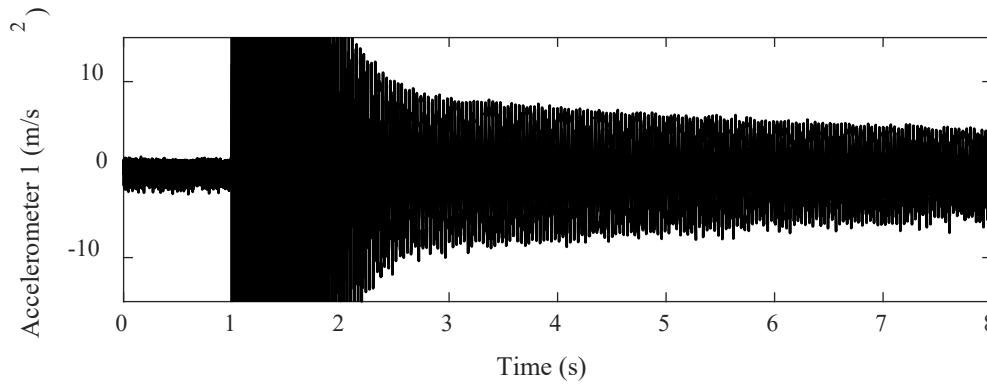
Applications

Datasets

## DATASET 2 – TEST 35

### EXCITATIONS:

- Static cart action (100 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $1470 \text{ m/s}^2$
- Hammer impact time: 1.00 s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

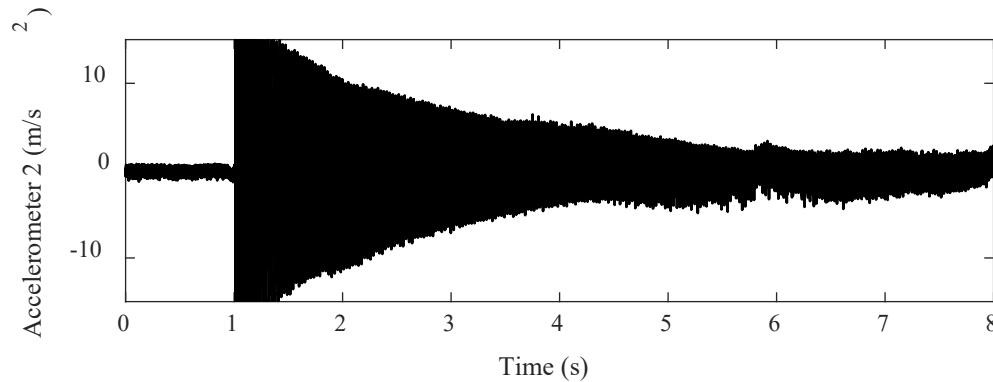
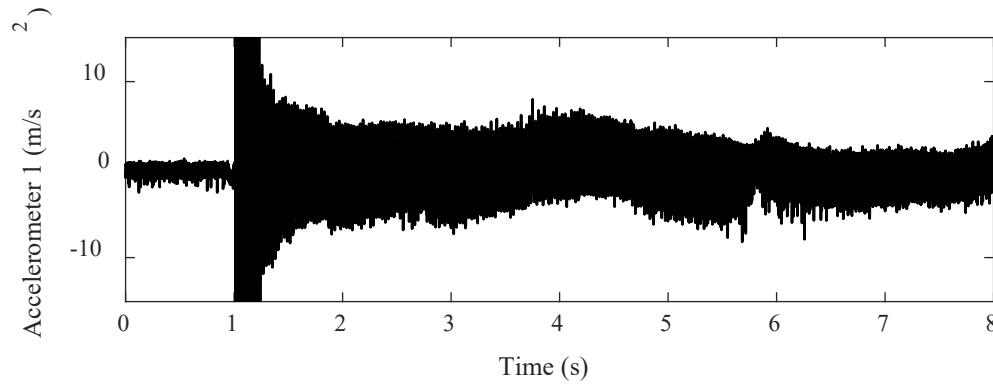
Applications

Datasets

## DATASET 2 – TEST 36

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1534 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

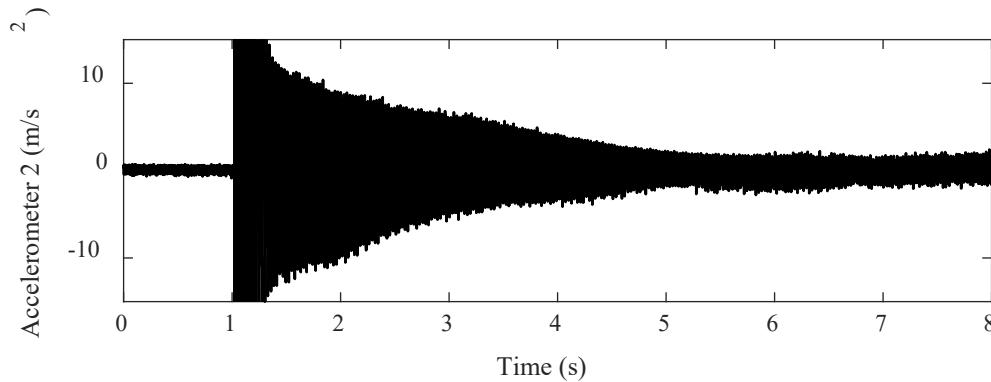
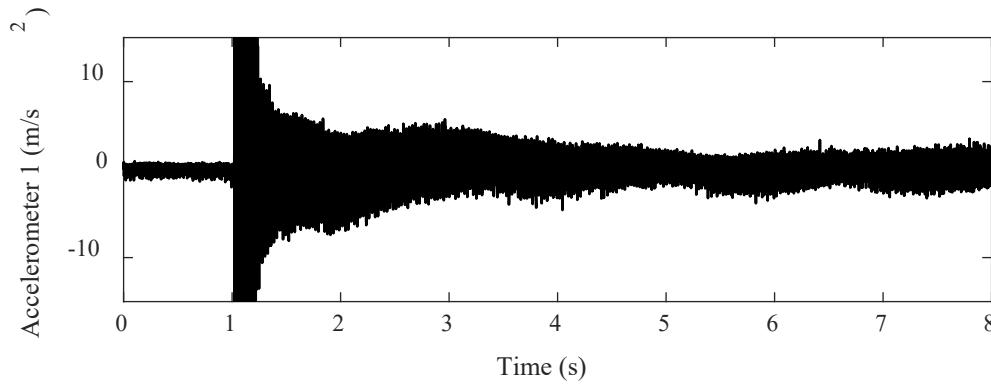
Applications

Datasets

## DATASET 2 – TEST 37

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1361 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

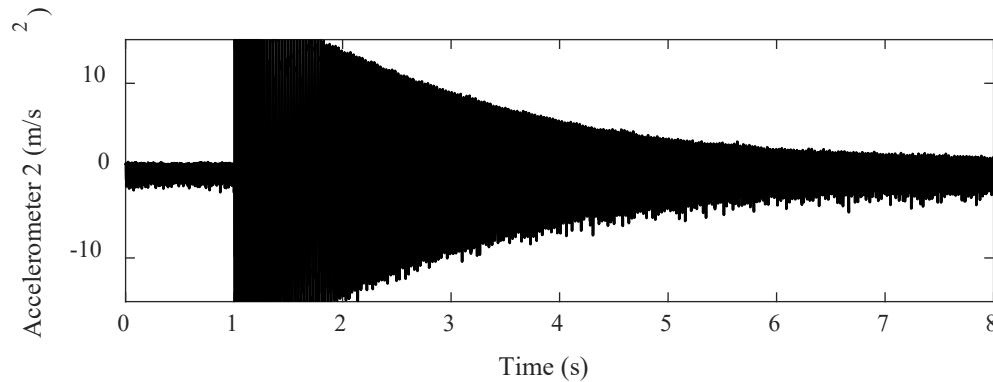
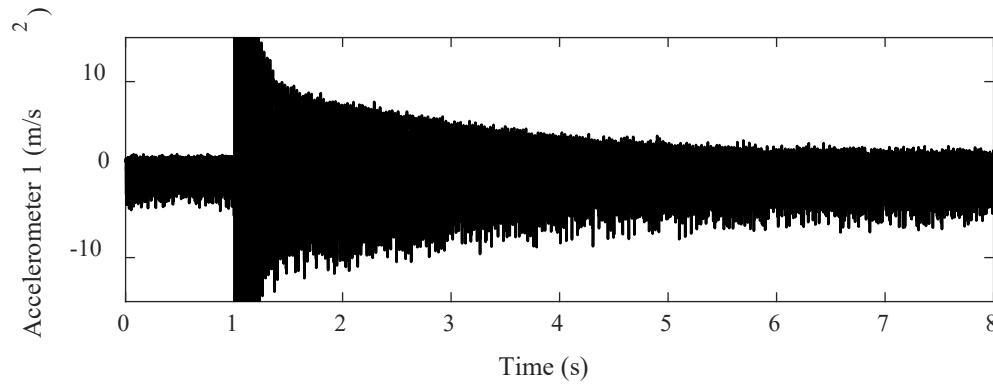
Applications

Datasets

## DATASET 2 – TEST 38

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2041 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

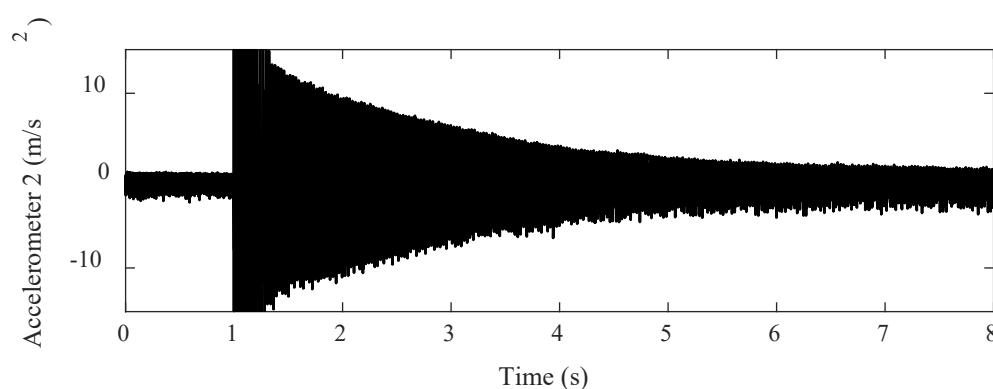
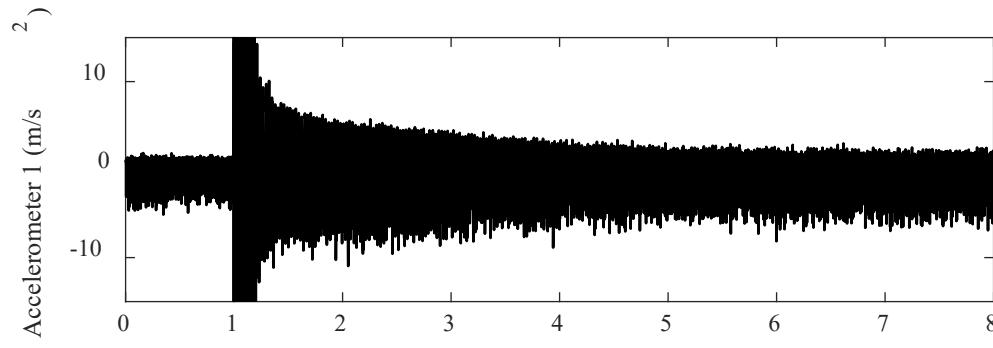
Applications

Datasets

## DATASET 2 – TEST 39

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1186 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

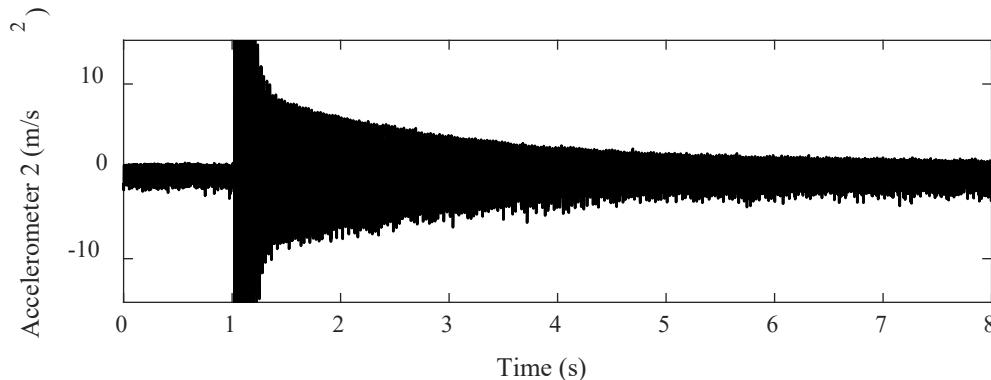
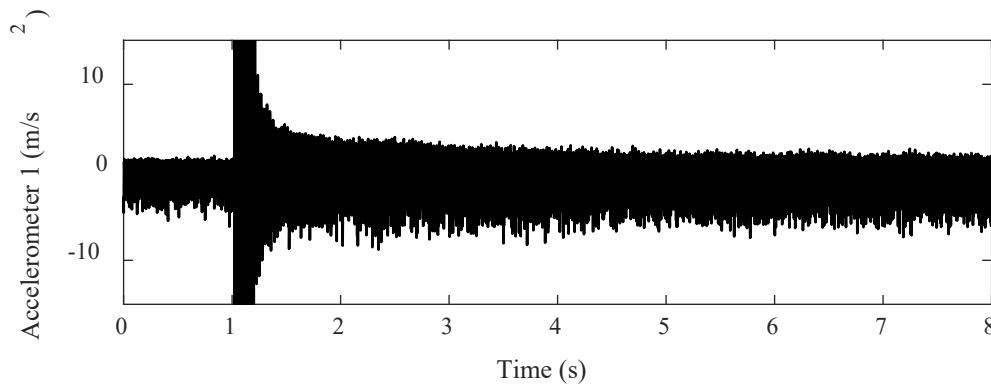
Applications

Datasets

## DATASET 2 – TEST 40

### EXCITATIONS:

- Static cart action (150 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $691 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

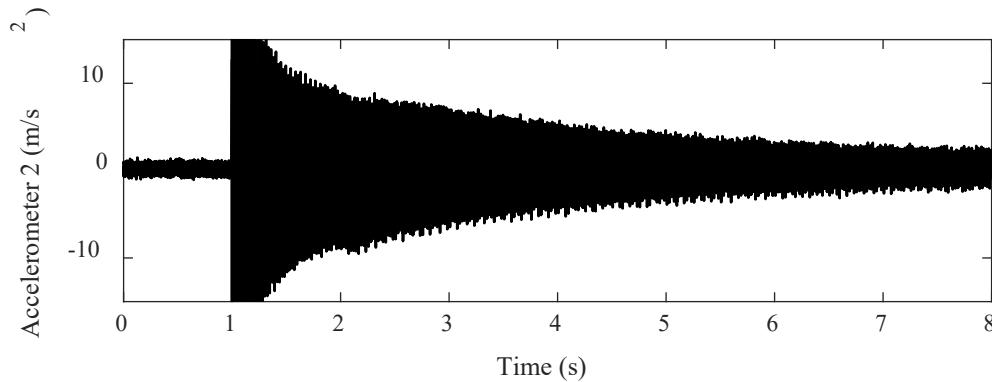
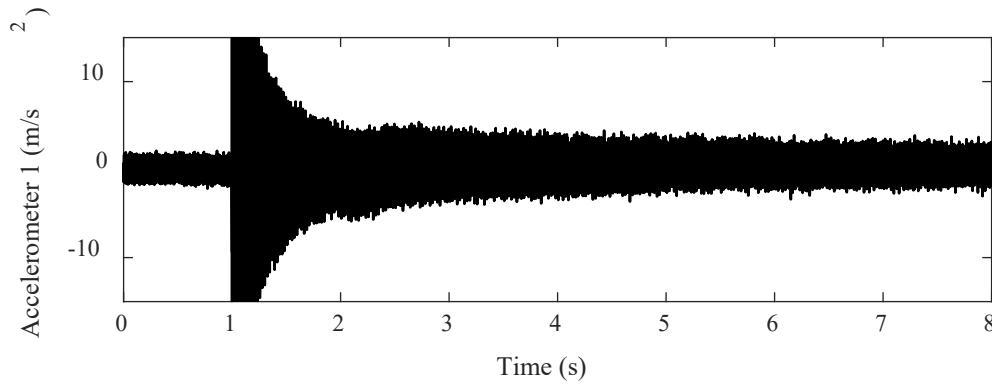
Applications

Datasets

## DATASET 2 – TEST 41

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $956 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

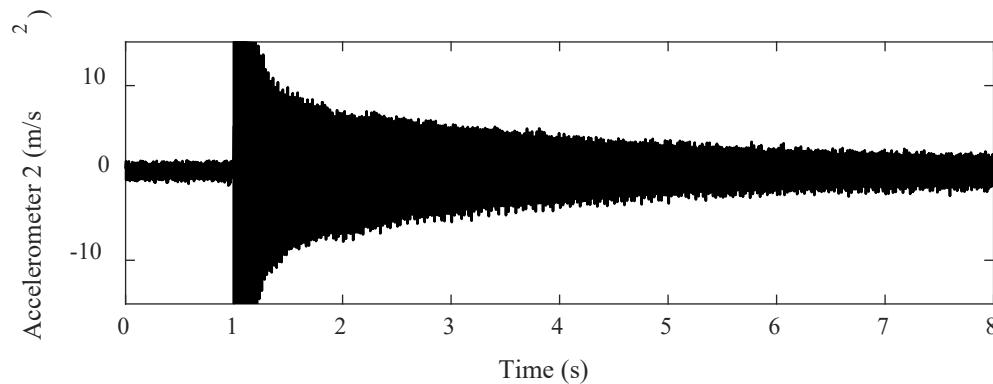
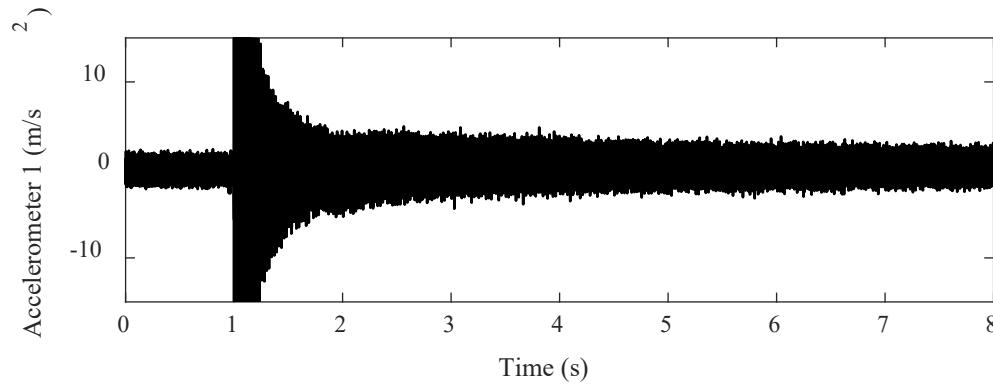
Applications

Datasets

## DATASET 2 – TEST 42

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $754 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

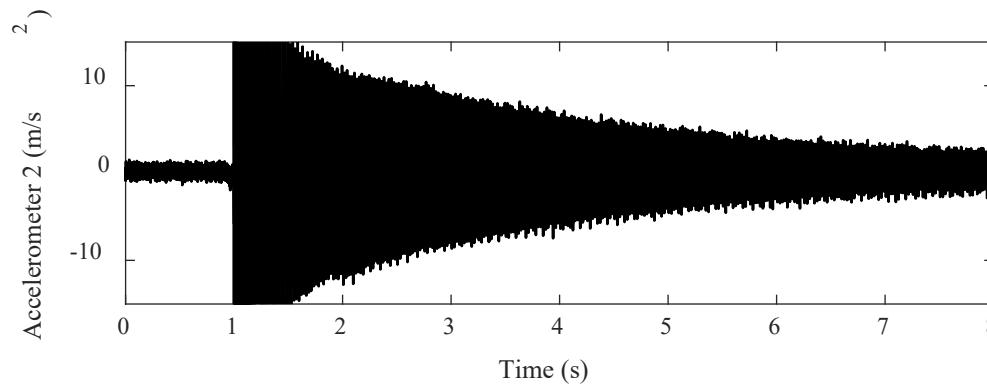
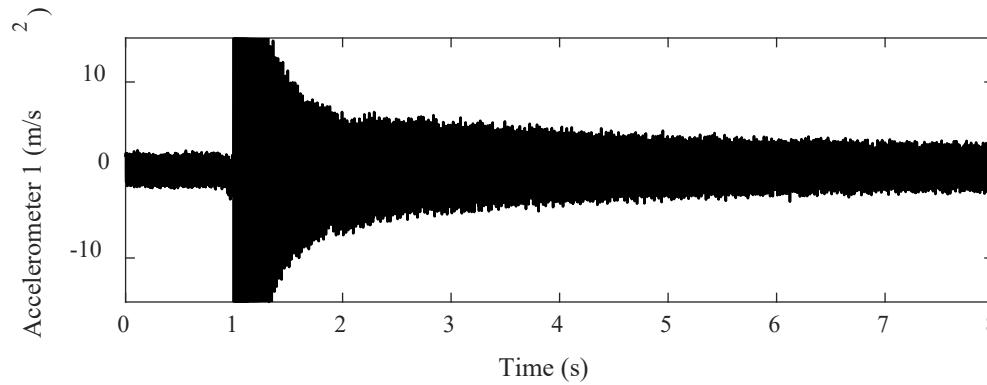
Applications

Datasets

## DATASET 2 – TEST 43

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1407 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

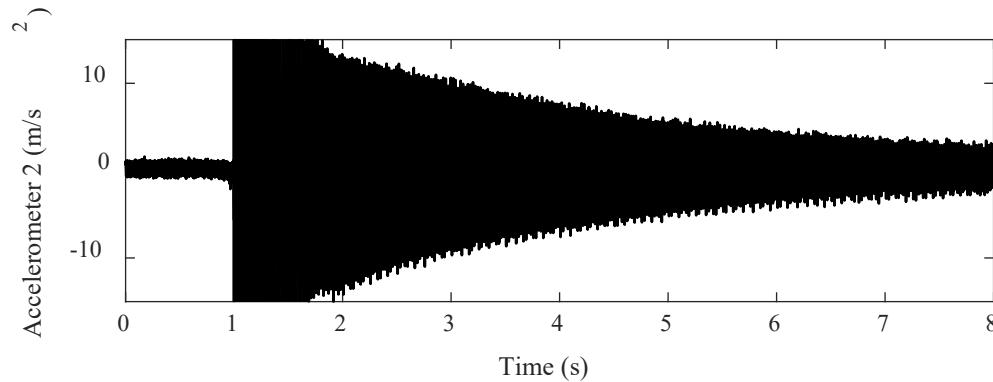
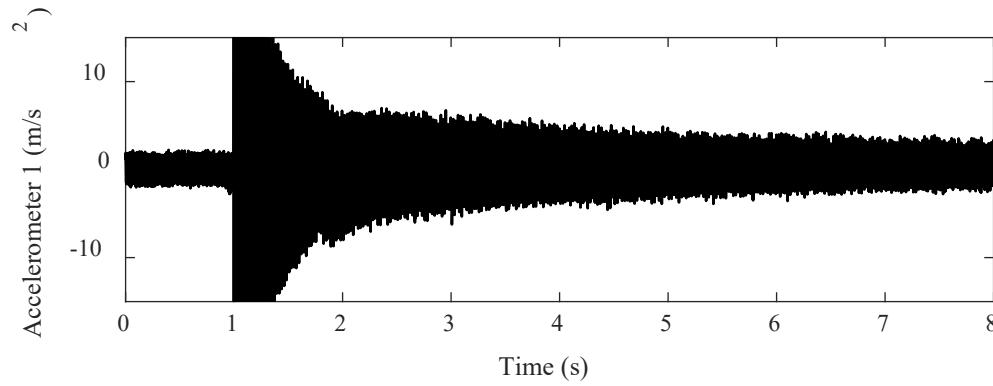
Applications

Datasets

## DATASET 2 – TEST 44

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1860 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

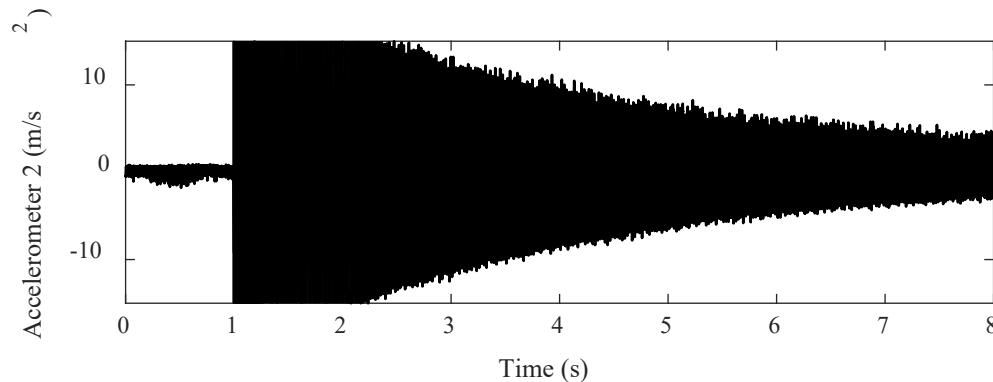
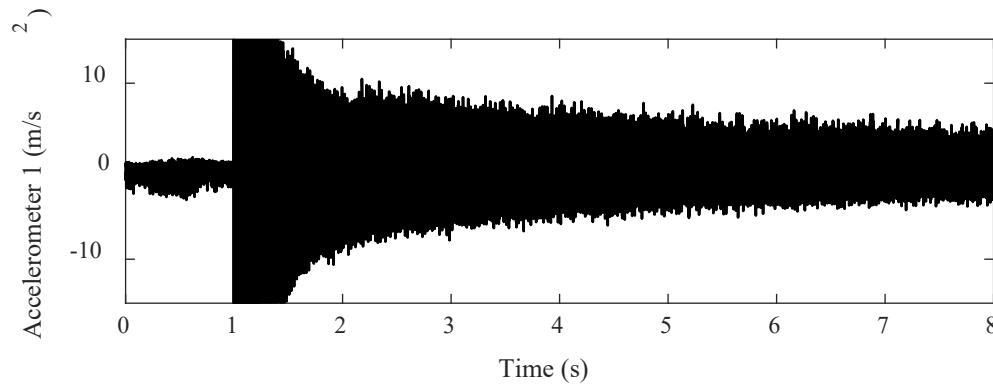
Applications

Datasets

## DATASET 2 – TEST 45

### EXCITATIONS:

- Static cart action (200 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $2057 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

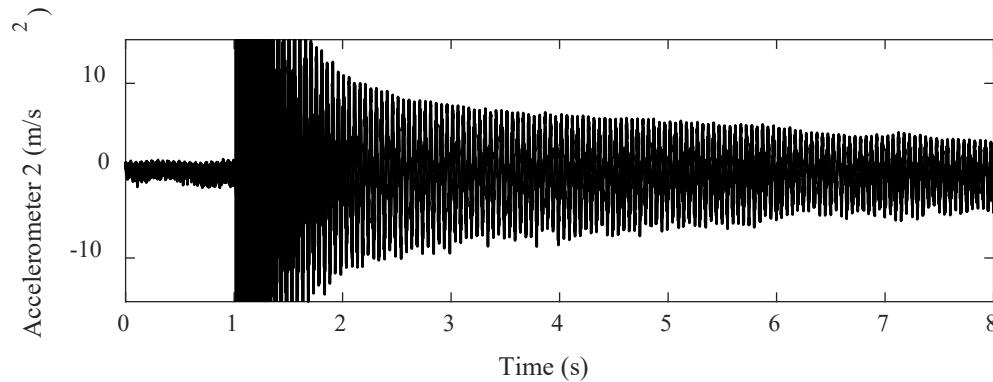
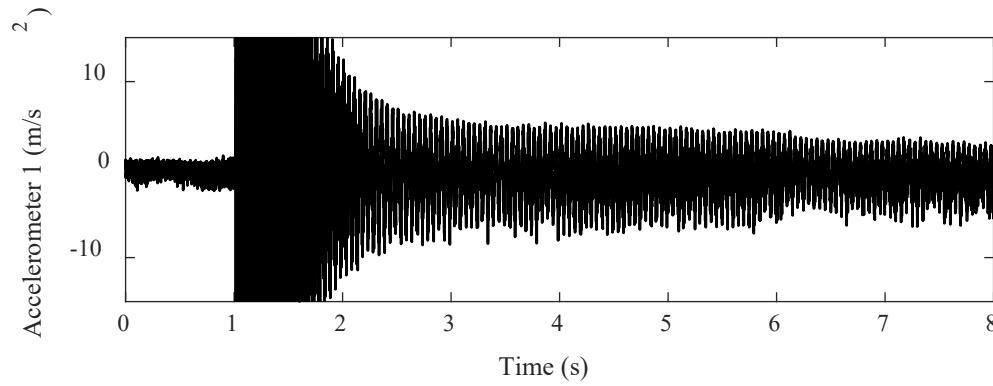
Applications

Datasets

## DATASET 2 – TEST 46

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1689 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

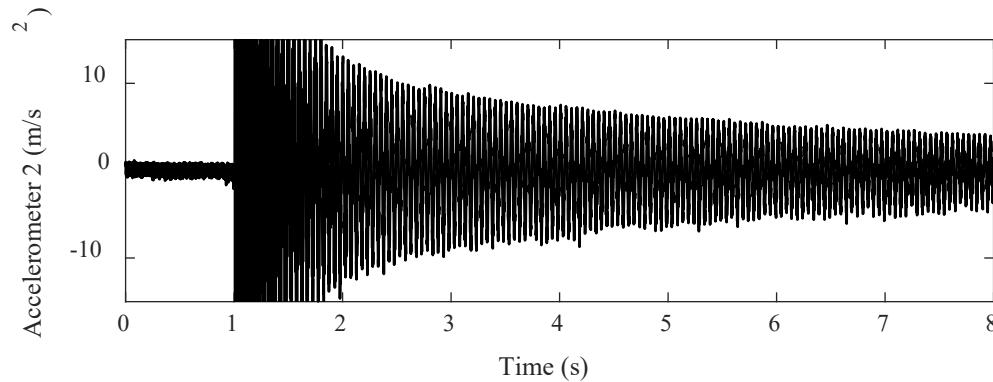
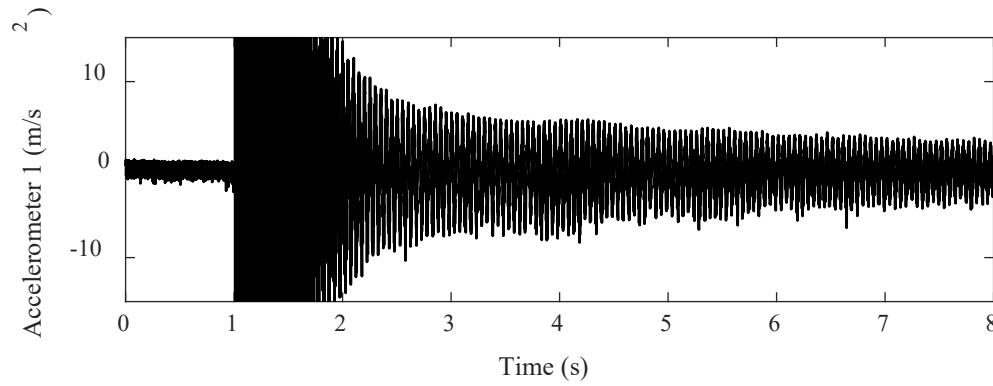
Applications

Datasets

## DATASET 2 – TEST 47

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $2336 \text{ m/s}^2$
- Hammer impact time: 1.00 s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

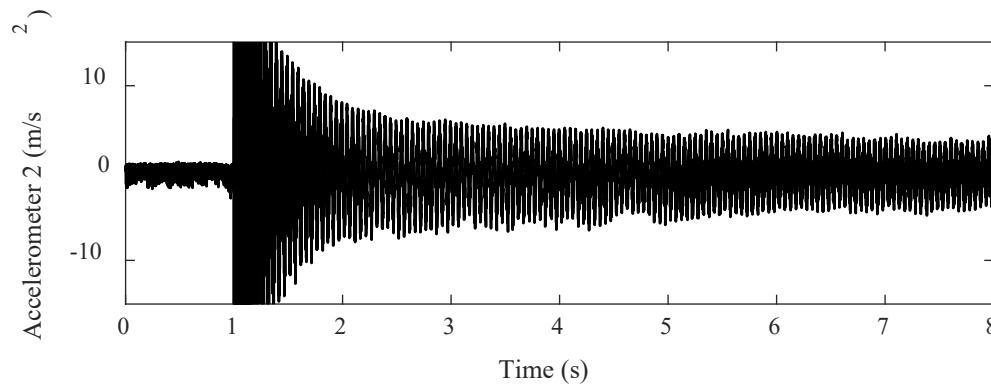
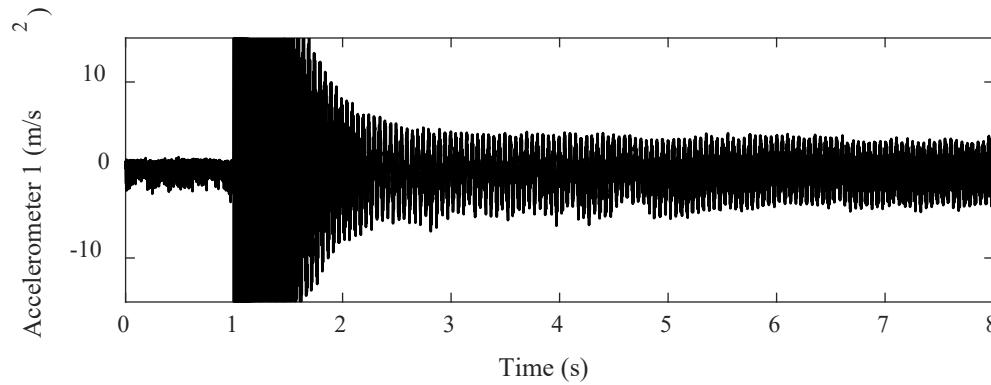
Applications

Datasets

## DATASET 2 – TEST 48

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $933 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

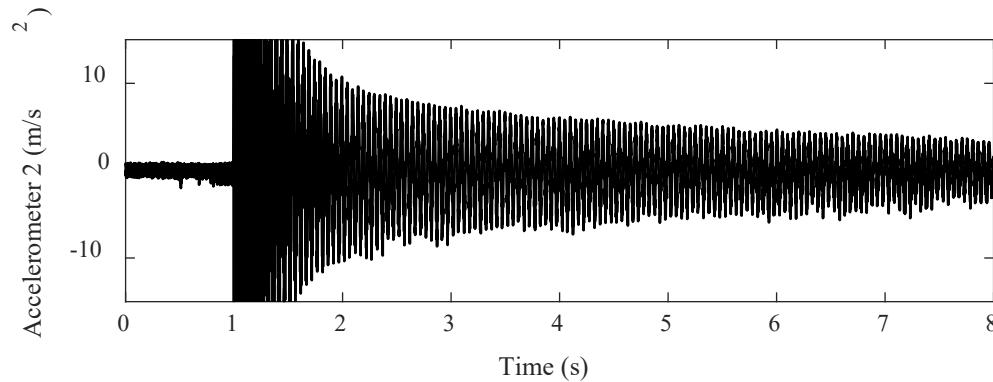
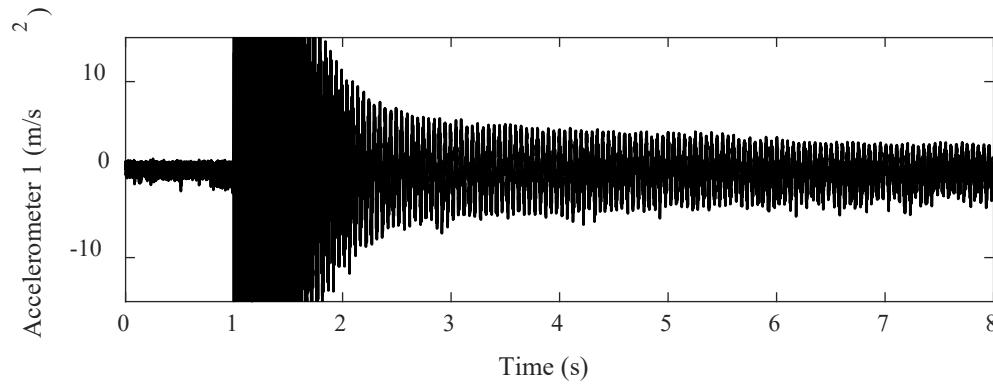
Applications

Datasets

## DATASET 2 – TEST 49

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1675 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

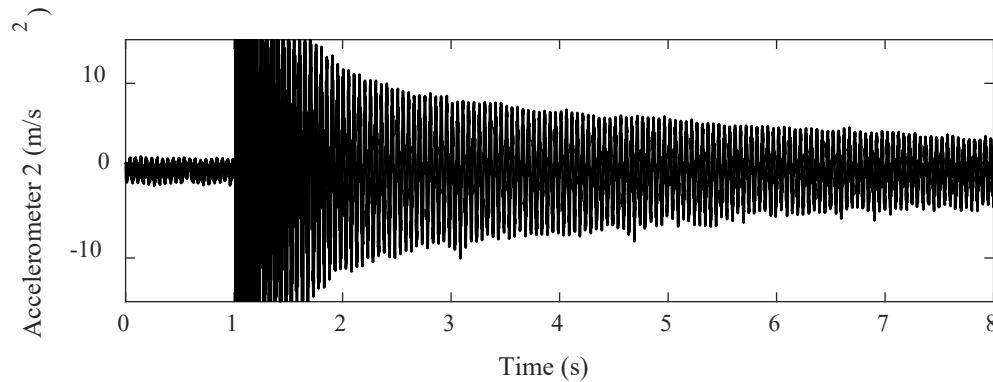
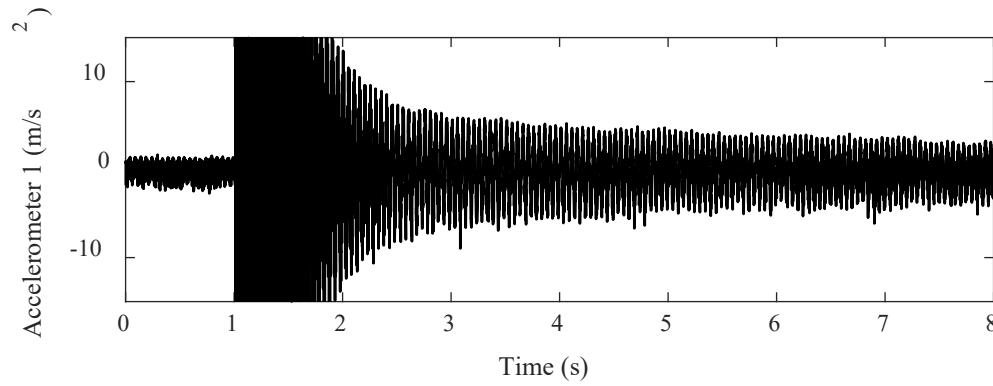
Applications

Datasets

## DATASET 2 – TEST 50

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1967 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

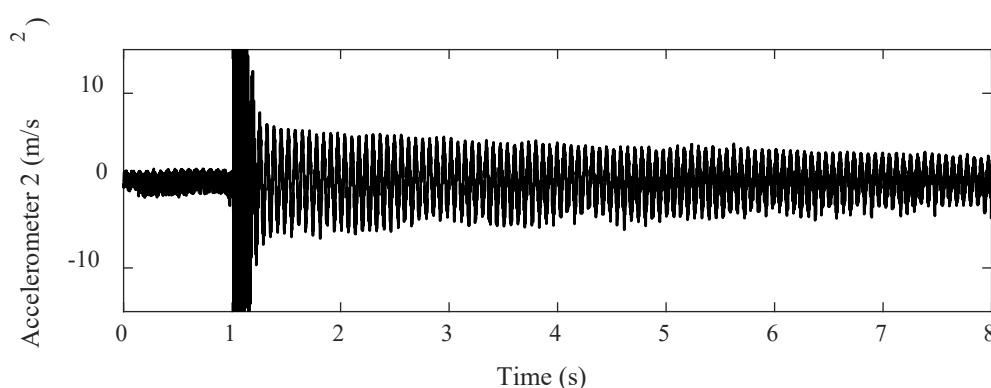
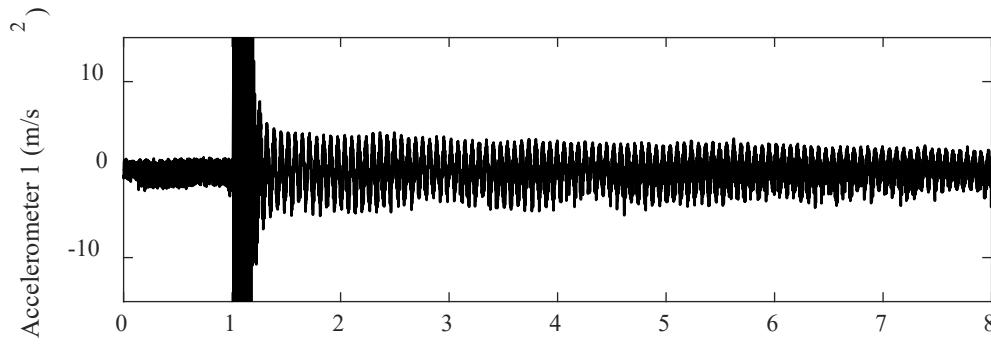
Applications

Datasets

## DATASET 2 – TEST 51

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1765 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

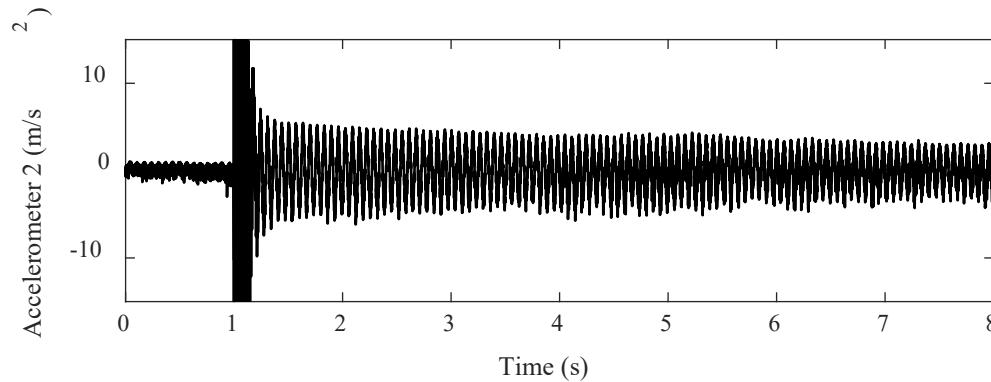
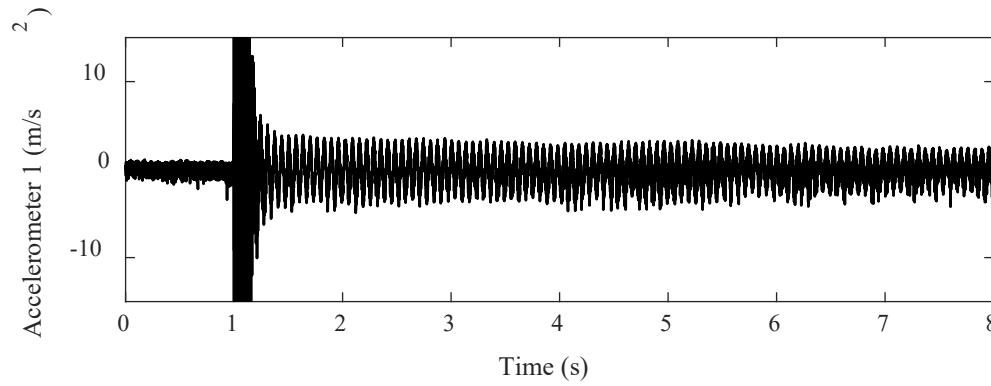
Applications

Datasets

## DATASET 2 – TEST 52

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1742 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

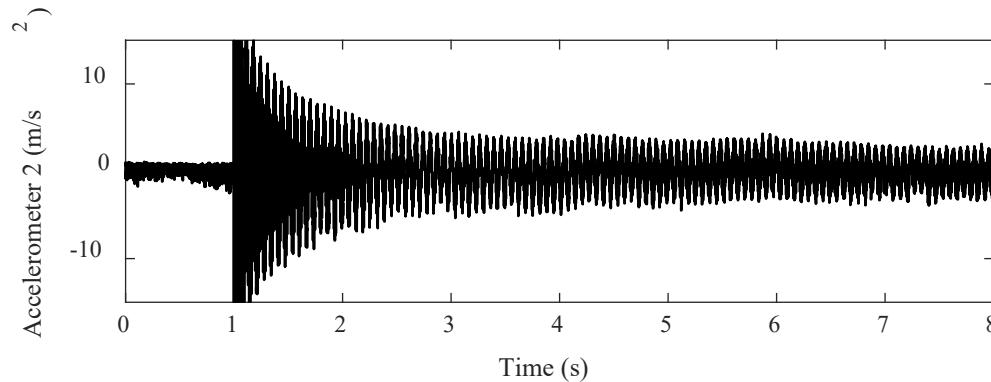
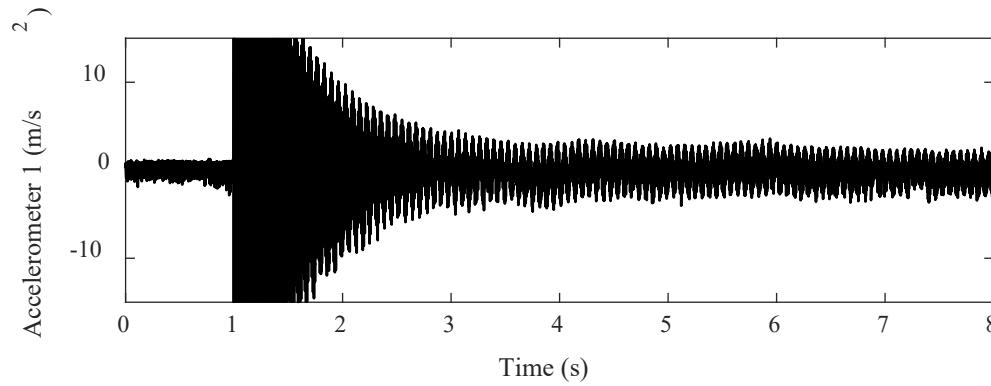
Applications

Datasets

## DATASET 2 – TEST 53

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1563 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

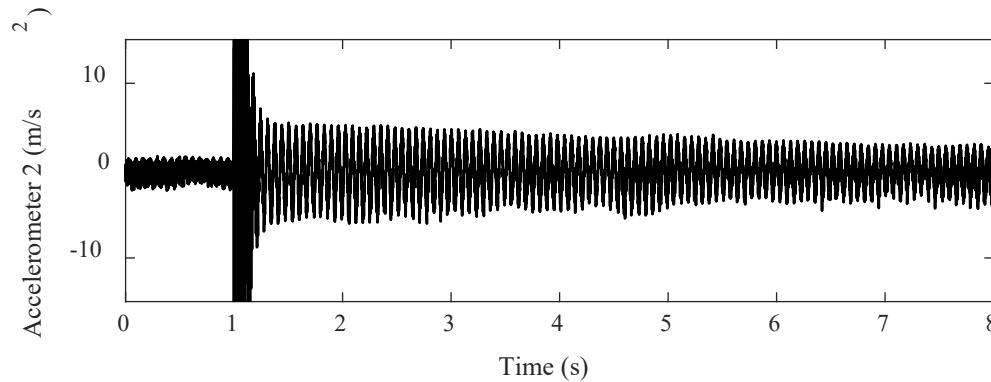
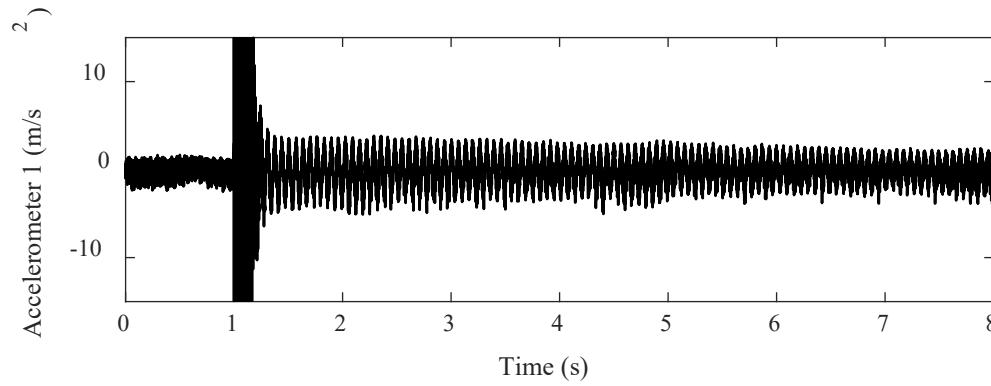
Applications

Datasets

## DATASET 2 – TEST 54

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1388 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

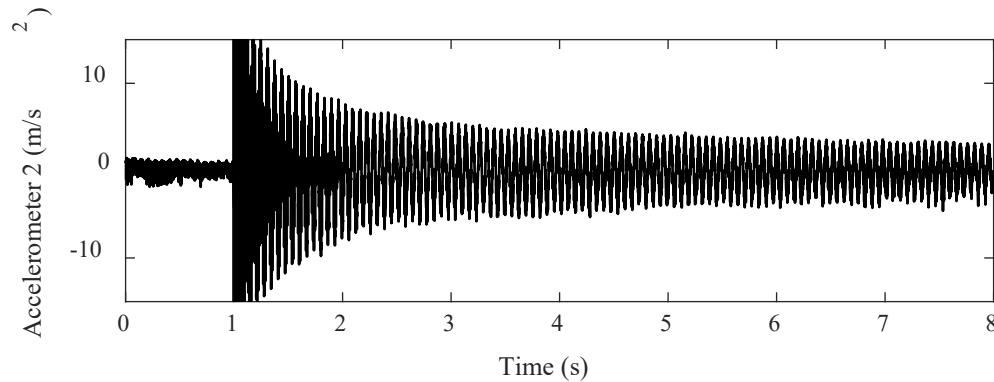
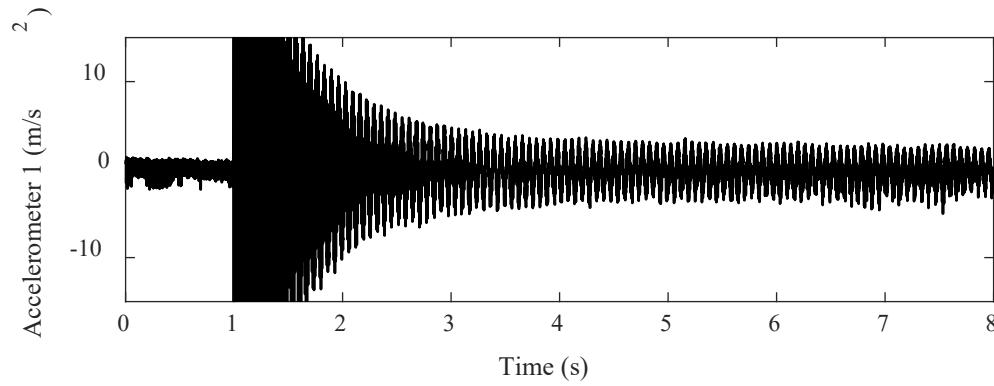
Applications

Datasets

## DATASET 2 – TEST 55

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1791 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

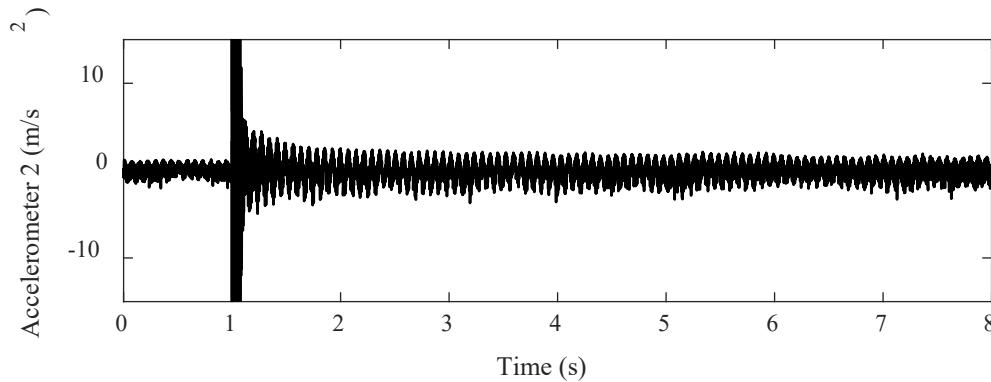
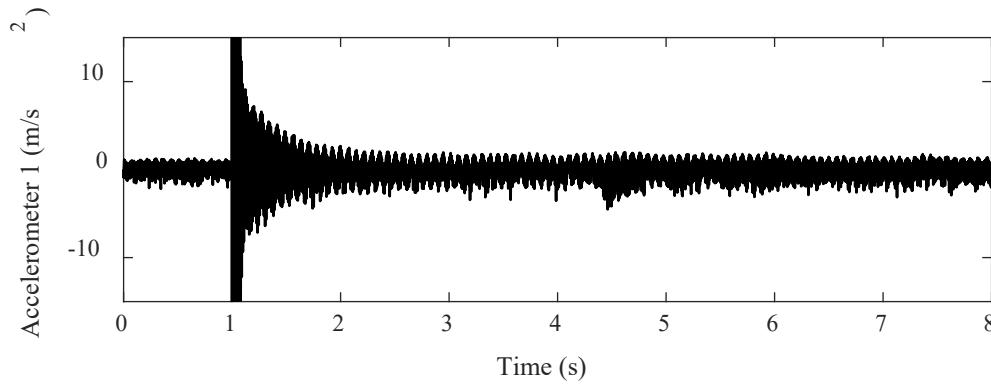
Applications

Datasets

## DATASET 2 – TEST 56

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $681 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

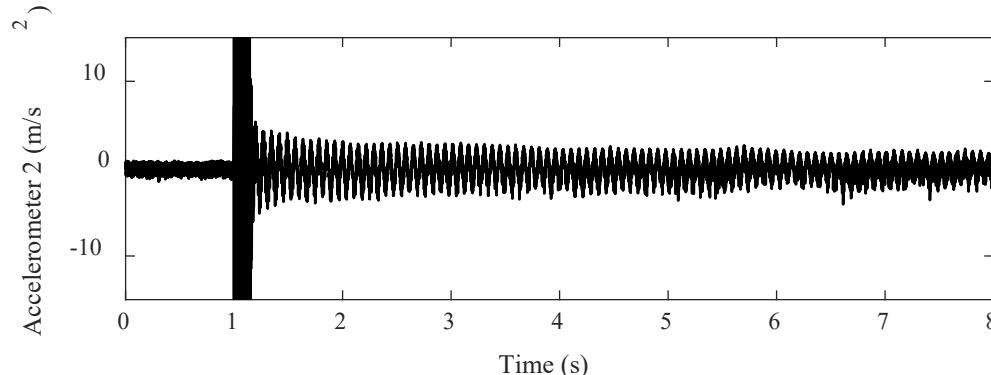
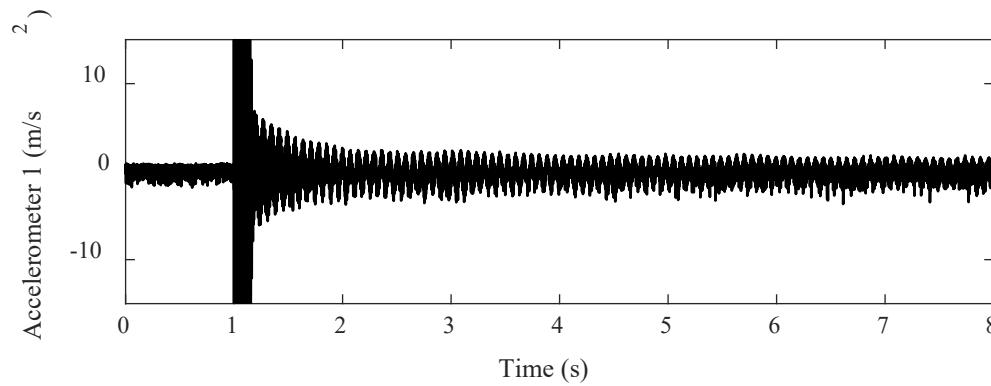
Applications

Datasets

## DATASET 2 – TEST 57

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $837 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

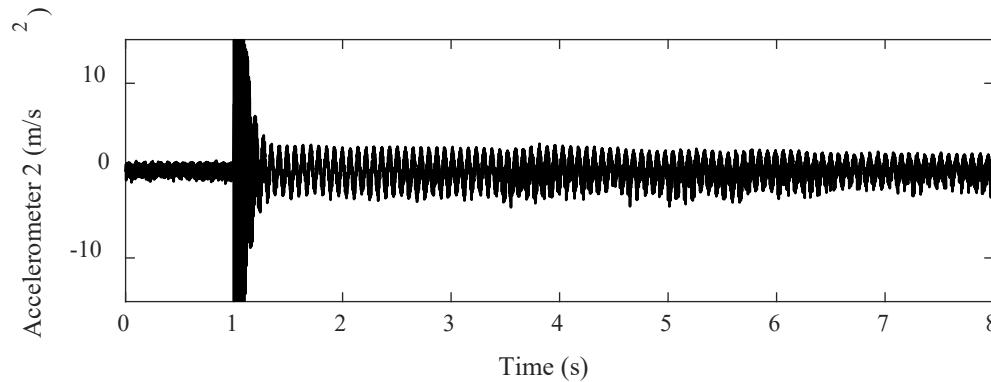
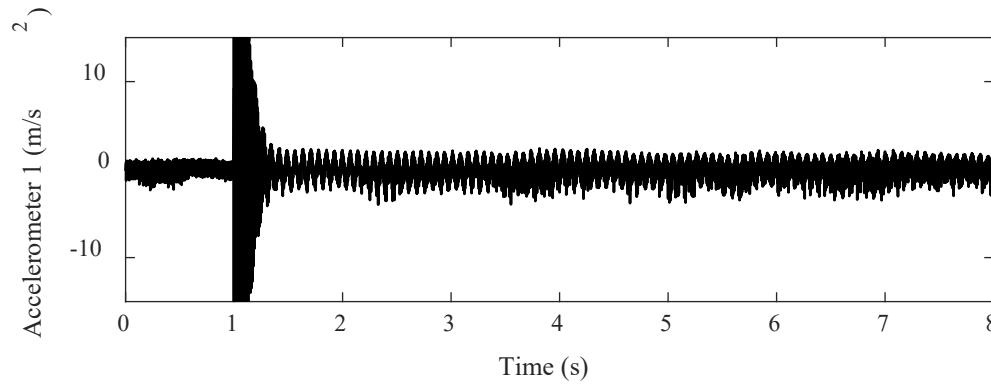
Applications

Datasets

## DATASET 2 – TEST 58

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $684 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

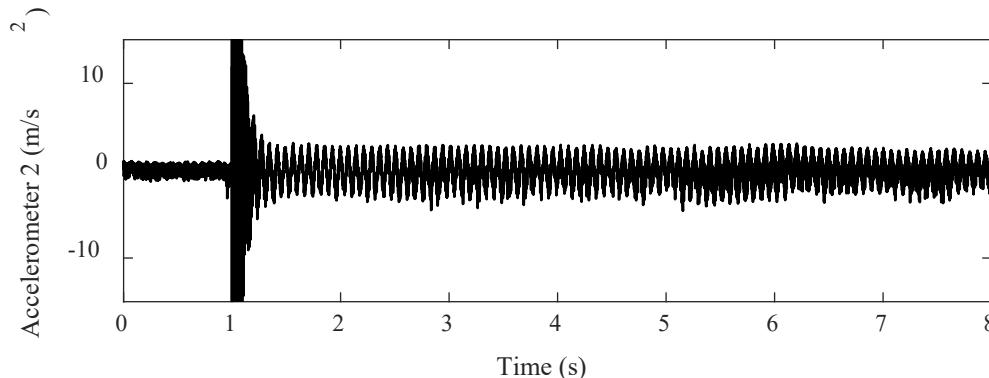
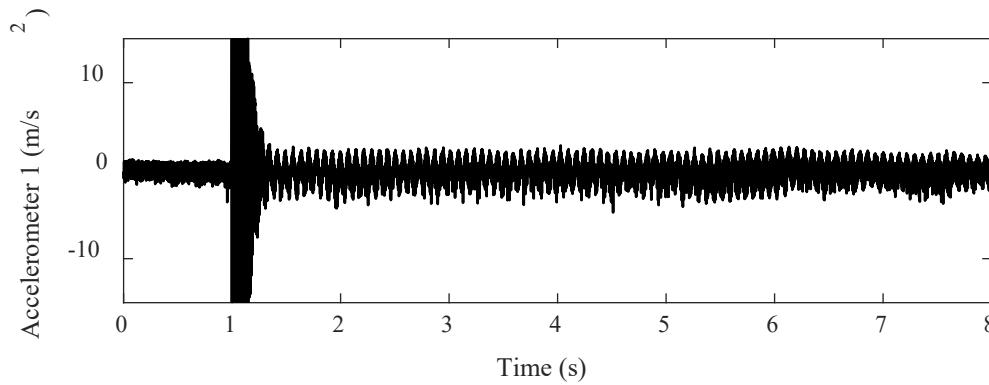
Applications

Datasets

## DATASET 2 – TEST 59

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $751 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

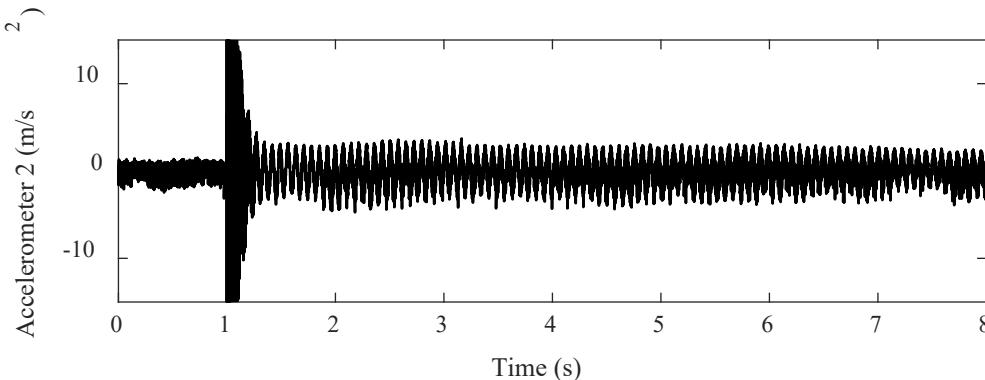
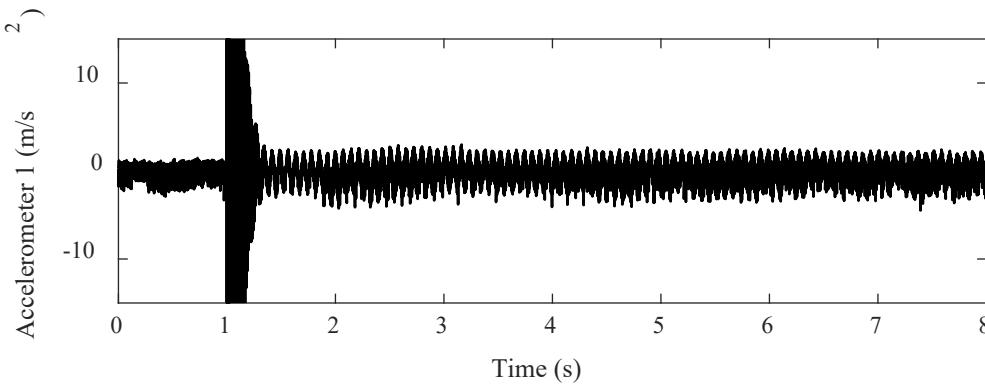
Applications

Datasets

## DATASET 2 – TEST 60

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $784 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

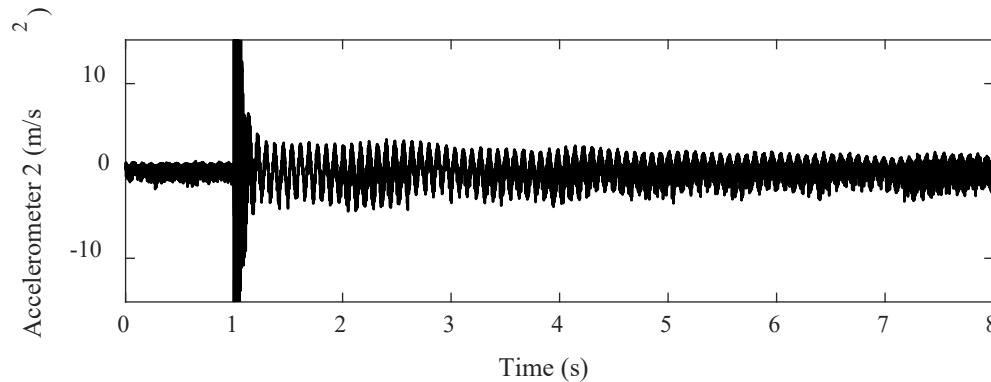
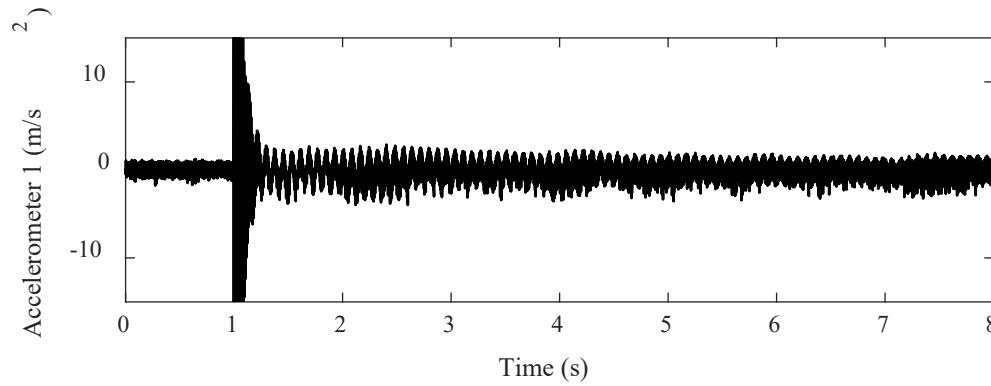
Applications

Datasets

## DATASET 2 – TEST 61

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1399 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

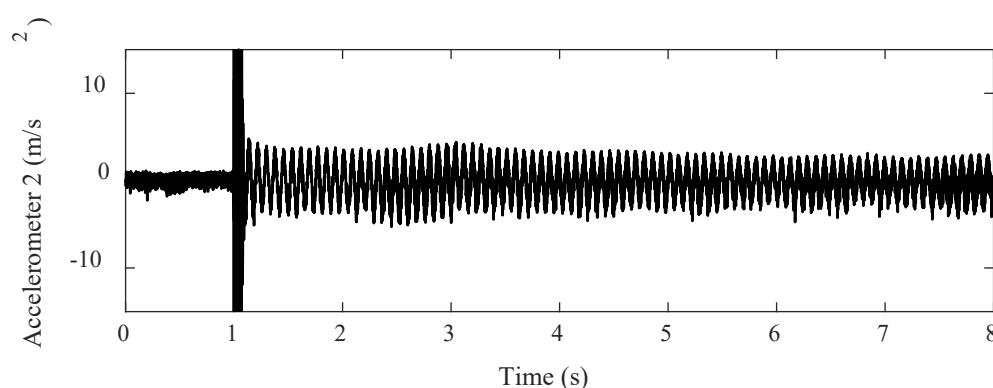
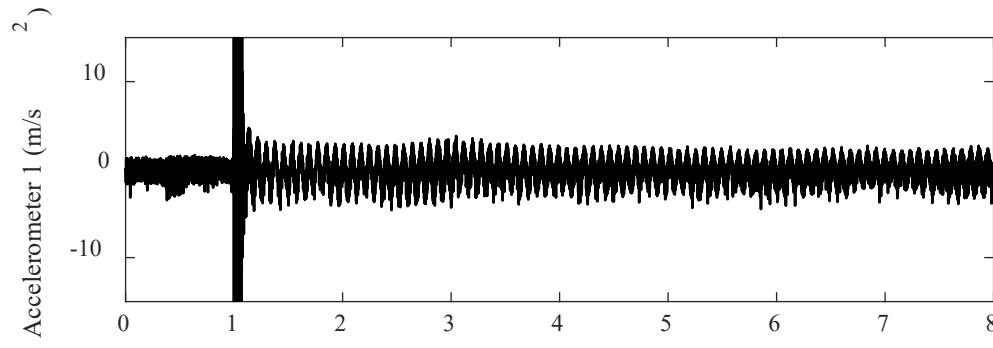
Applications

Datasets

## DATASET 2 – TEST 62

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1717 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

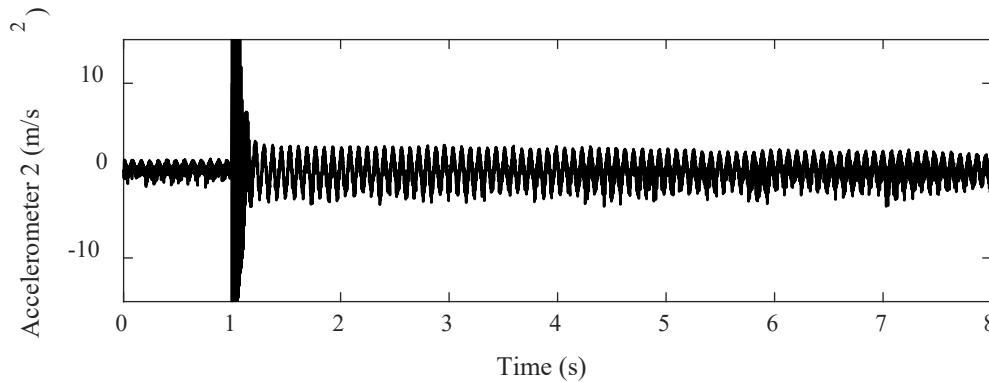
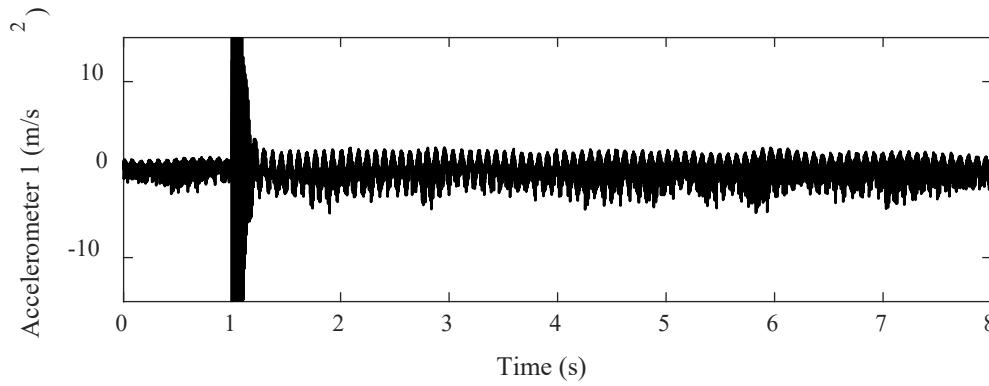
Applications

Datasets

## DATASET 2 – TEST 63

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1204 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

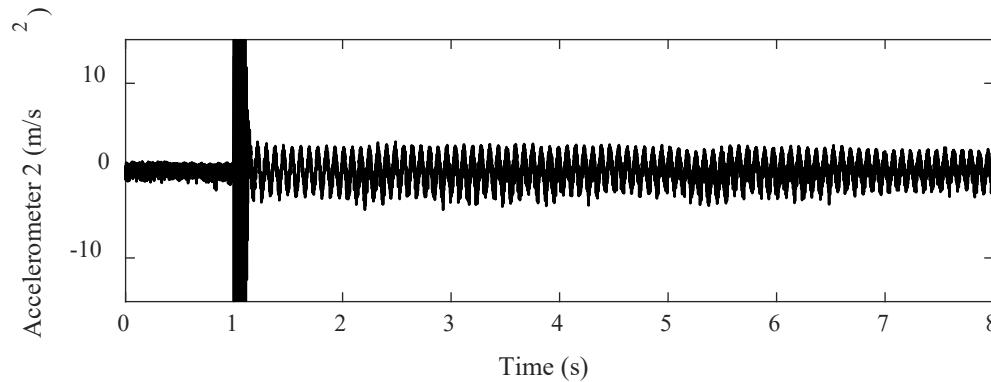
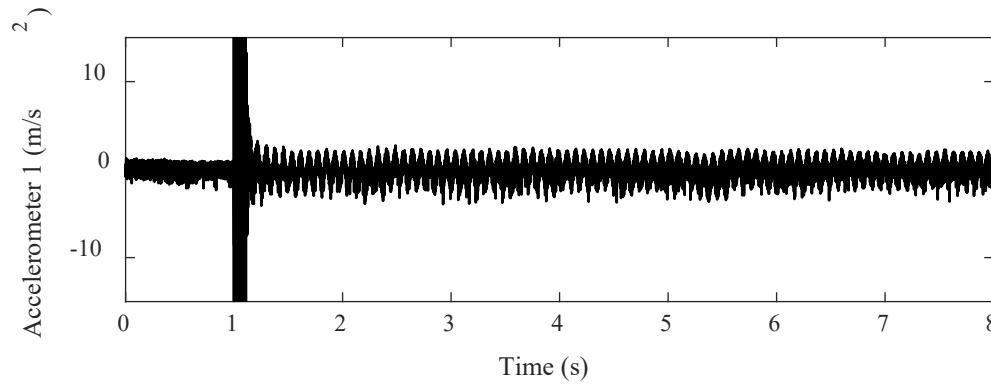
Applications

Datasets

## DATASET 2 – TEST 64

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1148 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

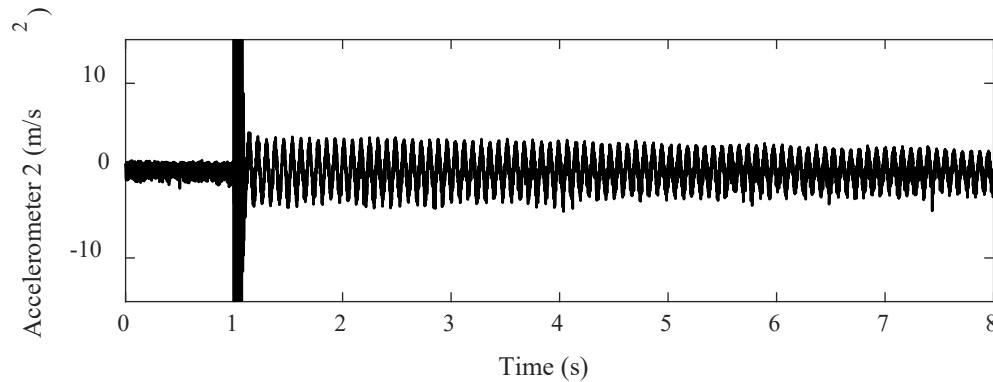
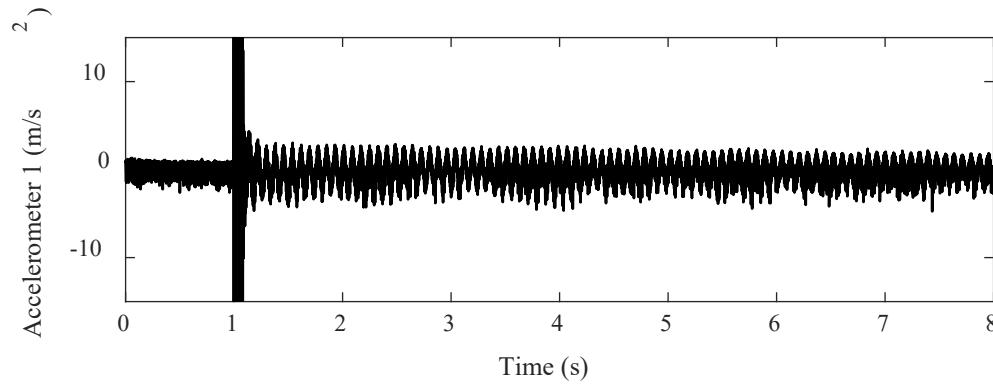
Applications

Datasets

## DATASET 2 – TEST 65

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $1459 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 3 – SENSORS

### SENSORS:

2x Accelerometer (PCB 353B17)

1. SN 127691 – 300 mm
2. SN 139351 – 400 mm

### Excitation notes

- Single hammer impact to begin test 500 mm from clamp
- Mass remains for whole test duration
- Static cart action 50 mm from clamp

Sampling frequency: 25,600 samples/s

# Datasets

High-Rate  
Overview

Benchmark

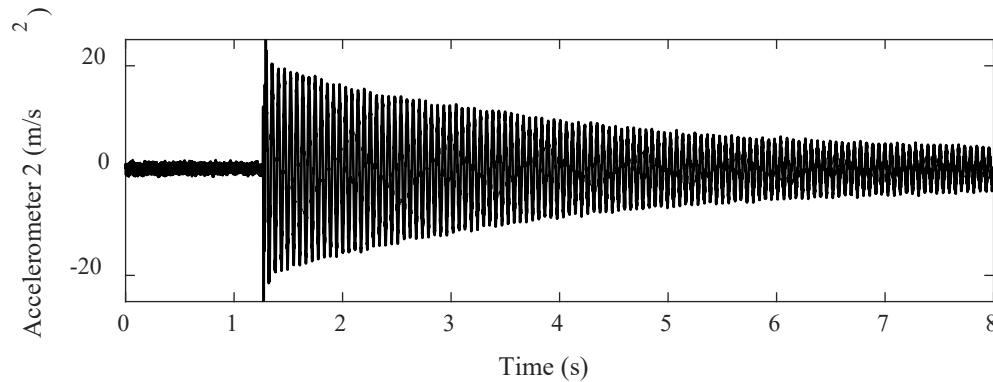
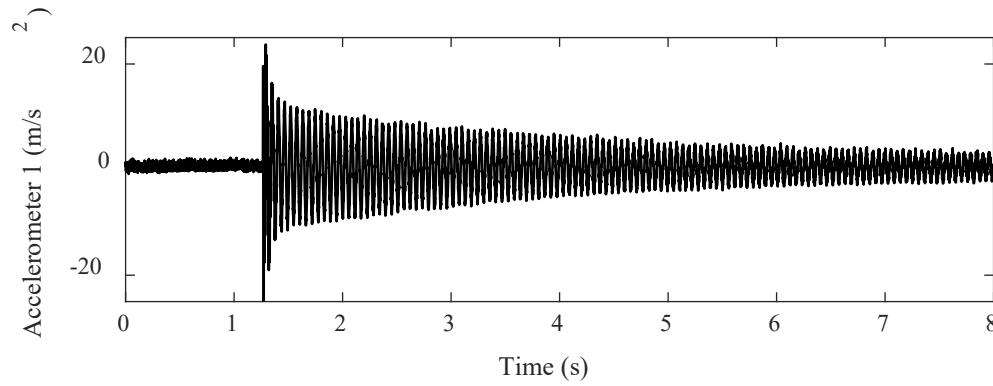
Applications

Datasets

## DATASET 3 – TEST 1

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $25 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

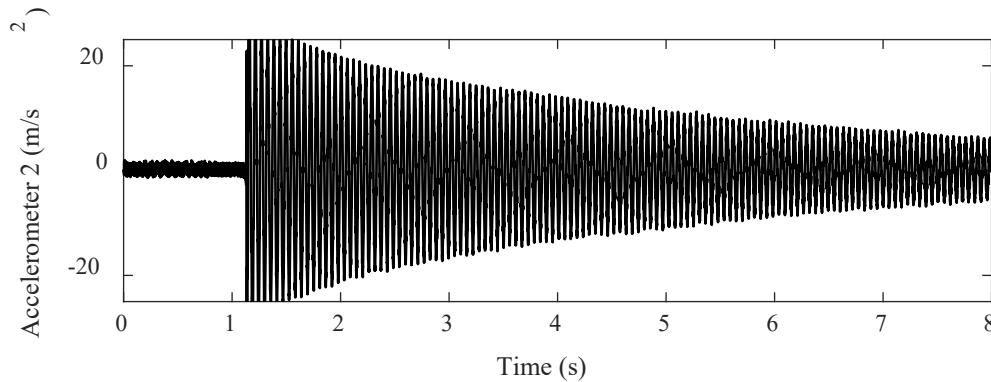
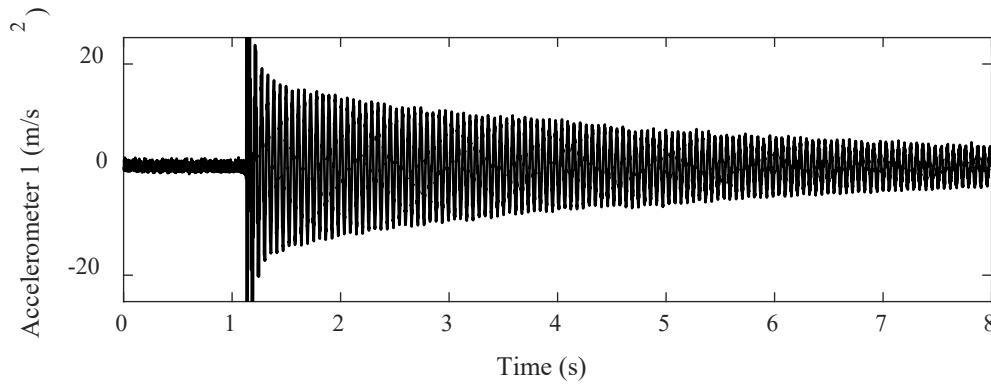
Applications

Datasets

## DATASET 3 – TEST 2

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $51 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

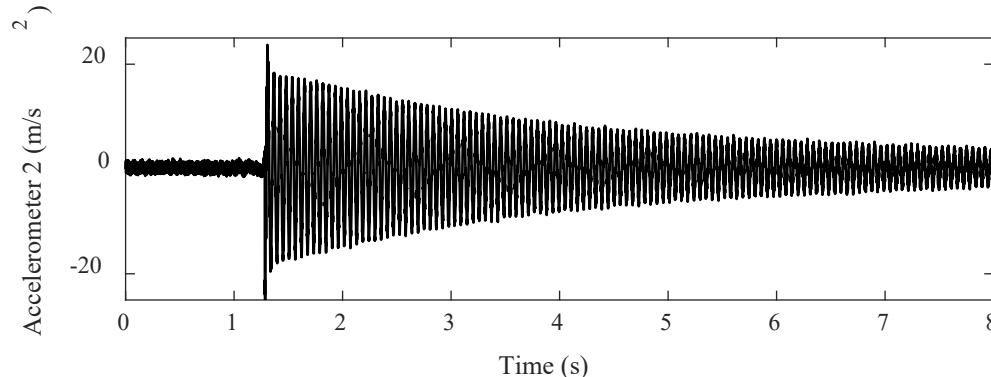
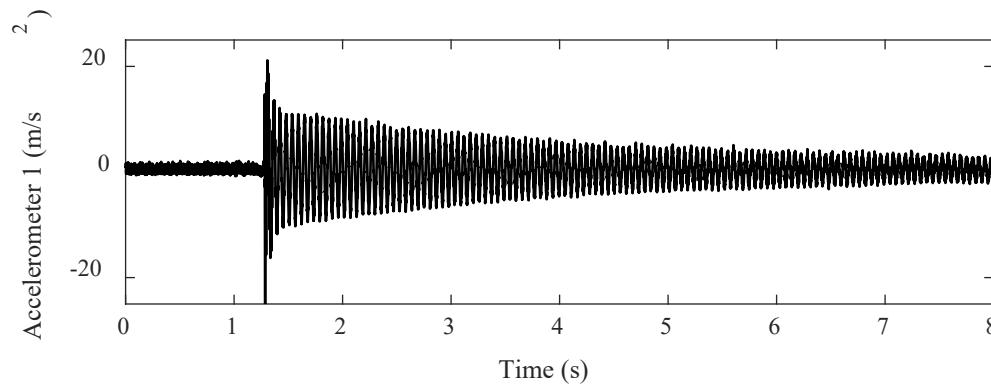
Applications

Datasets

## DATASET 3 – TEST 3

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $24 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

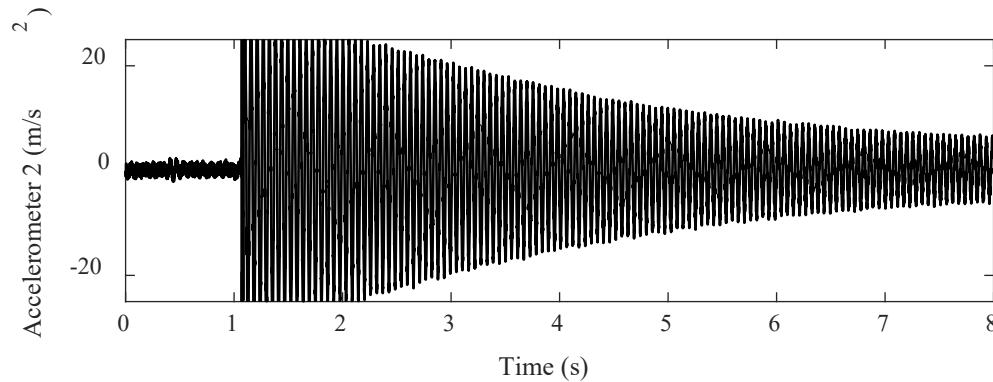
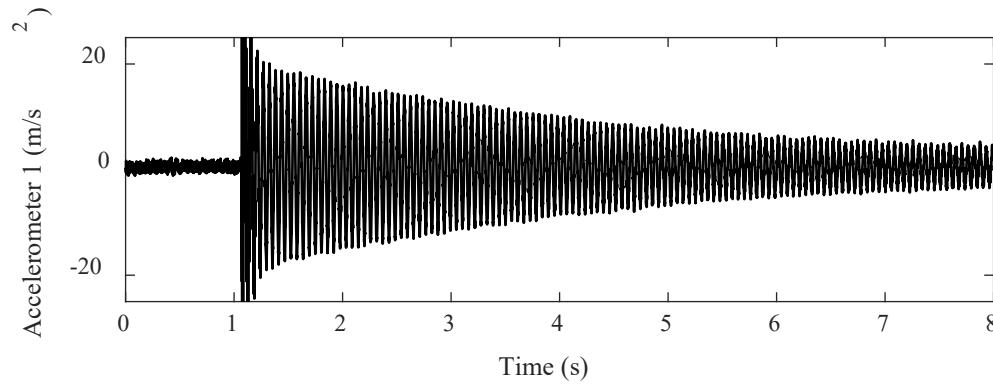
Applications

Datasets

## DATASET 3 – TEST 4

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $47 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

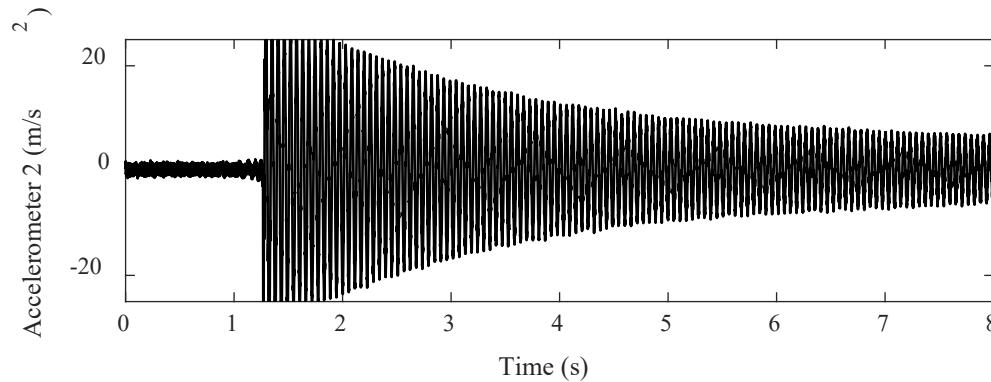
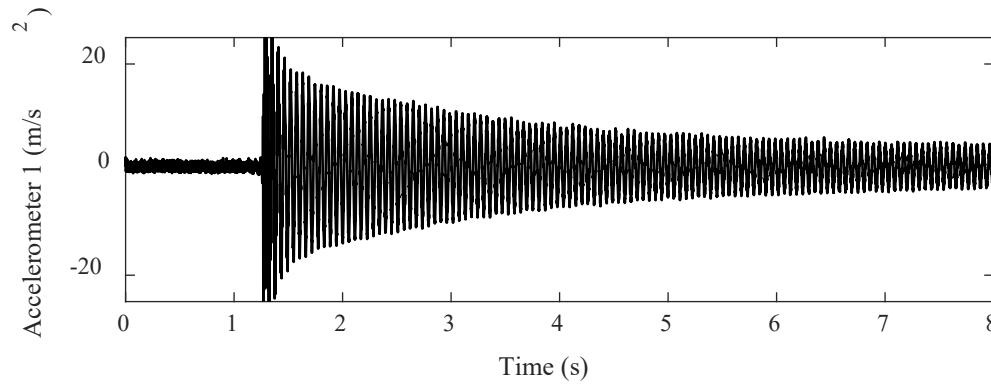
Applications

Datasets

## DATASET 3 – TEST 5

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $37 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

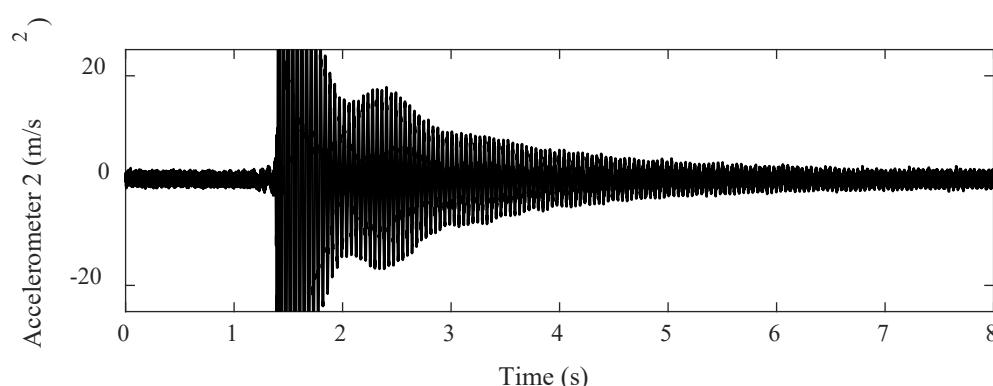
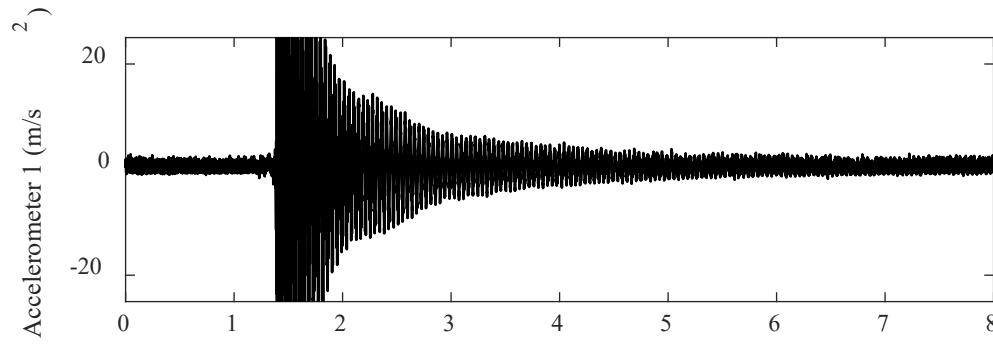
Applications

Datasets

## DATASET 3 – TEST 6

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $83 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

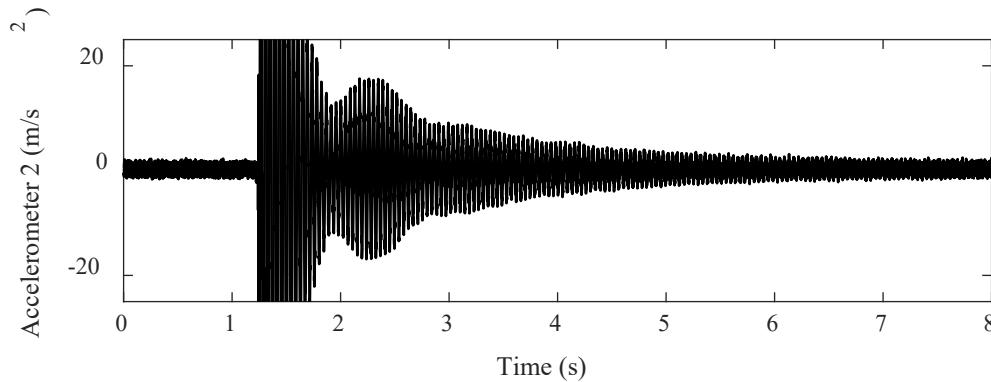
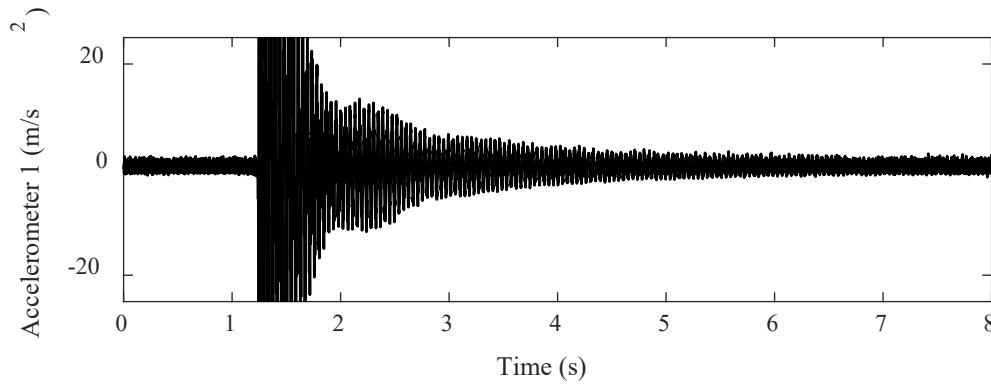
Applications

Datasets

## DATASET 3 – TEST 7

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $94 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

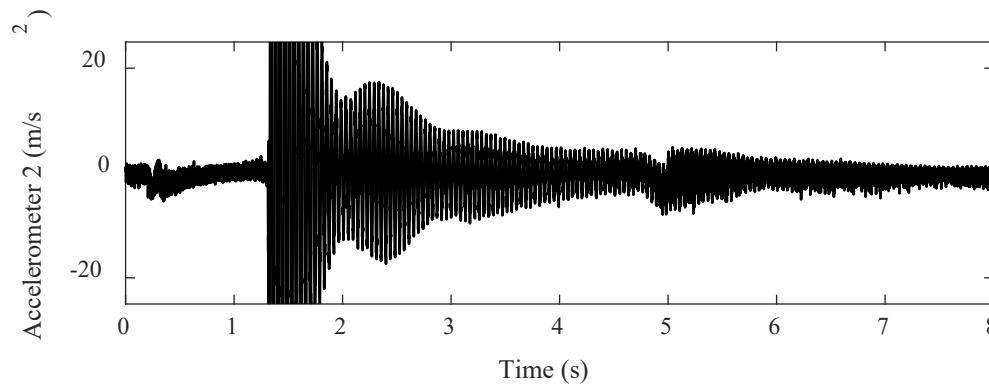
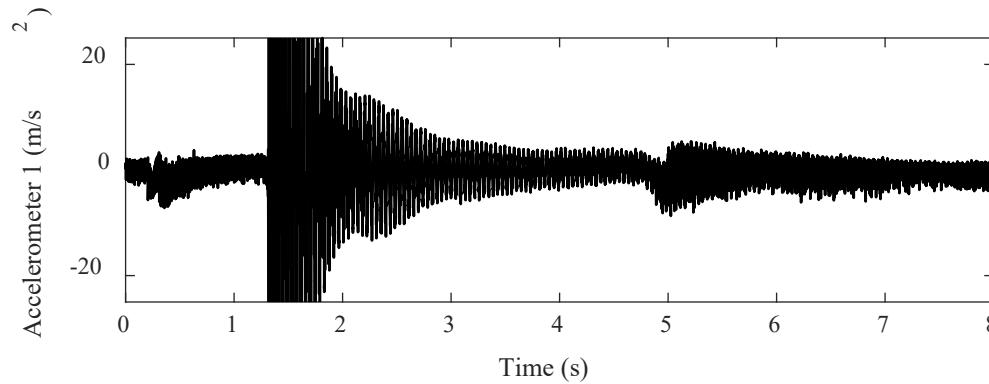
Applications

Datasets

## DATASET 3 – TEST 8

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $91 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

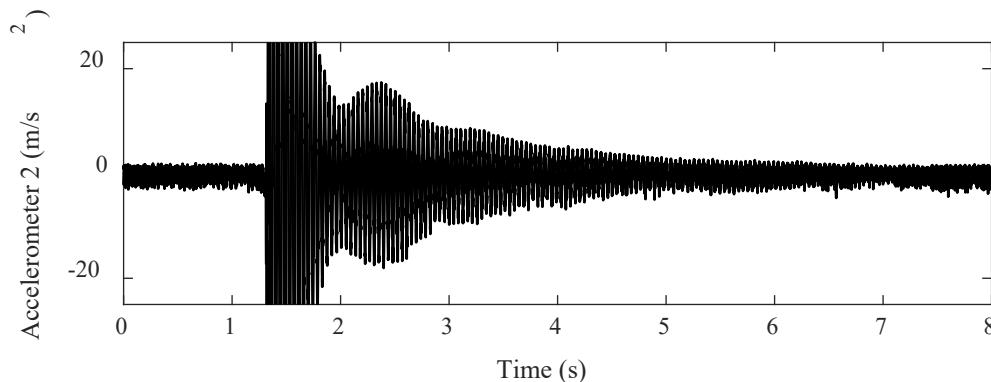
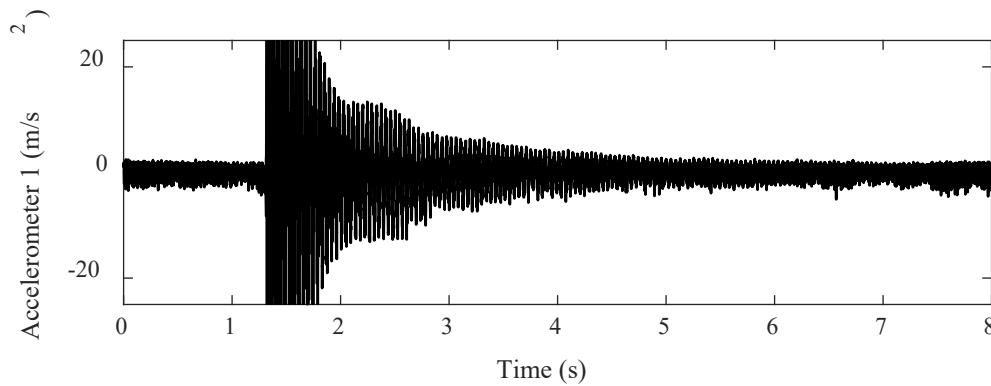
Applications

Datasets

## DATASET 3 – TEST 9

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $80 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

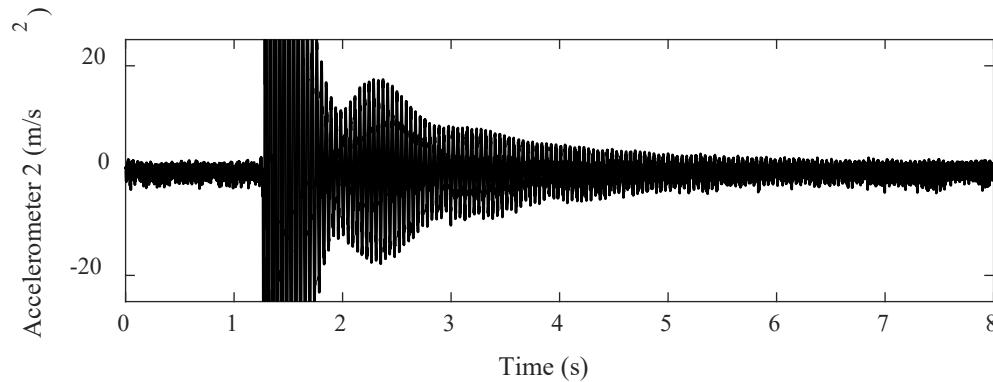
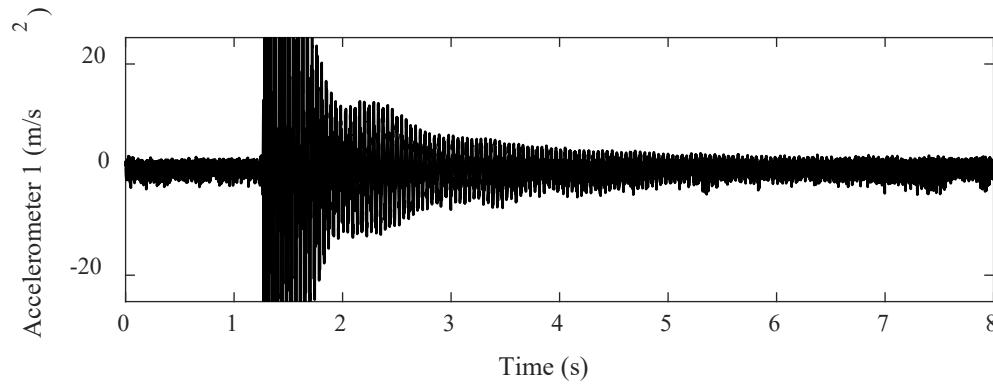
Applications

Datasets

## DATASET 3 – TEST 10

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $98 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

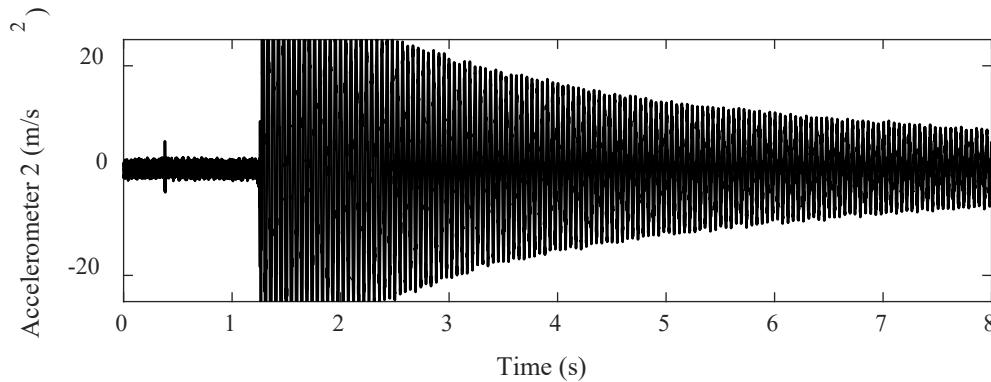
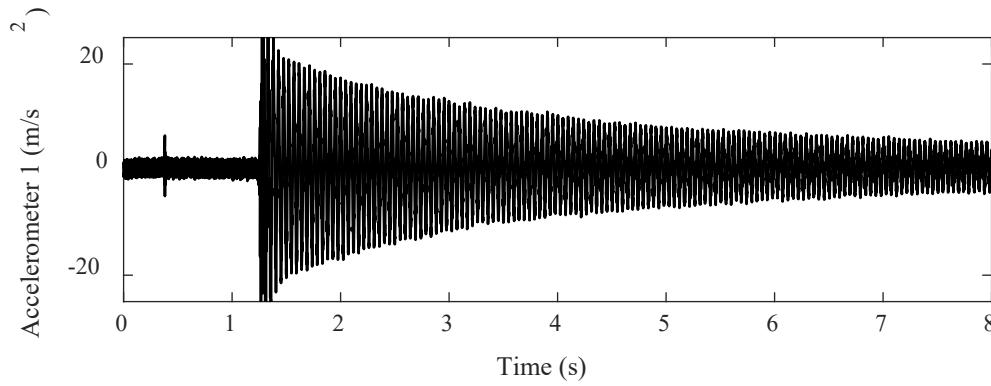
Applications

Datasets

## DATASET 3 – TEST 11

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $47 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

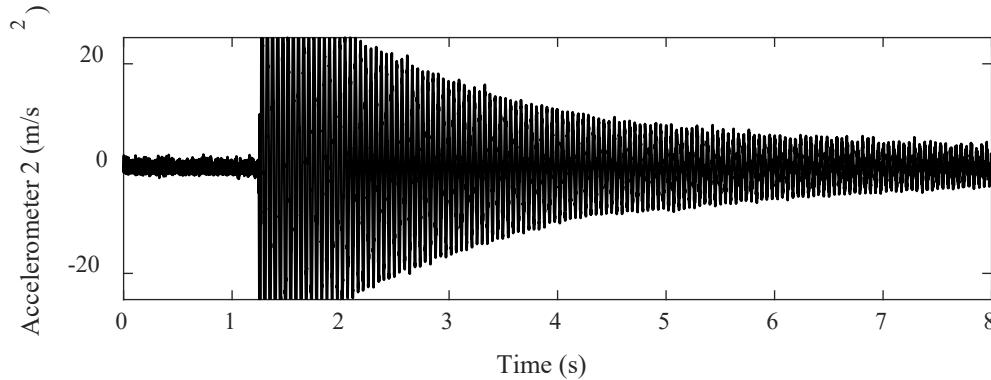
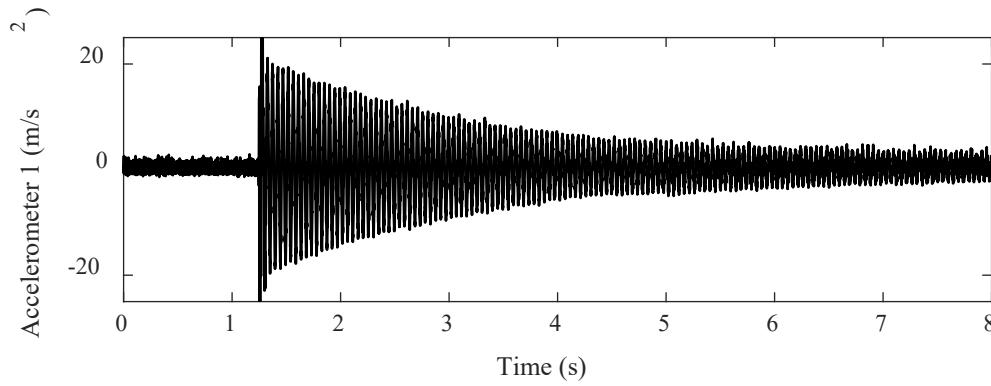
Applications

Datasets

## DATASET 3 – TEST 12

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $40 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

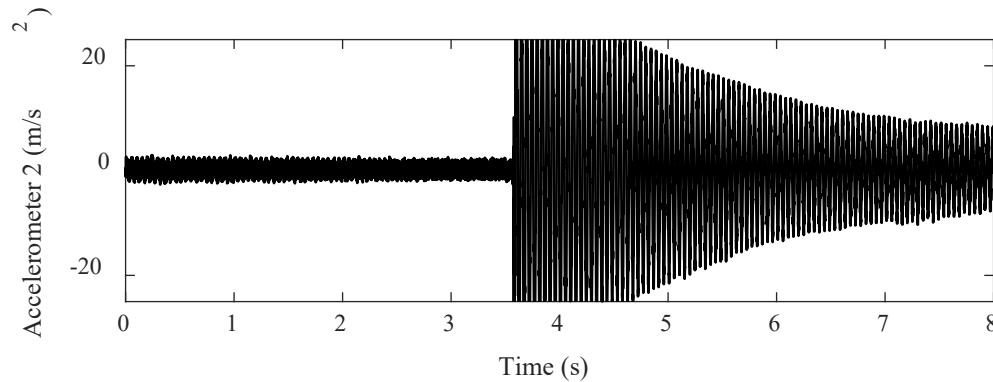
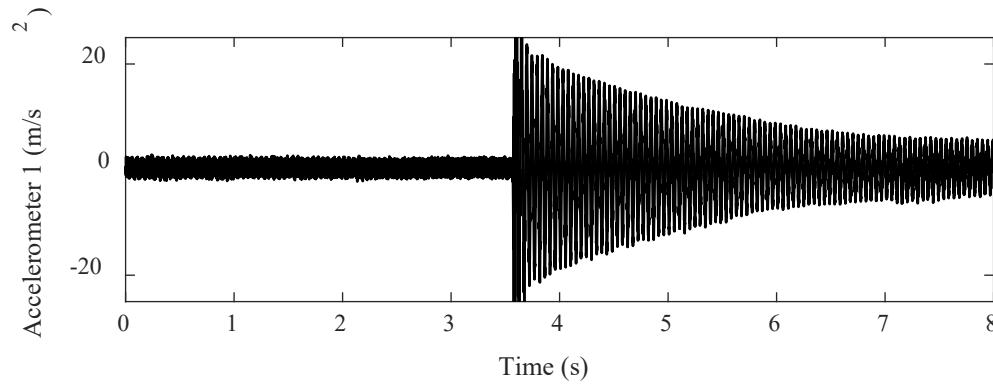
Applications

Datasets

## DATASET 3 – TEST 13

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $51 \text{ m/s}^2$
  - Hammer impact time: 3.28 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

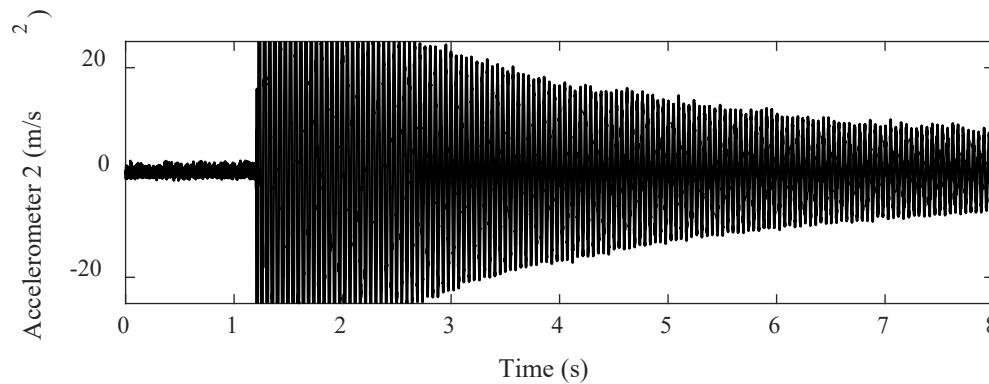
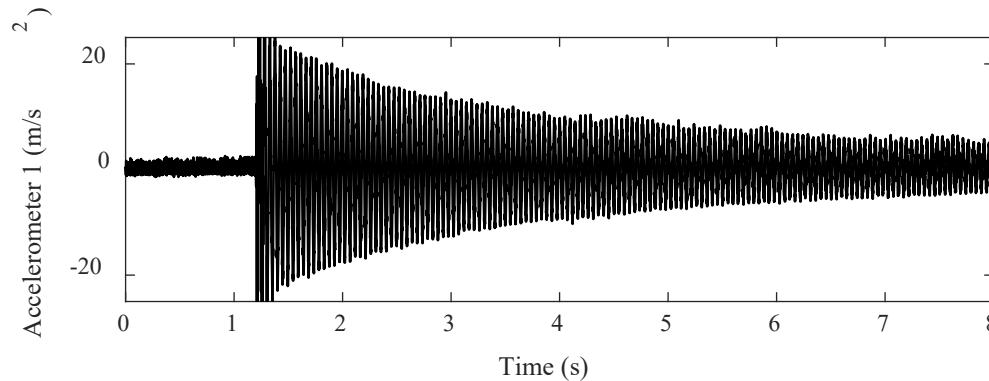
Applications

Datasets

## DATASET 3 – TEST 14

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $51 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

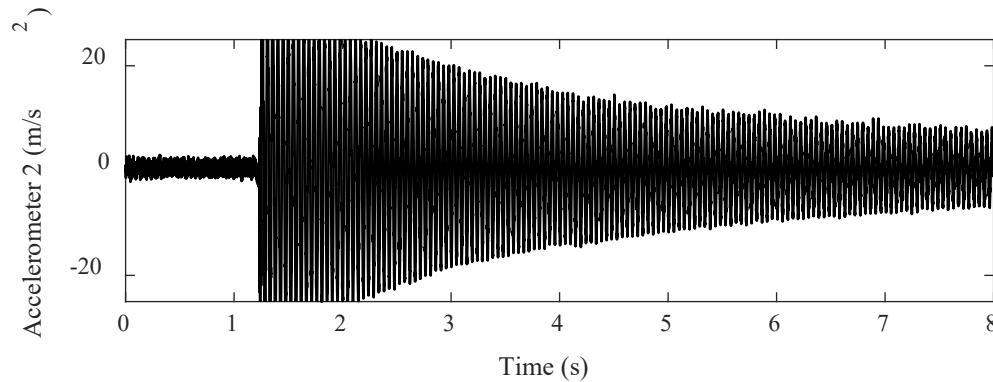
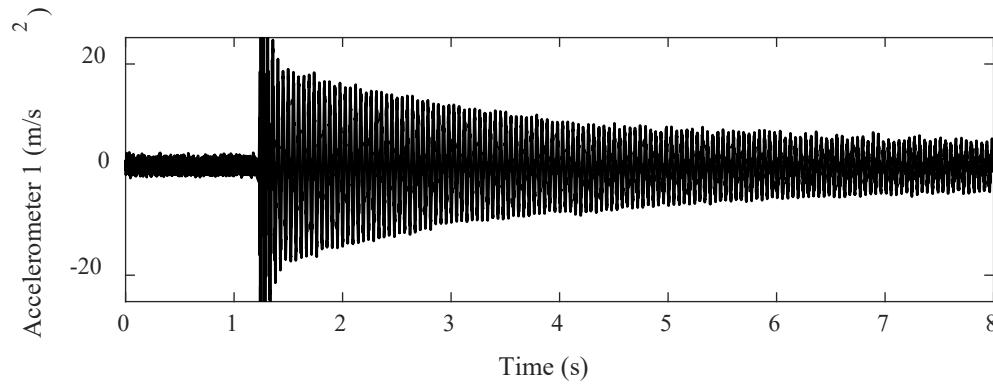
Applications

Datasets

## DATASET 3 – TEST 15

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $44 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

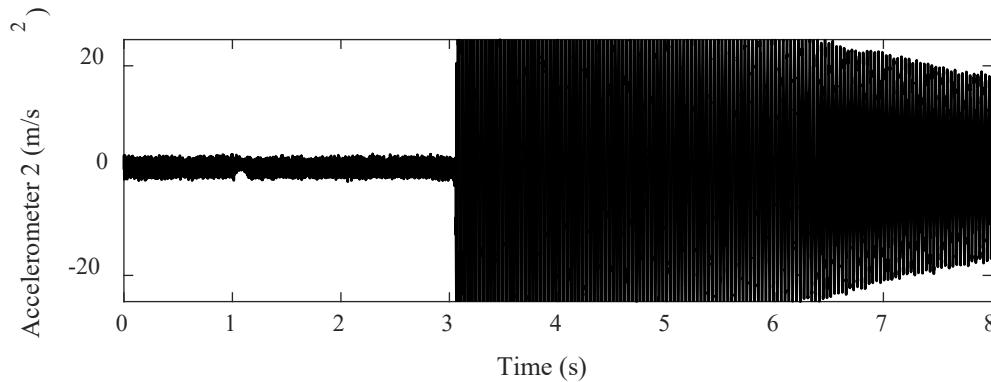
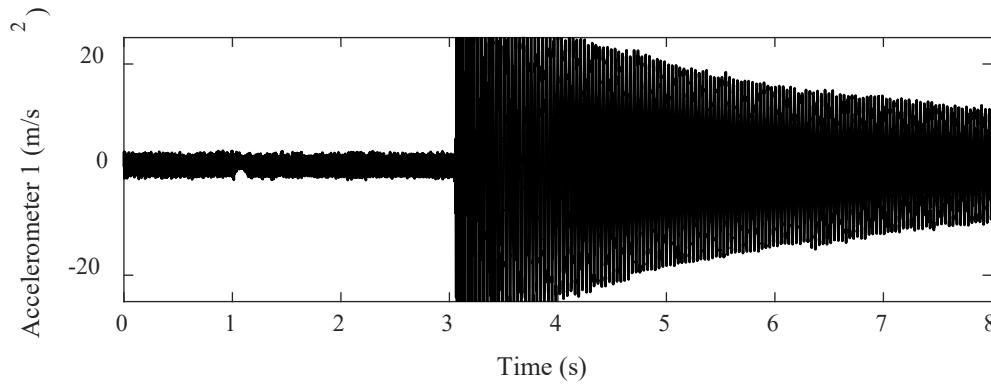
Applications

Datasets

## DATASET 3 – TEST 16

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $68 \text{ m/s}^2$
  - Hammer impact time: 2.92 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

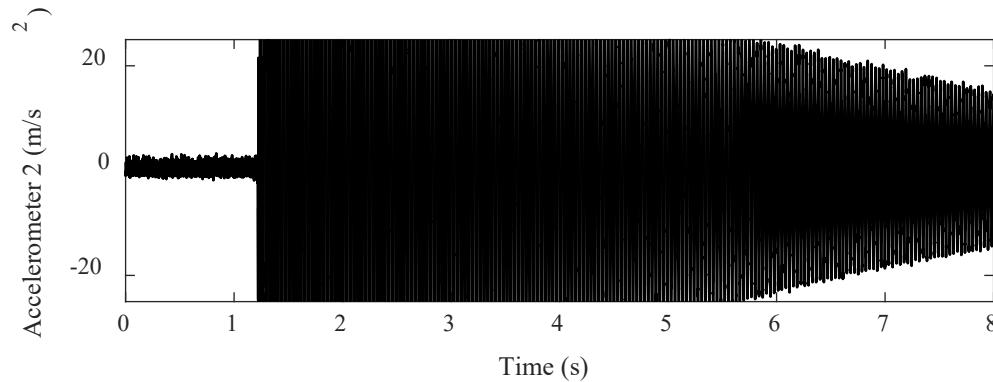
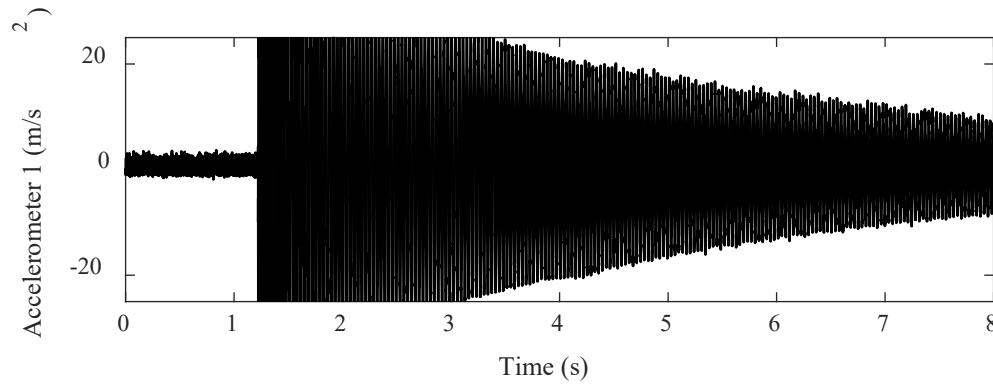
Applications

Datasets

## DATASET 3 – TEST 17

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $106 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

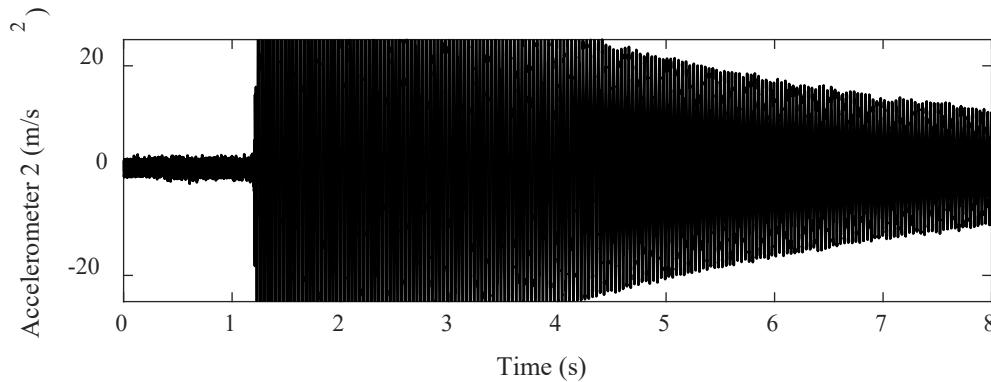
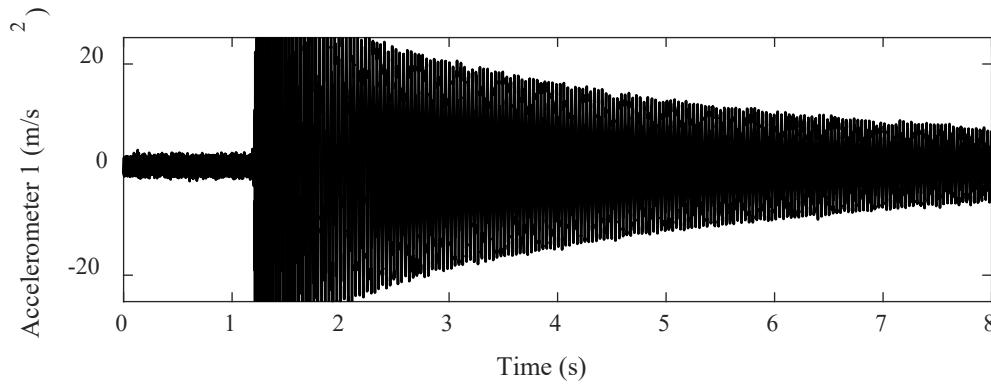
Applications

Datasets

## DATASET 3 – TEST 18

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $73 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

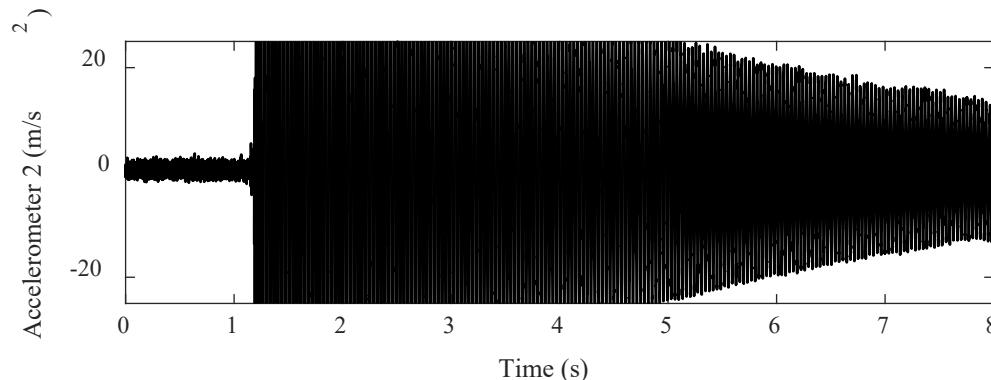
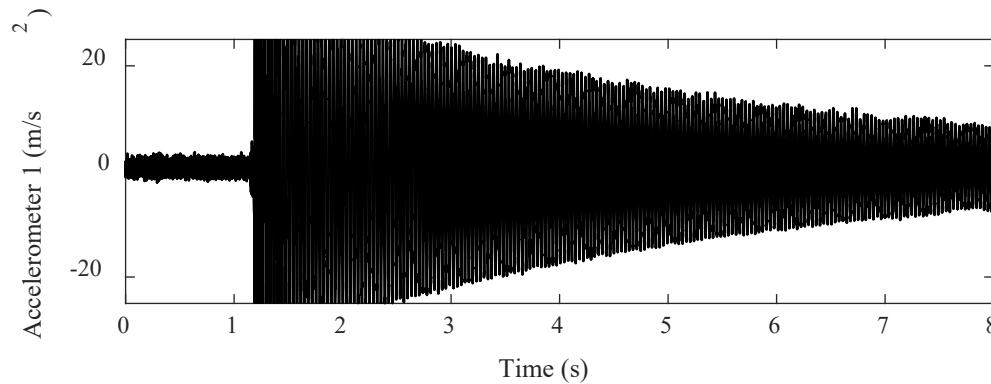
Applications

Datasets

## DATASET 3 – TEST 19

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $85 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

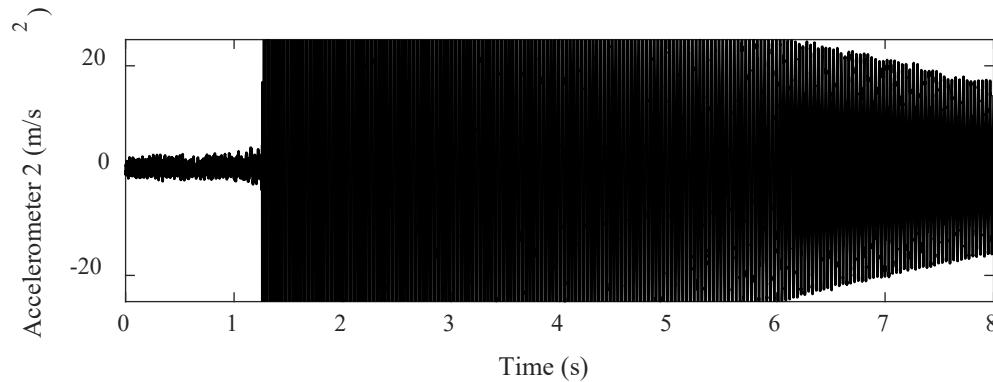
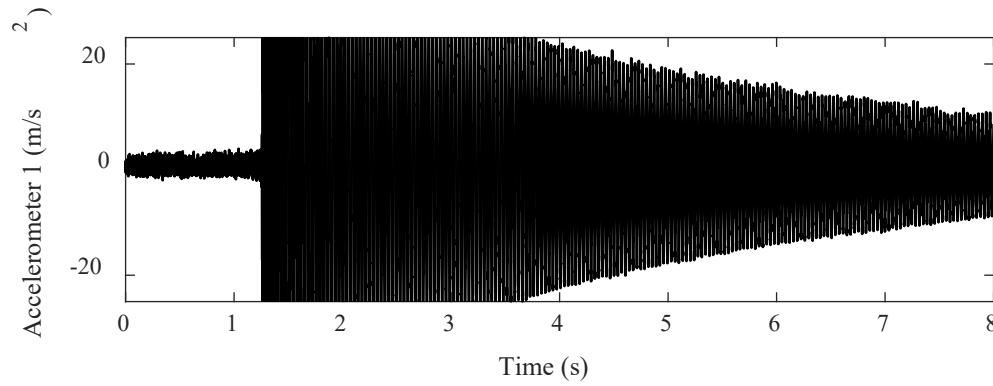
Applications

Datasets

## DATASET 3 – TEST 20

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $105 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

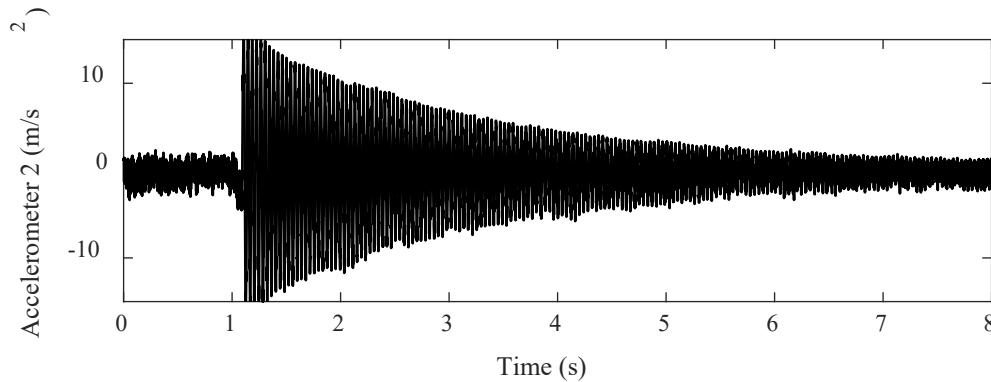
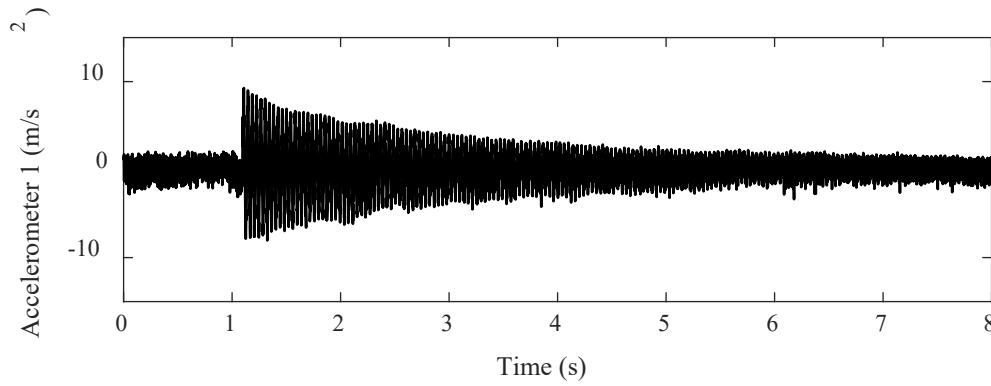
Applications

Datasets

## DATASET 3 – TEST 21

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $16 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

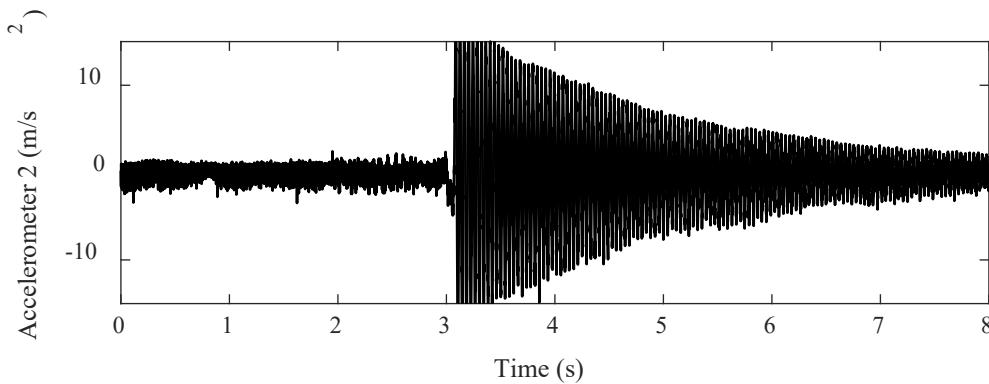
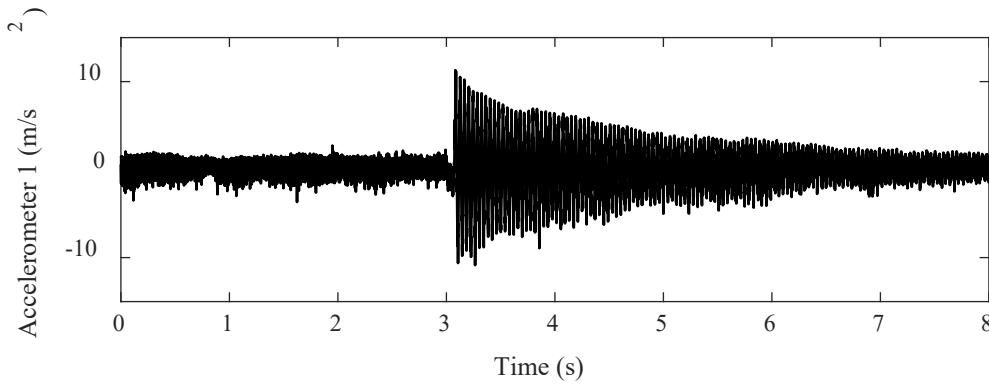
Applications

Datasets

## DATASET 3 – TEST 22

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $13 \text{ m/s}^2$
  - Hammer impact time: 2.89 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

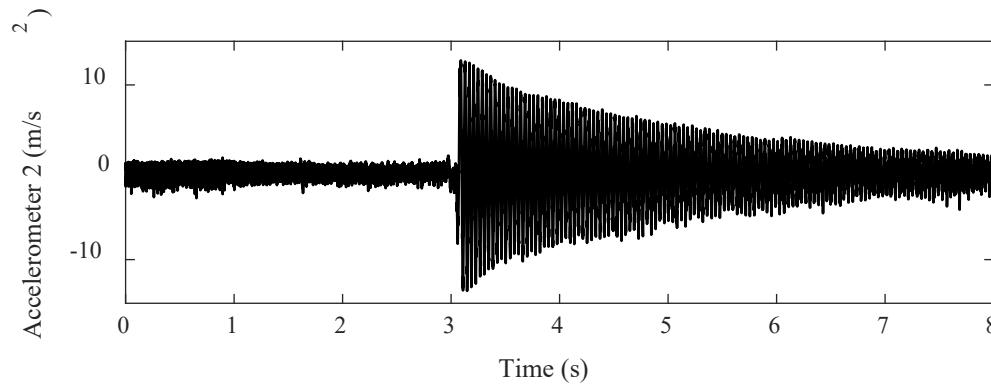
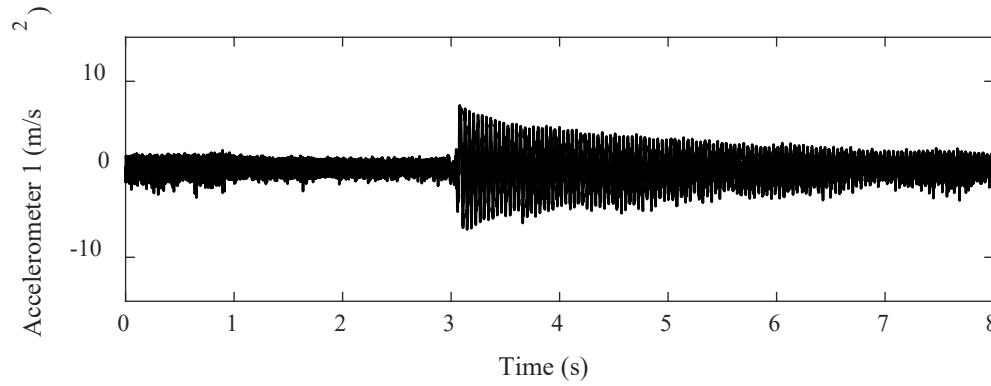
Applications

Datasets

## DATASET 3 – TEST 23

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $13 \text{ m/s}^2$
  - Hammer impact time: 3.03 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

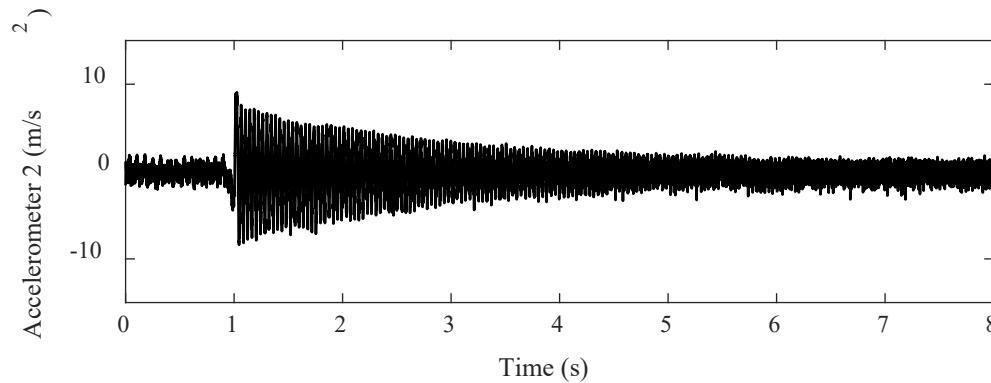
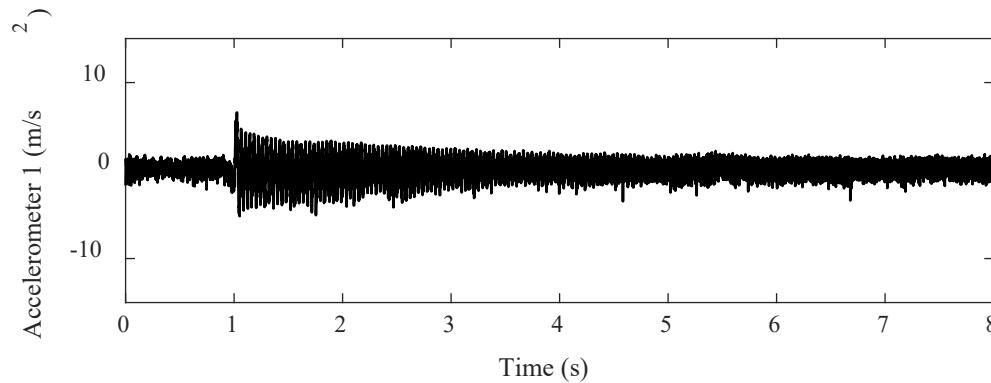
Applications

Datasets

## DATASET 3 – TEST 24

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration : 9 m/s<sup>2</sup>
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

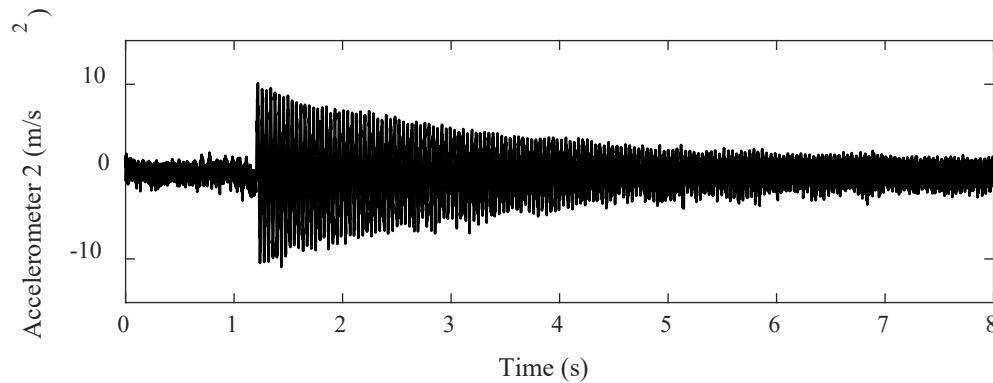
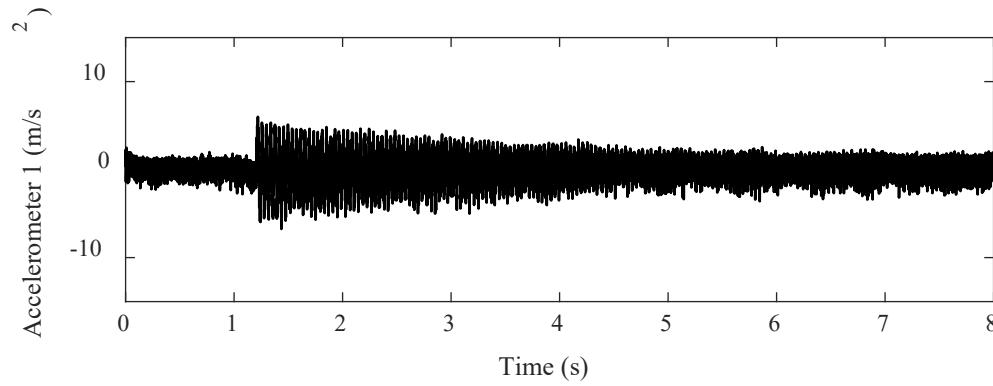
Applications

Datasets

## DATASET 3 – TEST 25

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $10 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

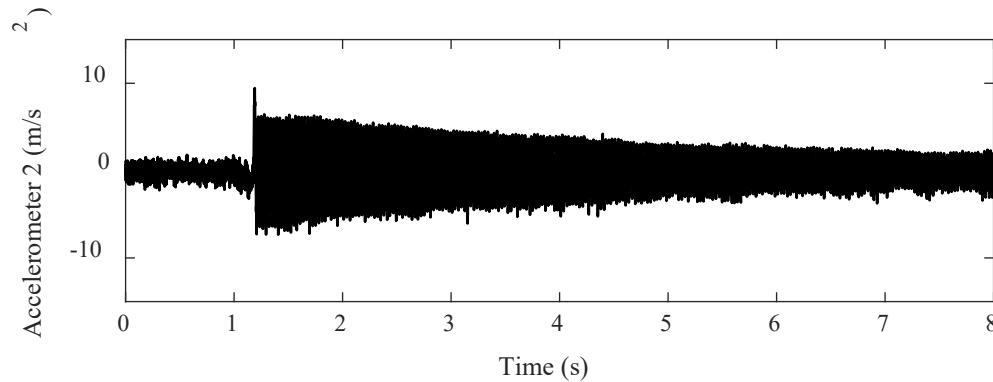
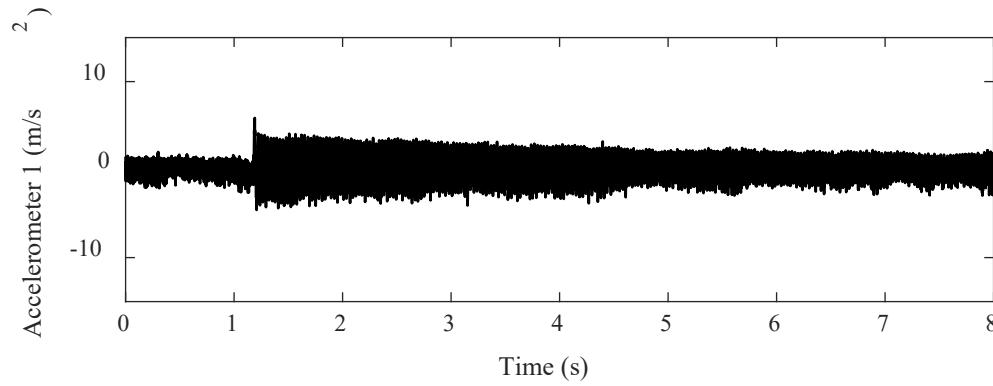
Applications

Datasets

## DATASET 3 – TEST 26

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration : 9 m/s<sup>2</sup>
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

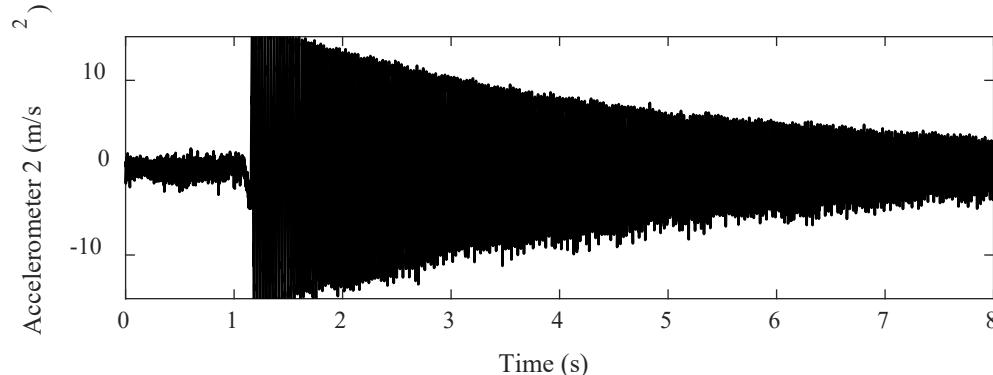
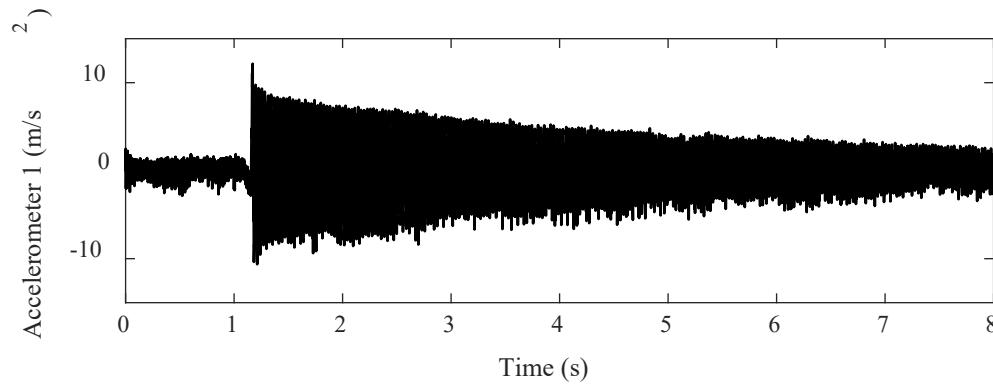
Applications

Datasets

## DATASET 3 – TEST 27

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $19 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

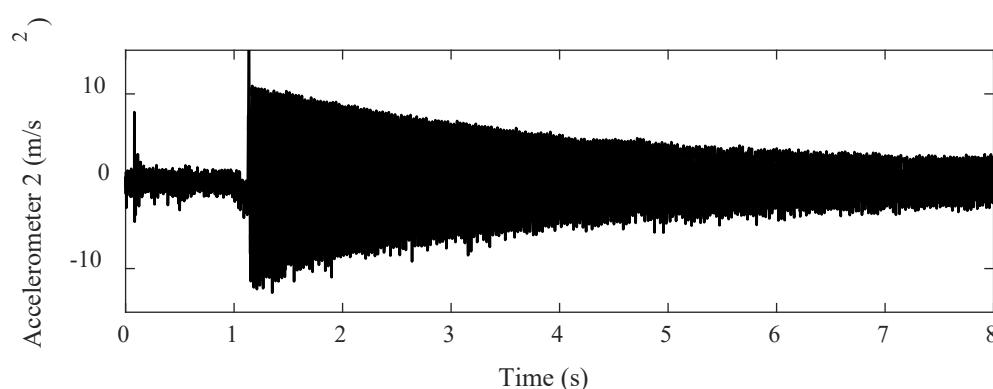
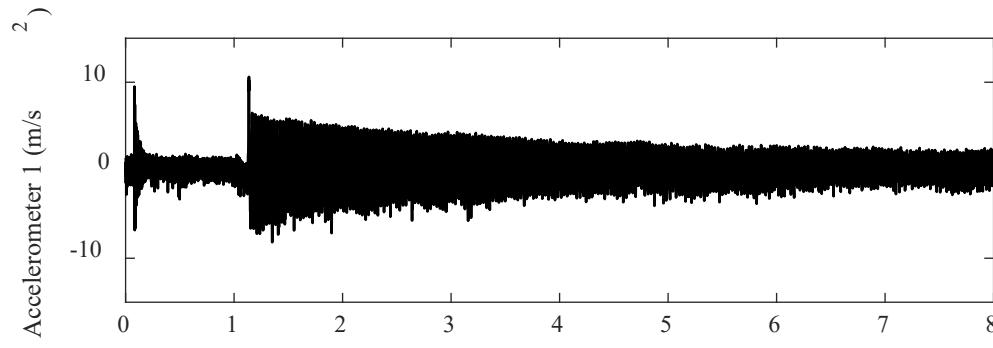
Applications

Datasets

## DATASET 3 – TEST 28

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $18 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

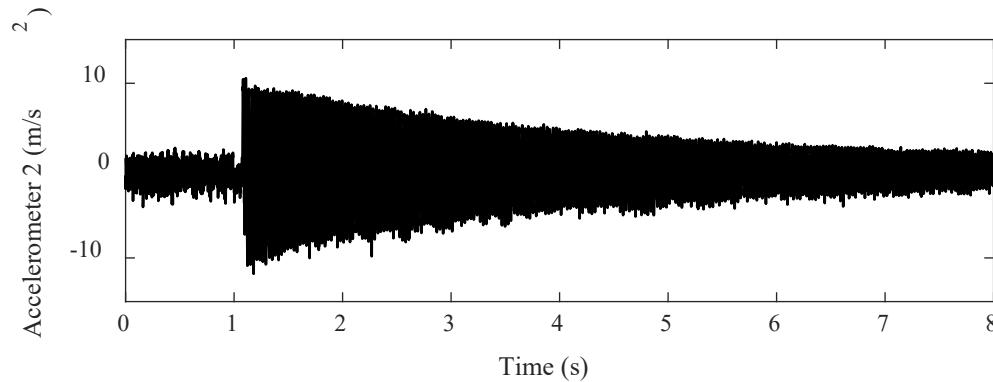
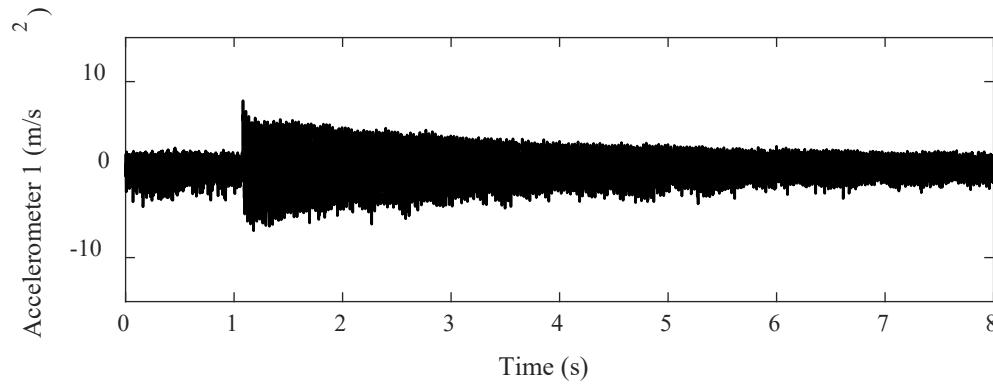
Applications

Datasets

## DATASET 3 – TEST 29

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $11 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

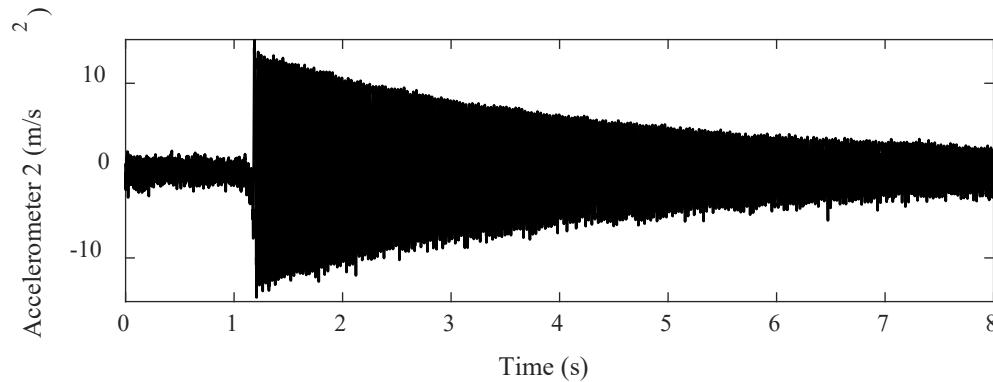
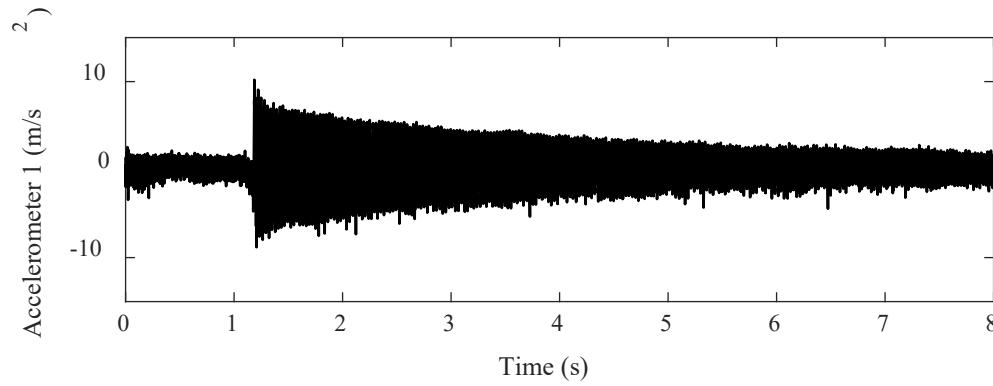
Applications

Datasets

## DATASET 3 – TEST 30

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $16 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

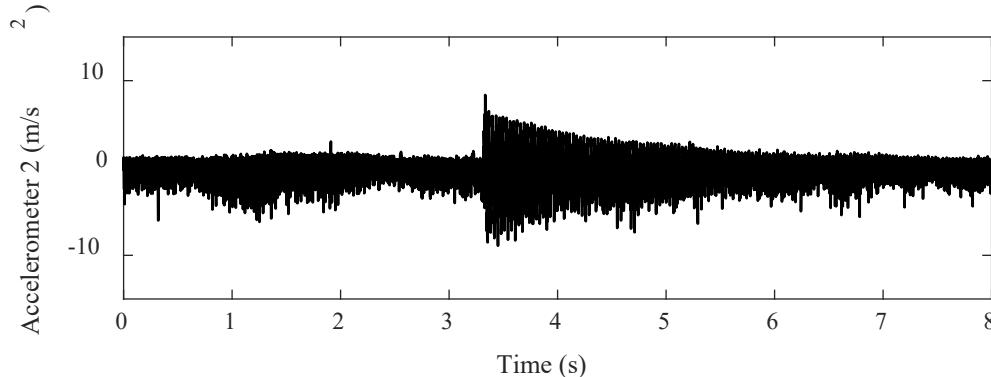
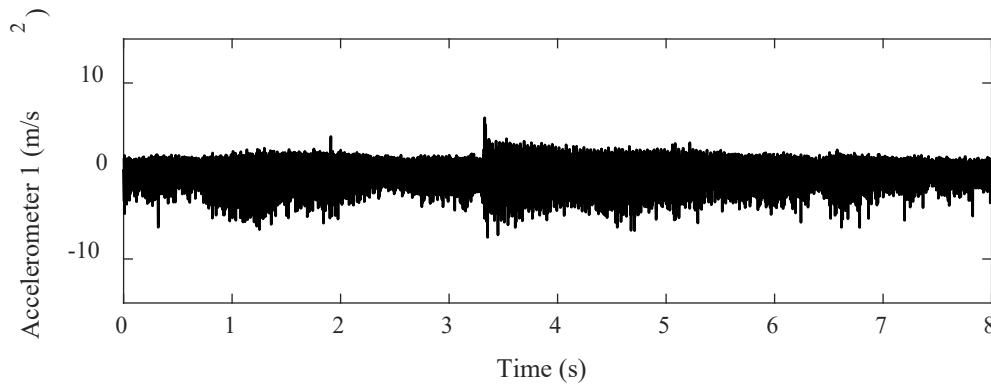
Applications

Datasets

## DATASET 3 – TEST 31

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $8 \text{ m/s}^2$
  - Hammer impact time: 3.19 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

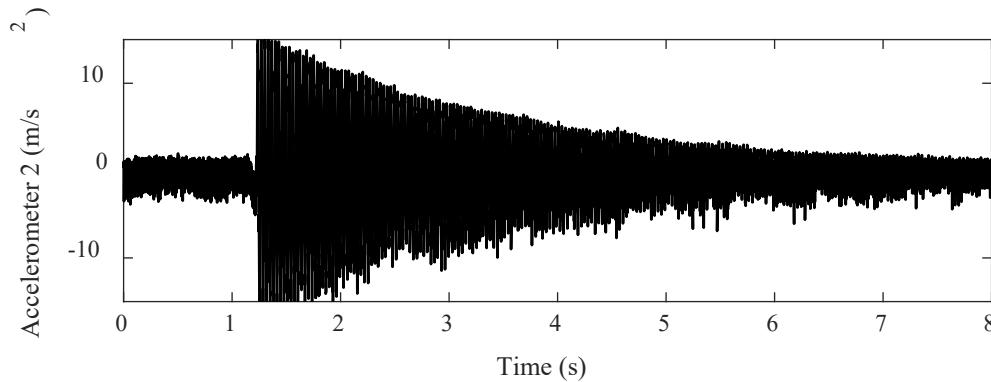
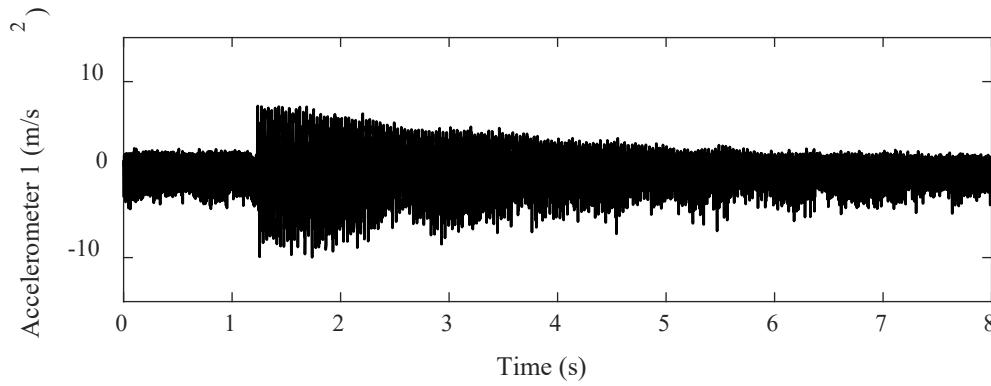
Applications

Datasets

## DATASET 3 – TEST 32

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration : 15 m/s<sup>2</sup>
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

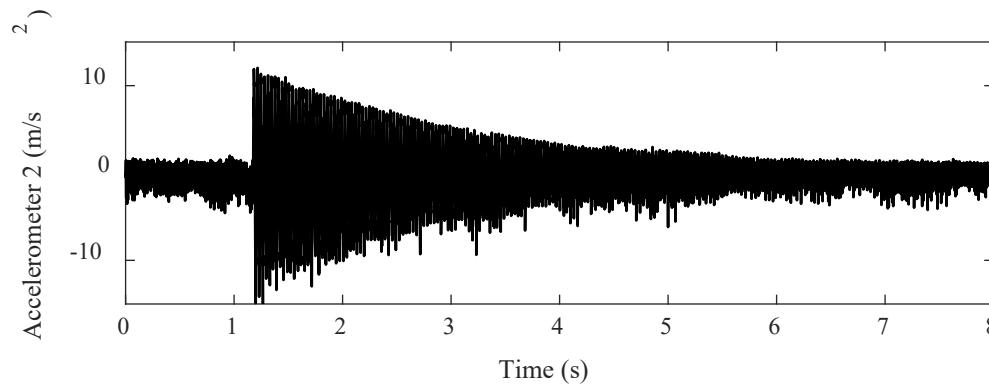
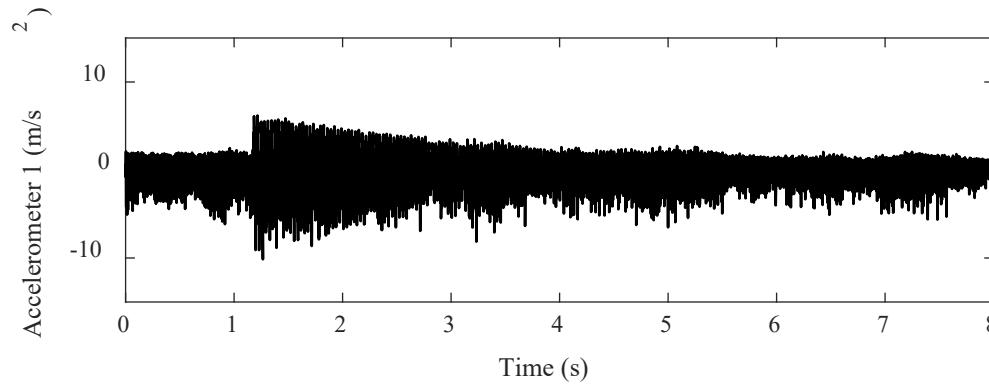
Applications

Datasets

## DATASET 3 – TEST 33

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $12 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

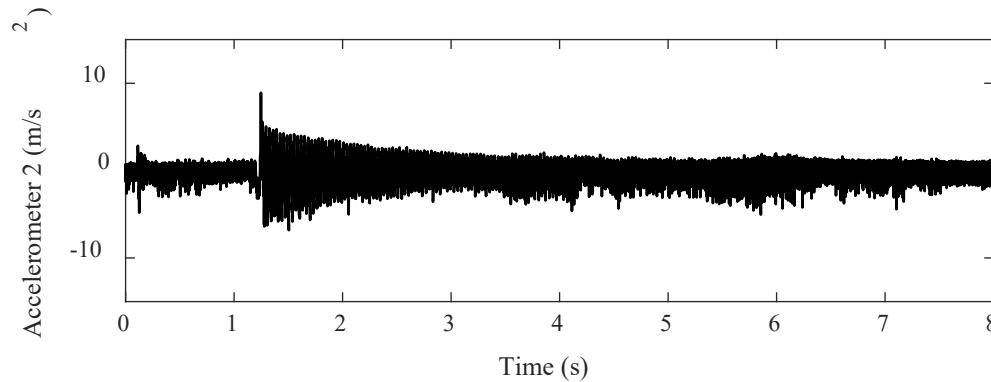
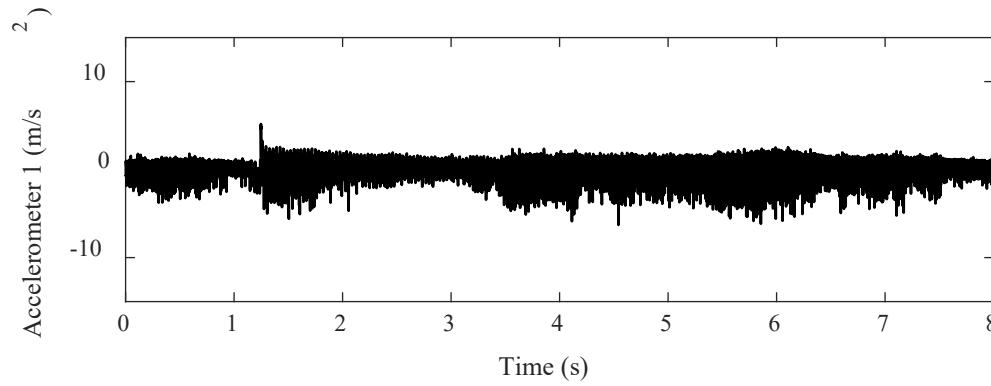
Applications

Datasets

## DATASET 3 – TEST 34

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration : 9 m/s<sup>2</sup>
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

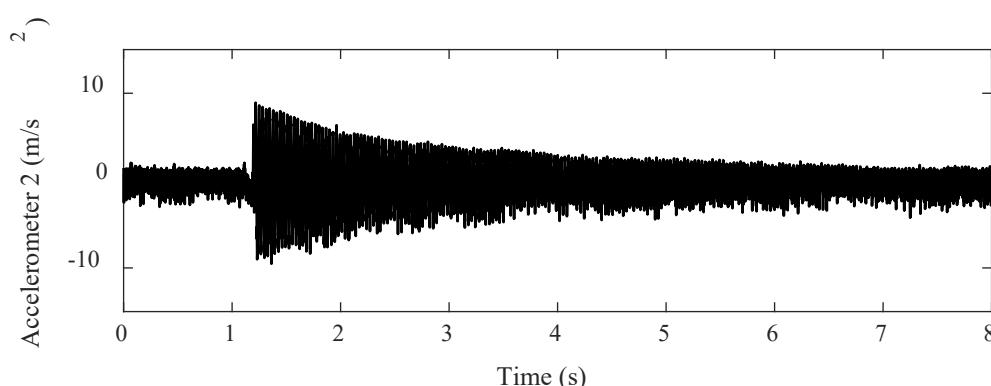
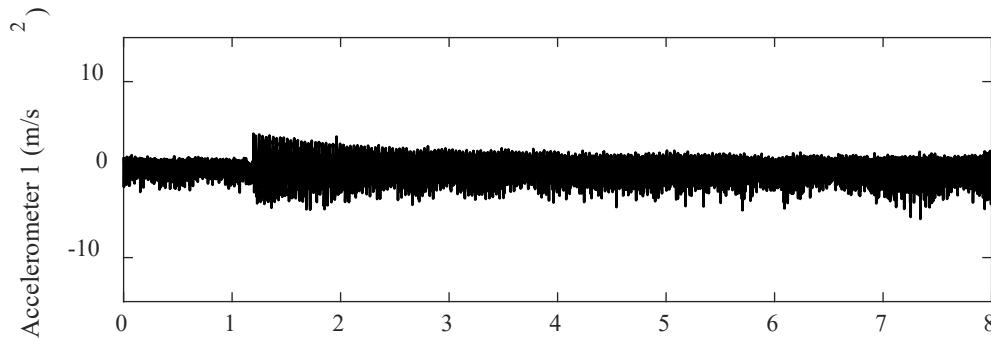
Applications

Datasets

## DATASET 3 – TEST 35

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration : 9 m/s<sup>2</sup>
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

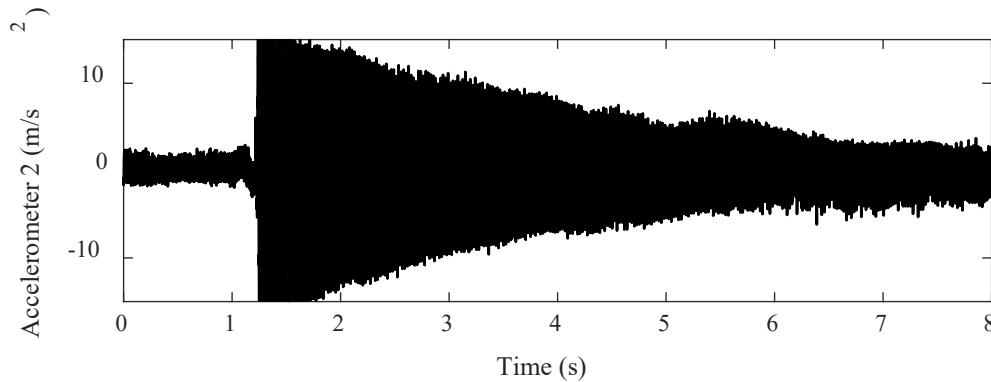
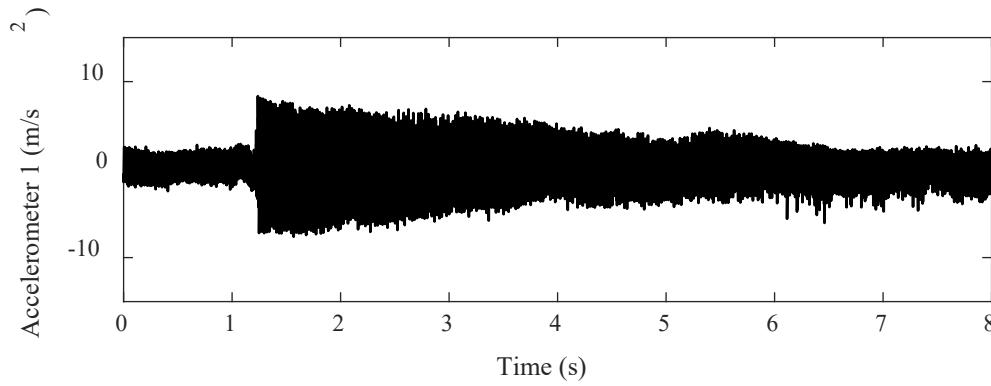
Applications

Datasets

## DATASET 3 – TEST 36

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $17 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

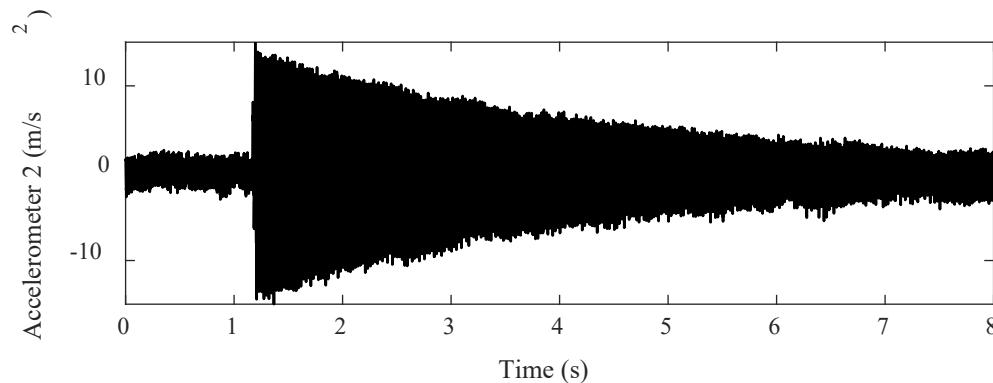
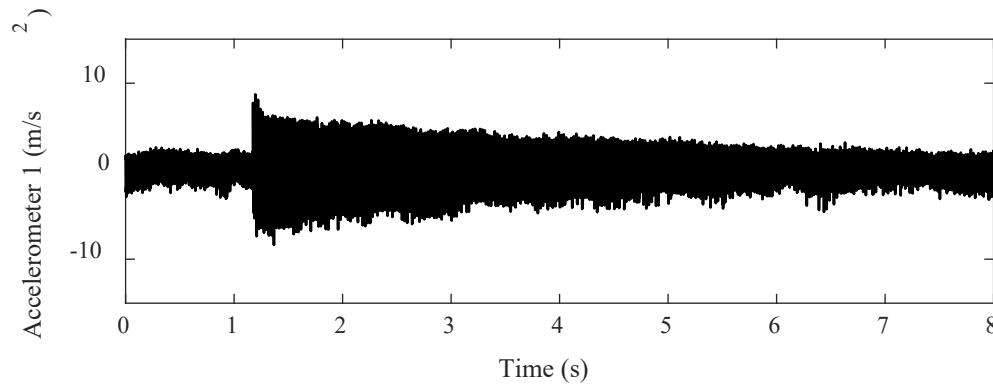
Applications

Datasets

## DATASET 3 – TEST 37

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $15 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

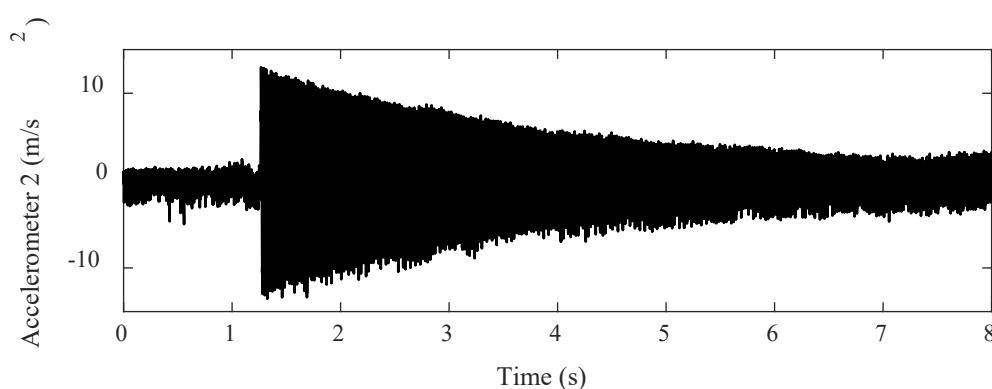
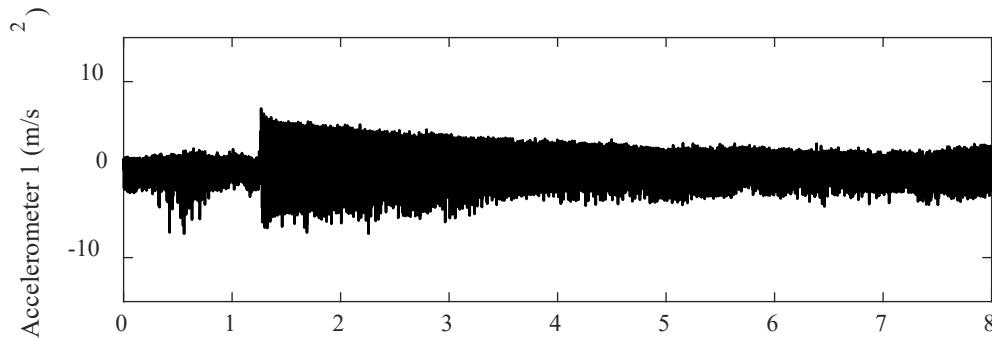
Applications

Datasets

## DATASET 3 – TEST 38

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $13 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

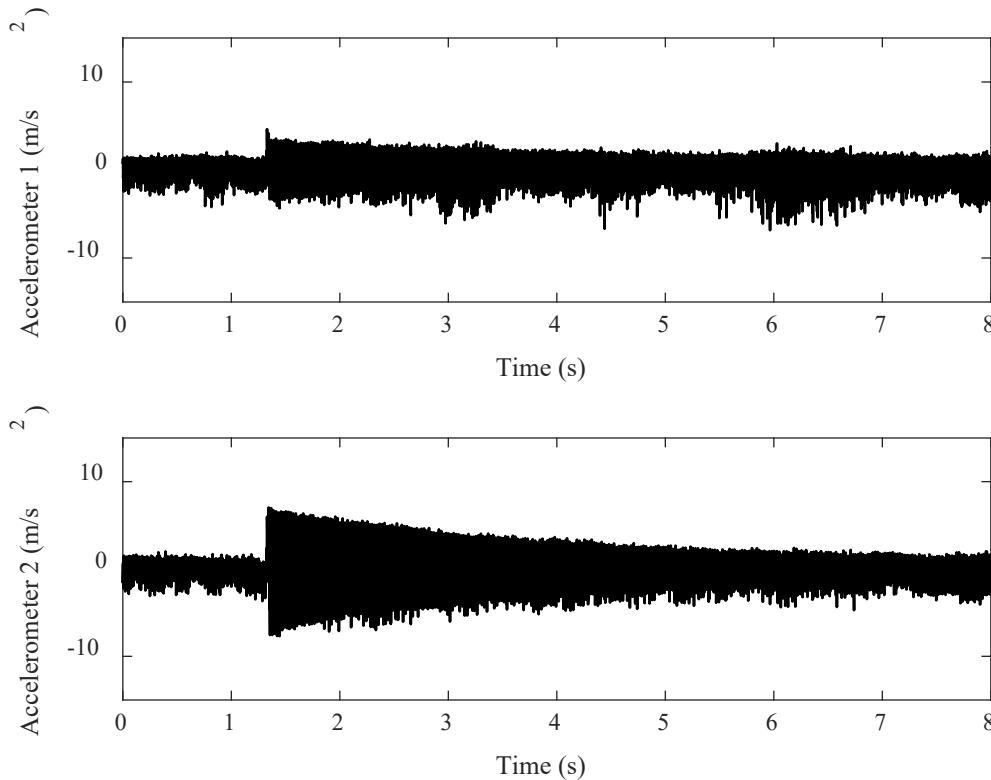
Applications

Datasets

## DATASET 3 – TEST 39

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration : 7 m/s<sup>2</sup>
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

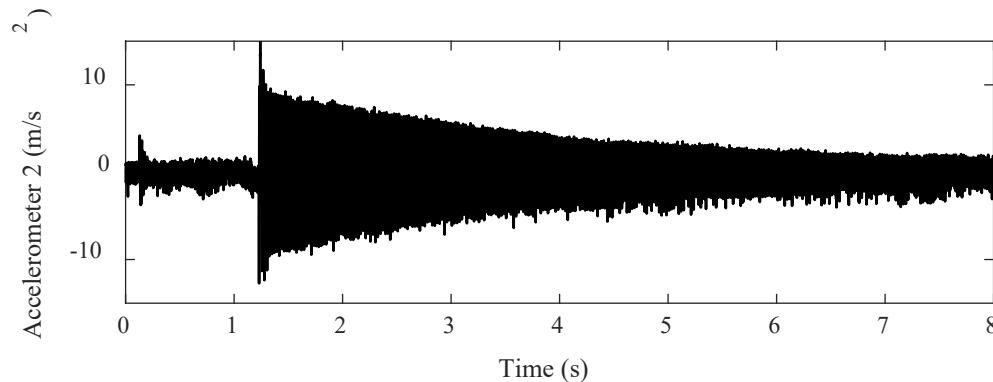
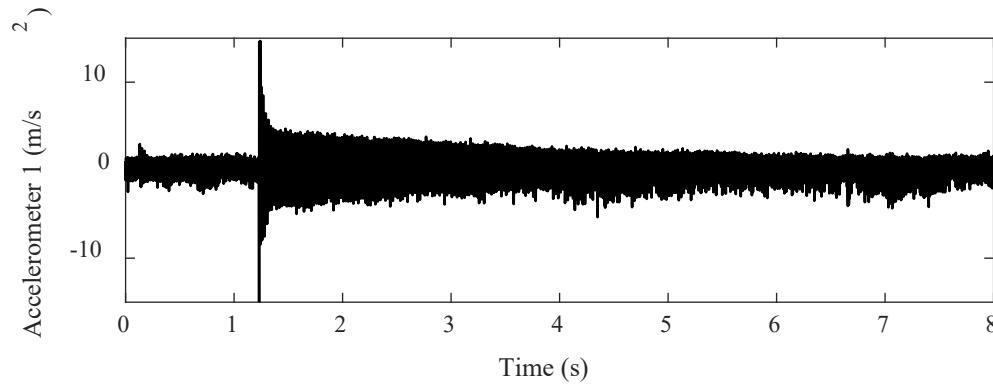
Applications

Datasets

## DATASET 3 – TEST 40

### EXCITATIONS:

- Static cart action (50 mm)
  - Single hammer impact
  - Electromagnet mass
- Max acceleration :  $17 \text{ m/s}^2$
  - Hammer impact time: 1.00 s
  - Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 4 – SENSORS

### SENSORS:

2x Accelerometer (PCB 353B17)

1. SN 127691 – 300 mm
2. SN 139351 – 400 mm

9x Strain gauge

1. 25 mm
2. 75 mm
3. 125 mm
4. 175 mm
5. 225 mm
6. 275 mm
7. 325 mm
8. 375 mm
9. 425 mm

### Excitation notes

- Single hammer impact to begin test 500 mm from clamp
- Mass remains for whole test duration

Sampling frequency: 25,600 samples/s

# Datasets

High-Rate  
Overview

Benchmark

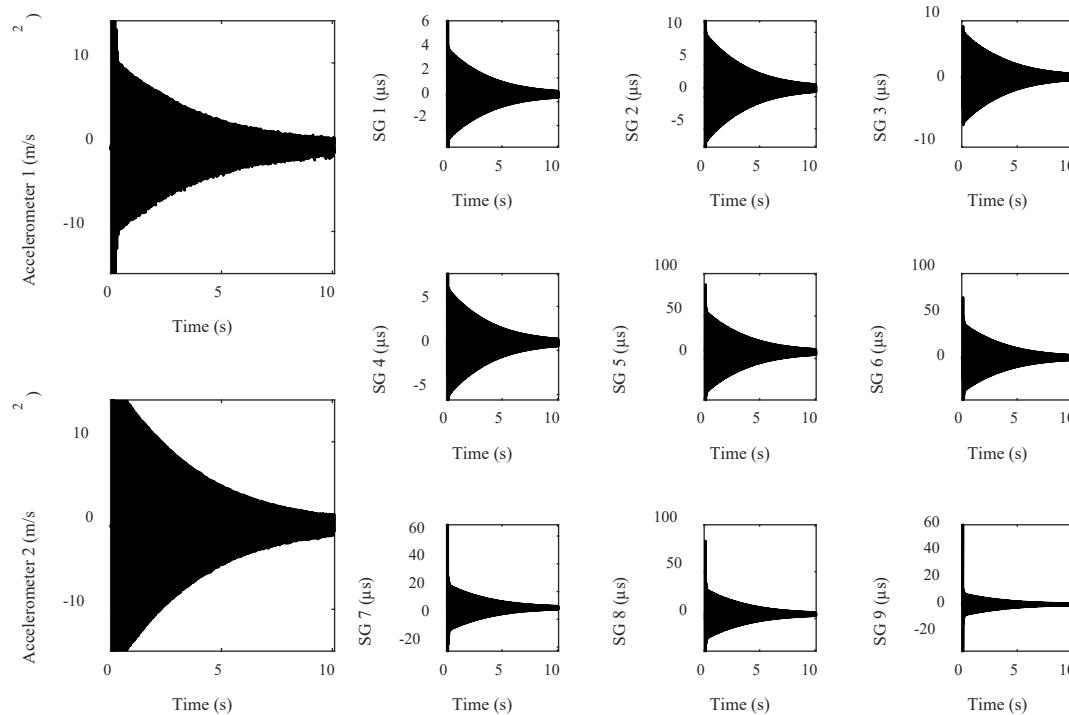
Applications

Datasets

## DATASET 4 – TEST 1

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $1153 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

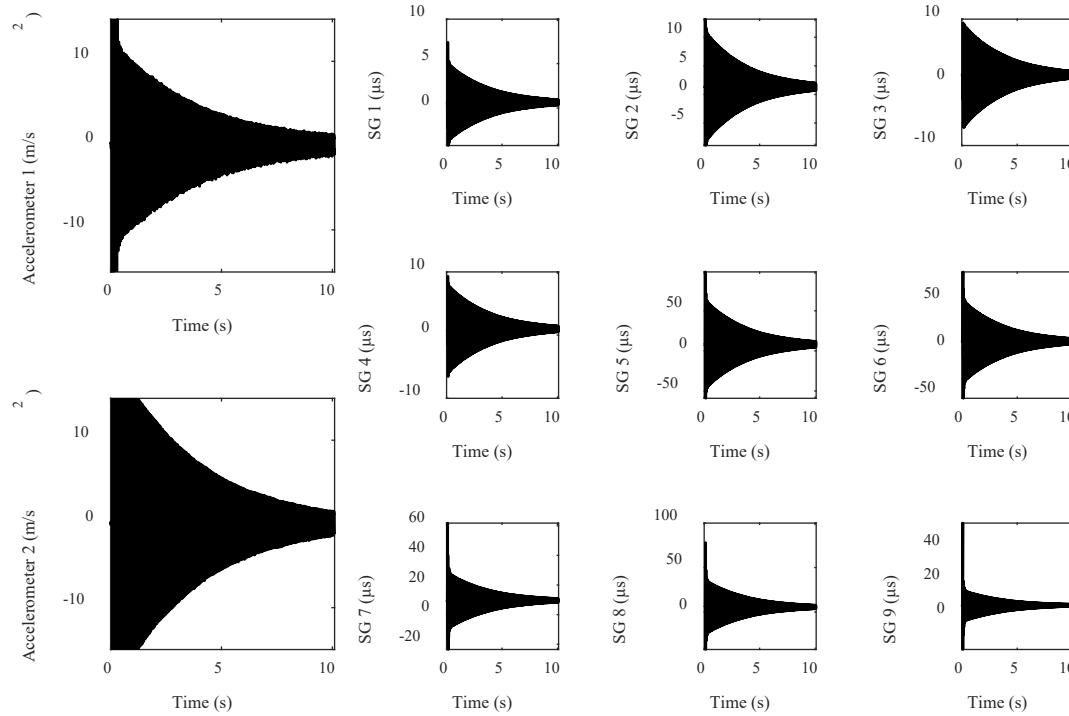
Applications

Datasets

## DATASET 4 – TEST 2

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $763 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

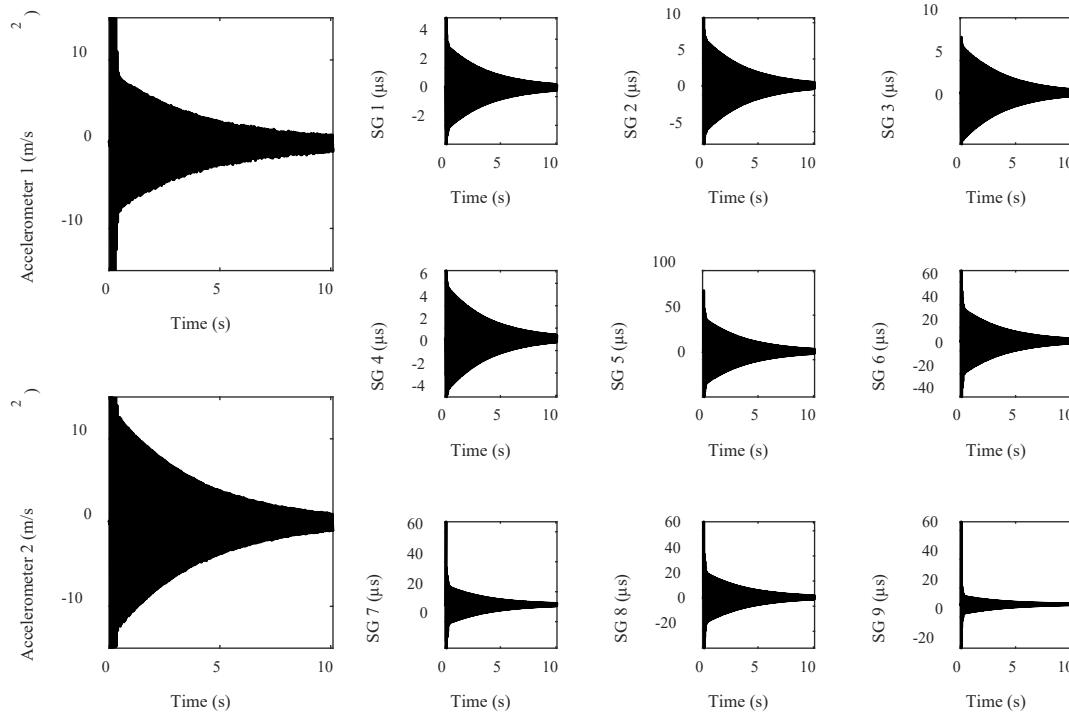
Applications

Datasets

## DATASET 4 – TEST 3

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $1108 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

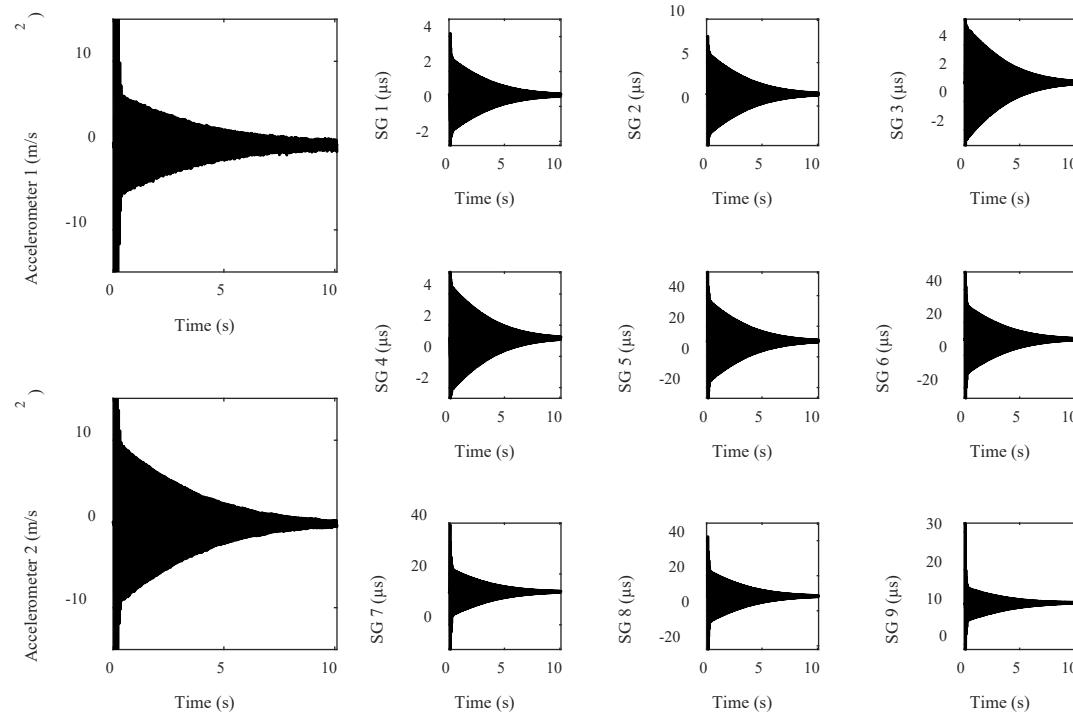
Applications

Datasets

## DATASET 4 – TEST 4

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $334 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

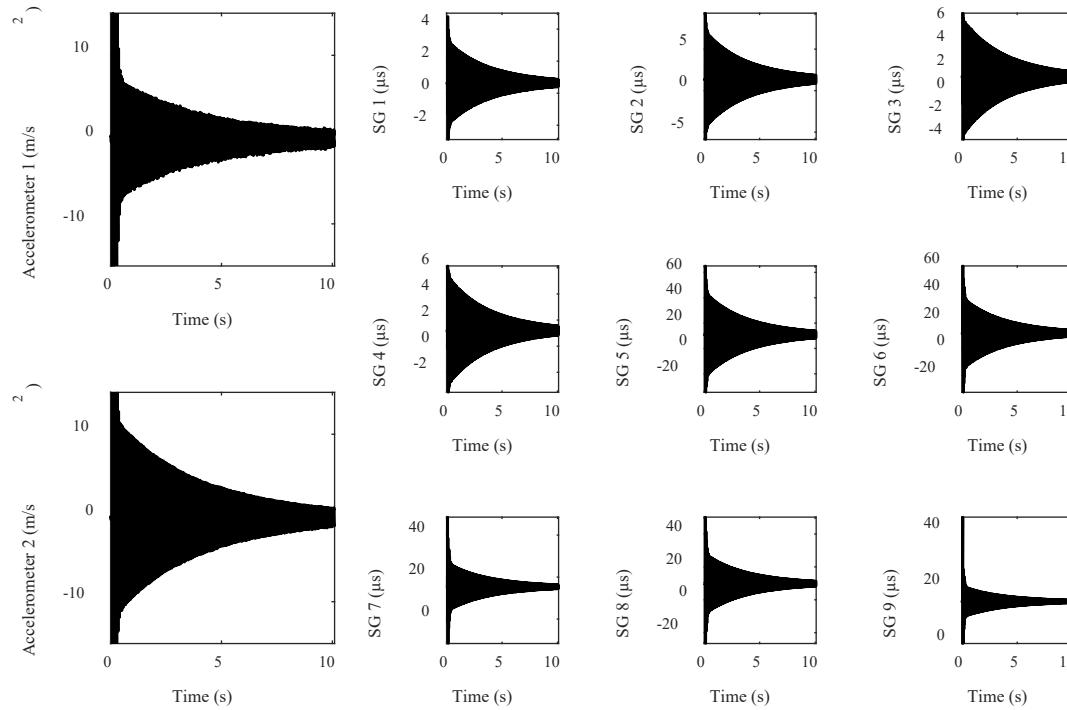
Applications

Datasets

## DATASET 4 – TEST 5

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $462 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

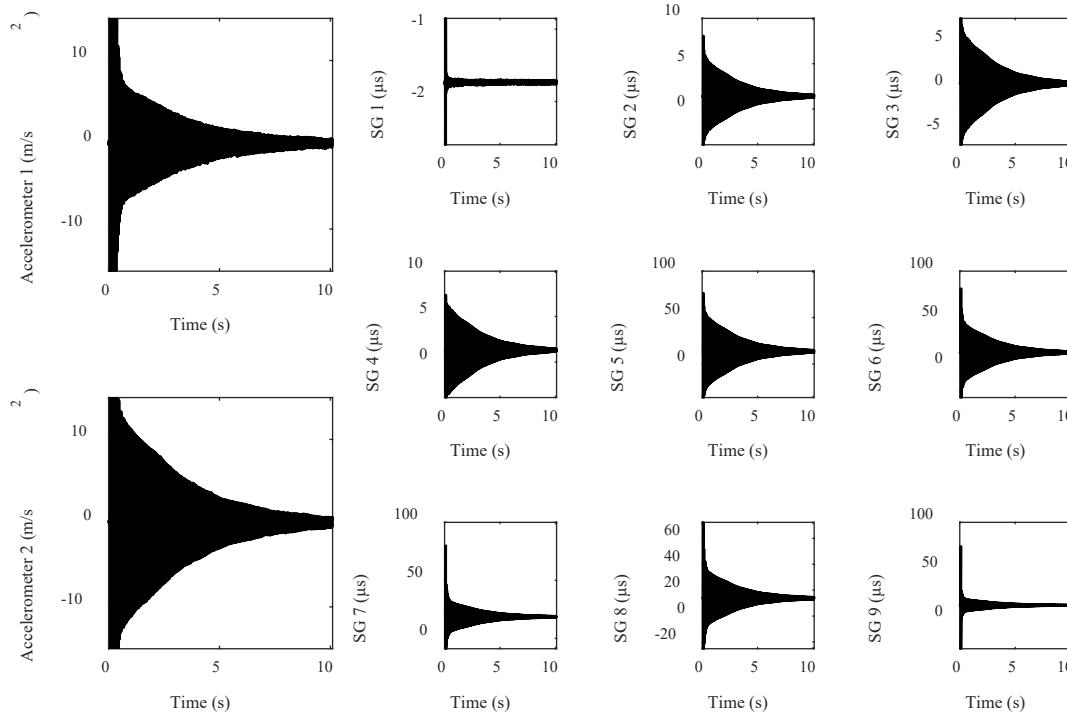
Applications

Datasets

## DATASET 4 – TEST 6

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $1165 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

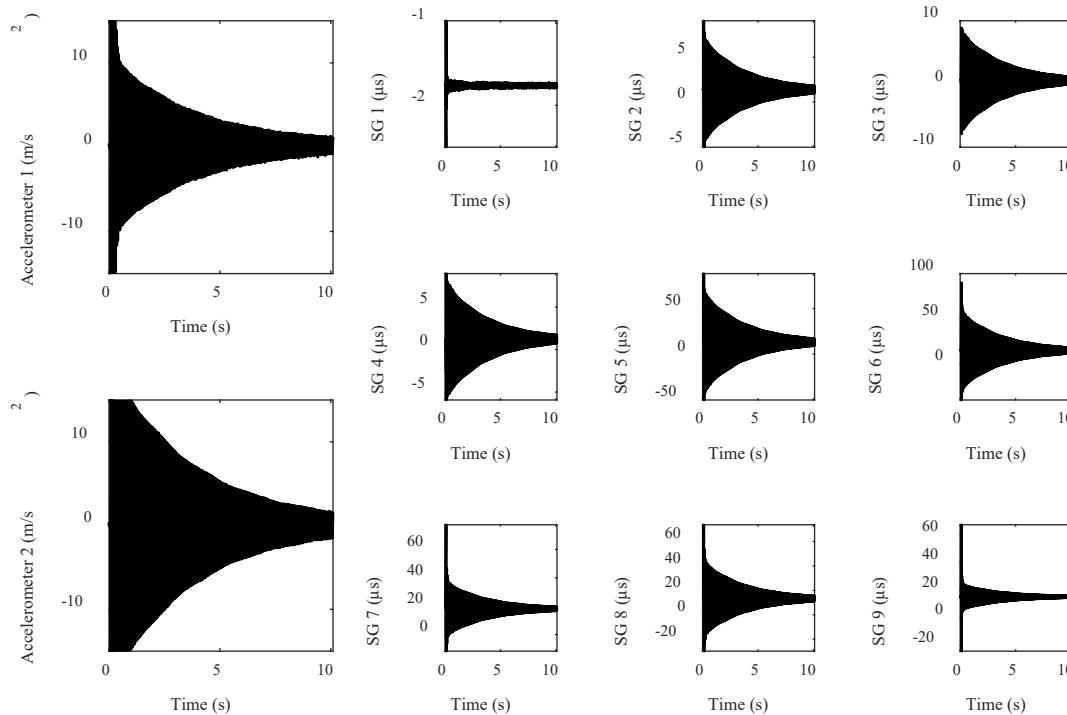
Applications

Datasets

## DATASET 4 – TEST 7

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $926 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

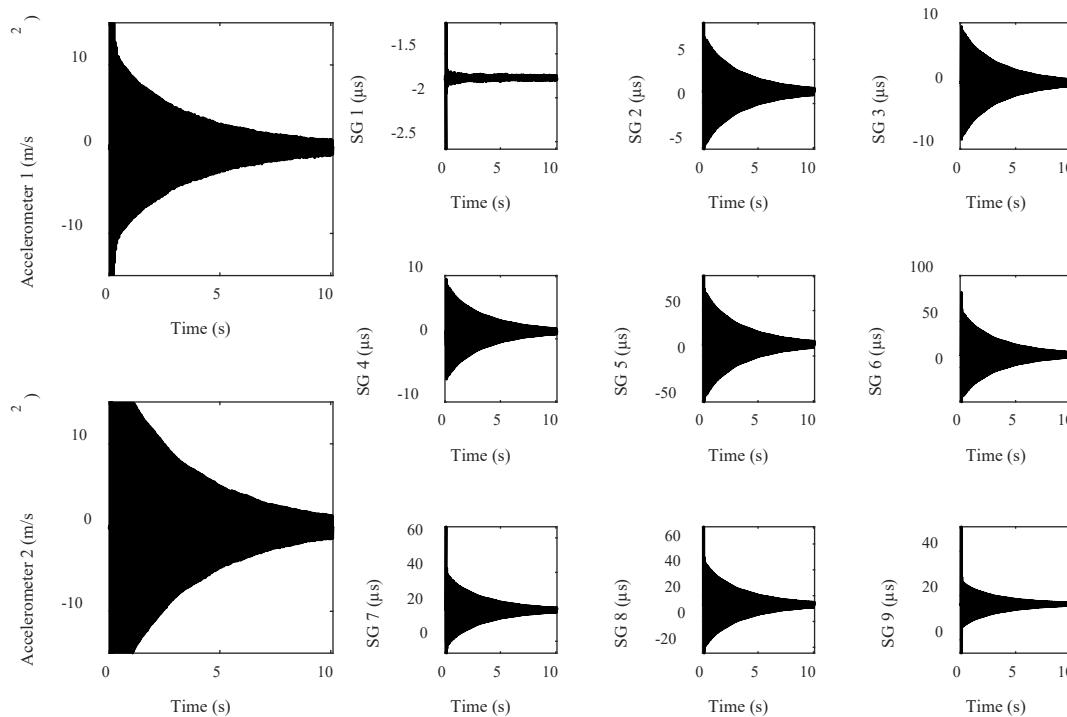
Applications

Datasets

## DATASET 4 – TEST 8

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $761 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

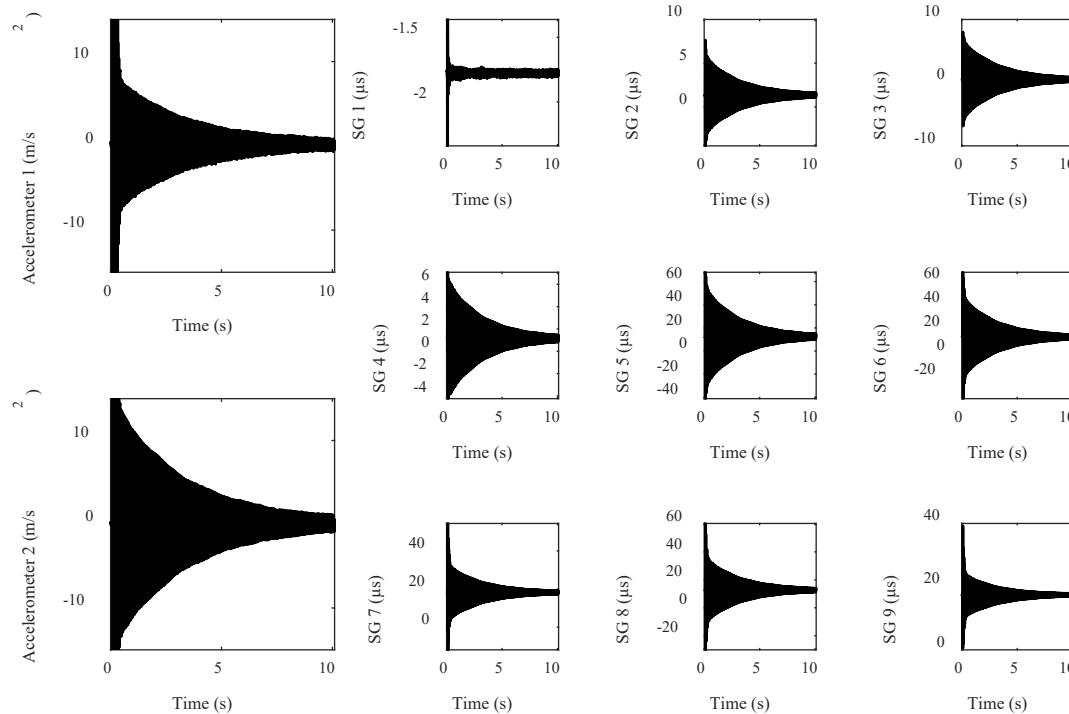
Applications

Datasets

## DATASET 4 – TEST 9

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $547 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

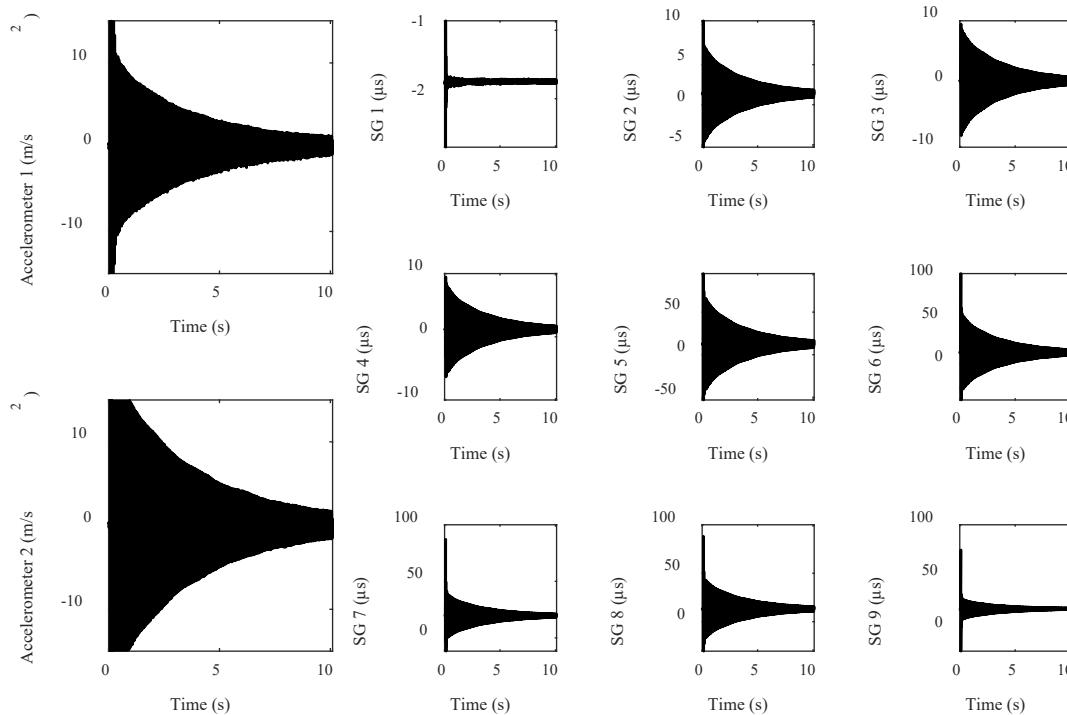
Applications

Datasets

## DATASET 4 – TEST 10

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $925 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

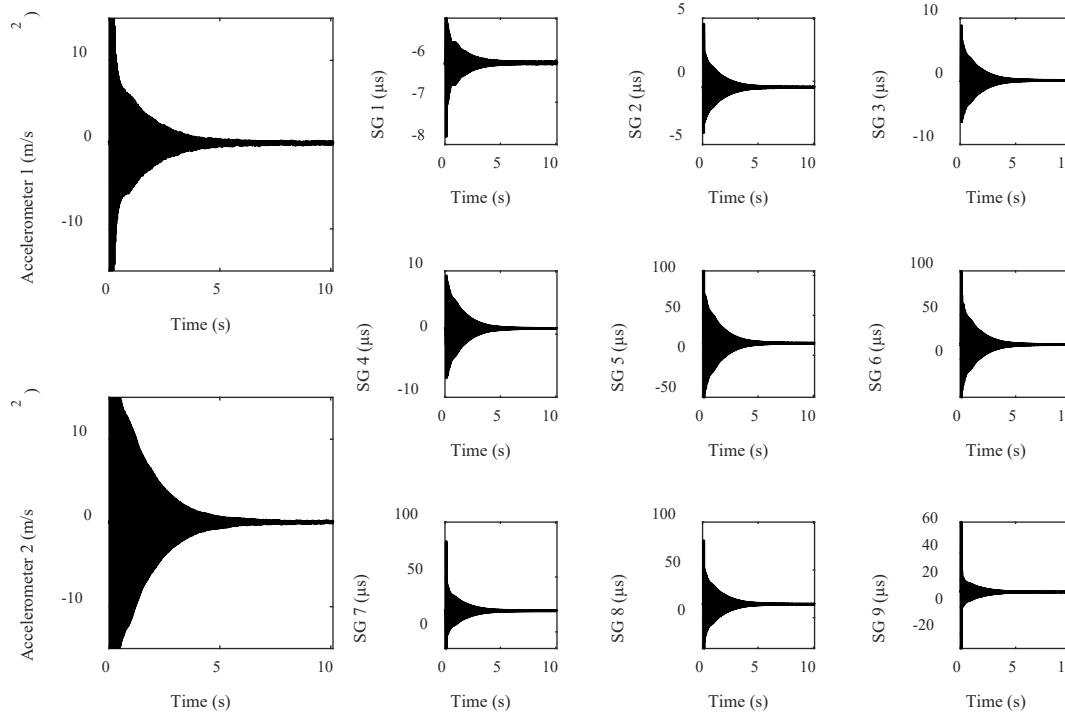
Applications

Datasets

## DATASET 4 – TEST 11

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $882 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

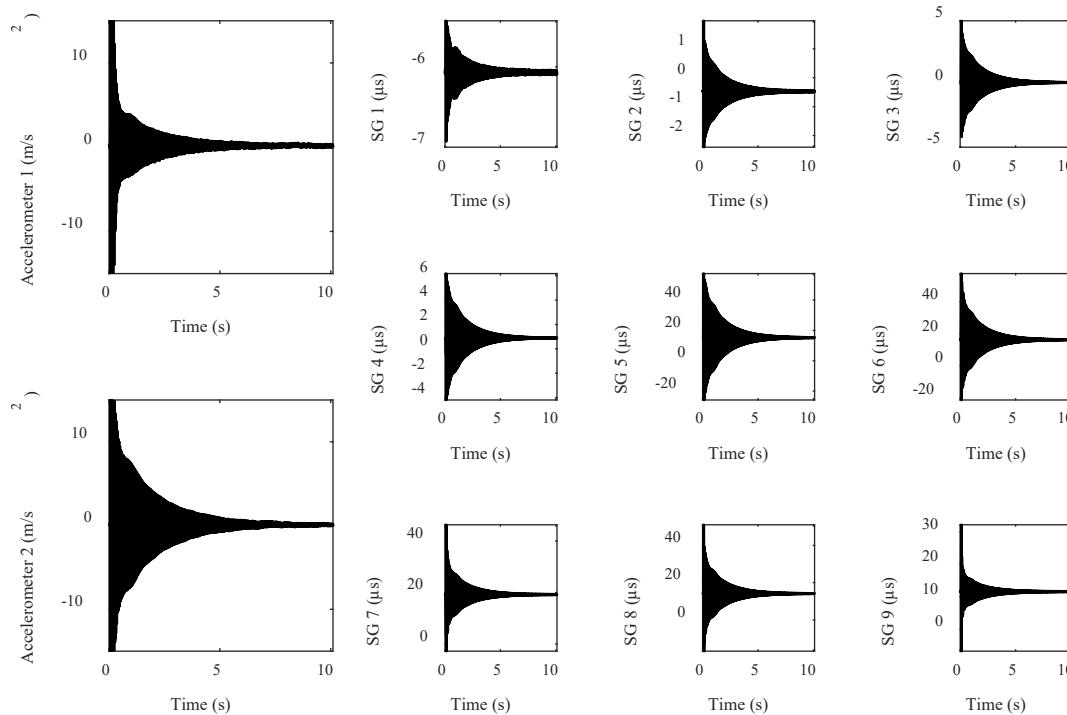
Applications

Datasets

## DATASET 4 – TEST 12

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $355 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

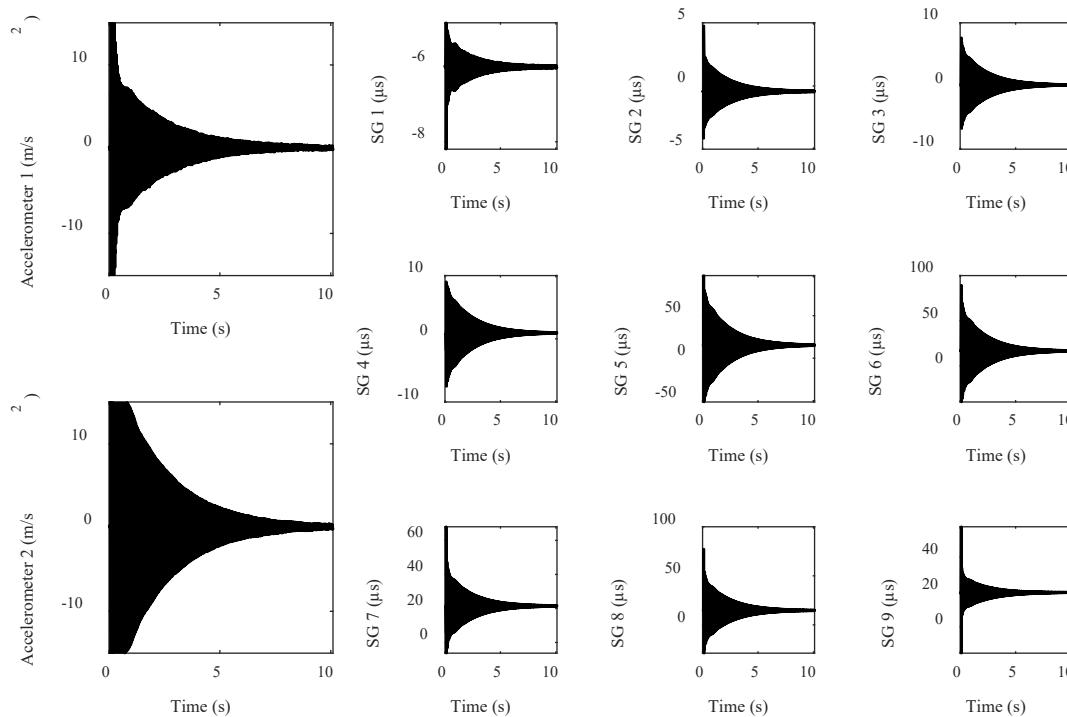
Applications

Datasets

## DATASET 4 – TEST 13

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $745 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

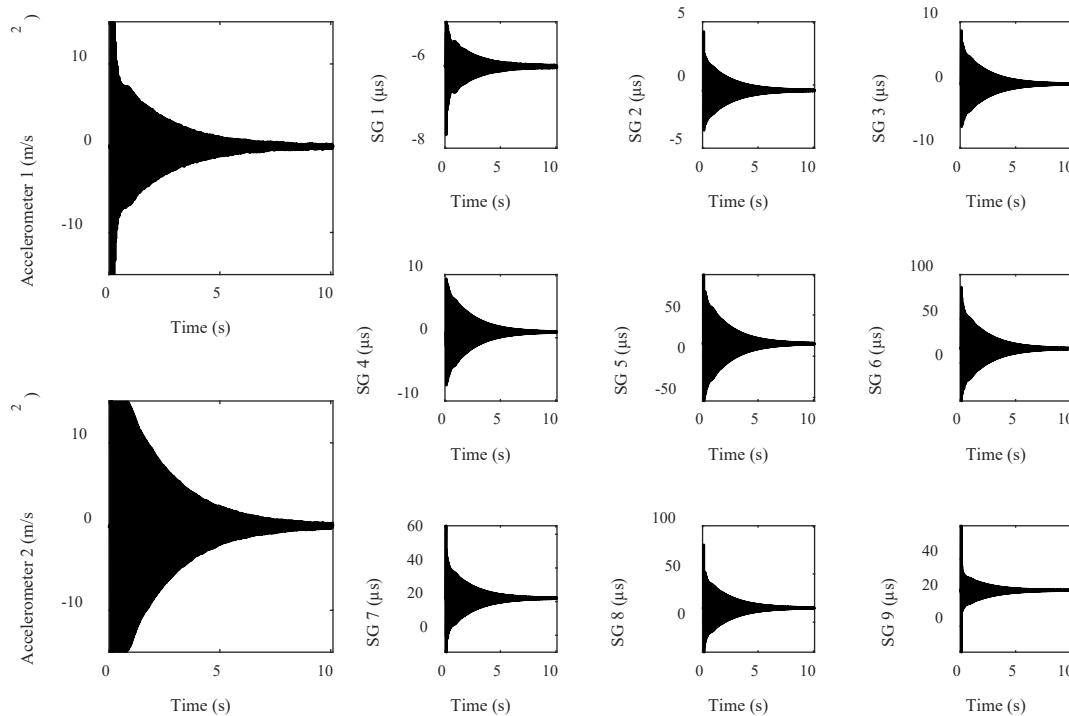
Applications

Datasets

## DATASET 4 – TEST 14

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $594 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

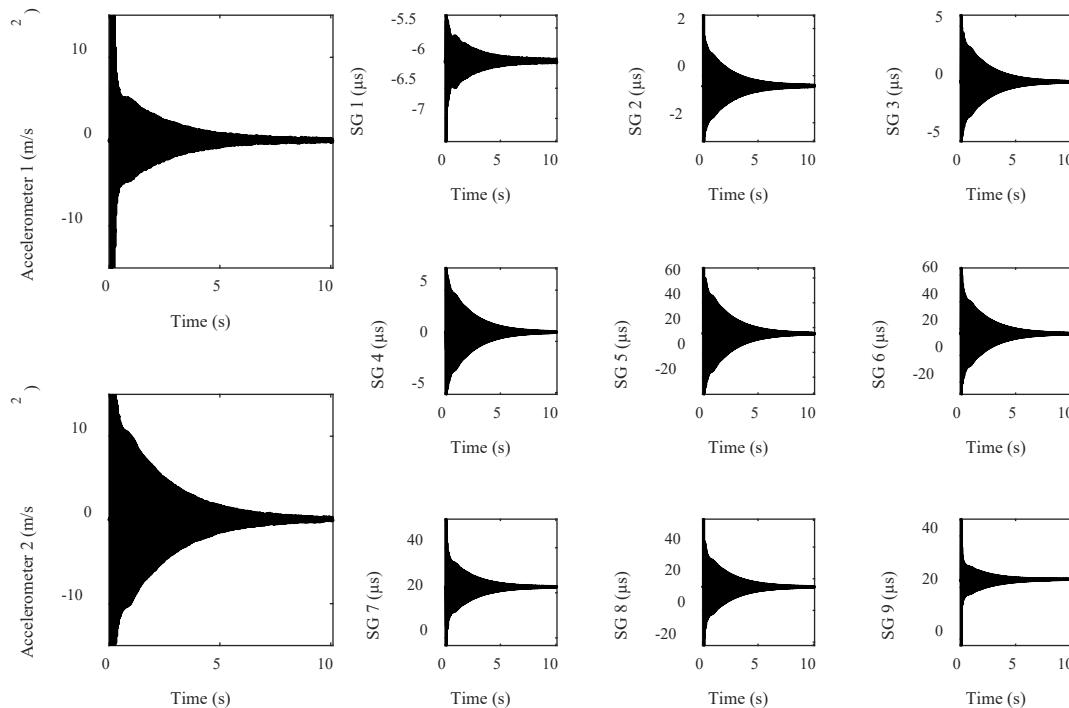
Applications

Datasets

## DATASET 4 – TEST 15

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $346 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

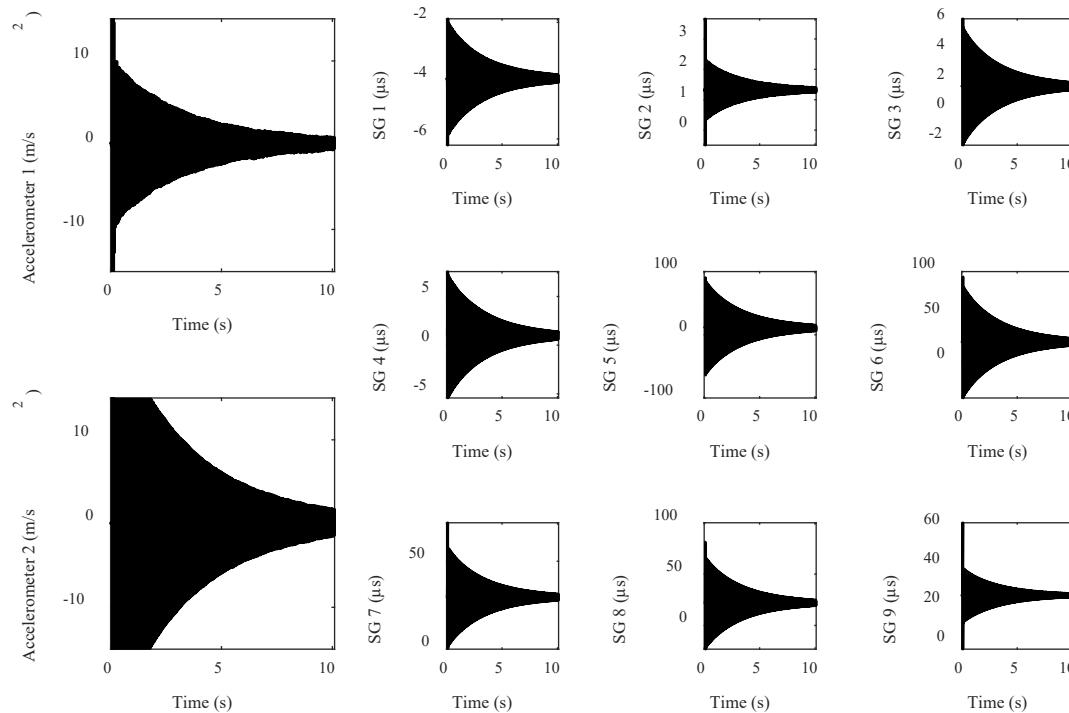
Applications

Datasets

## DATASET 4 – TEST 16

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $524 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

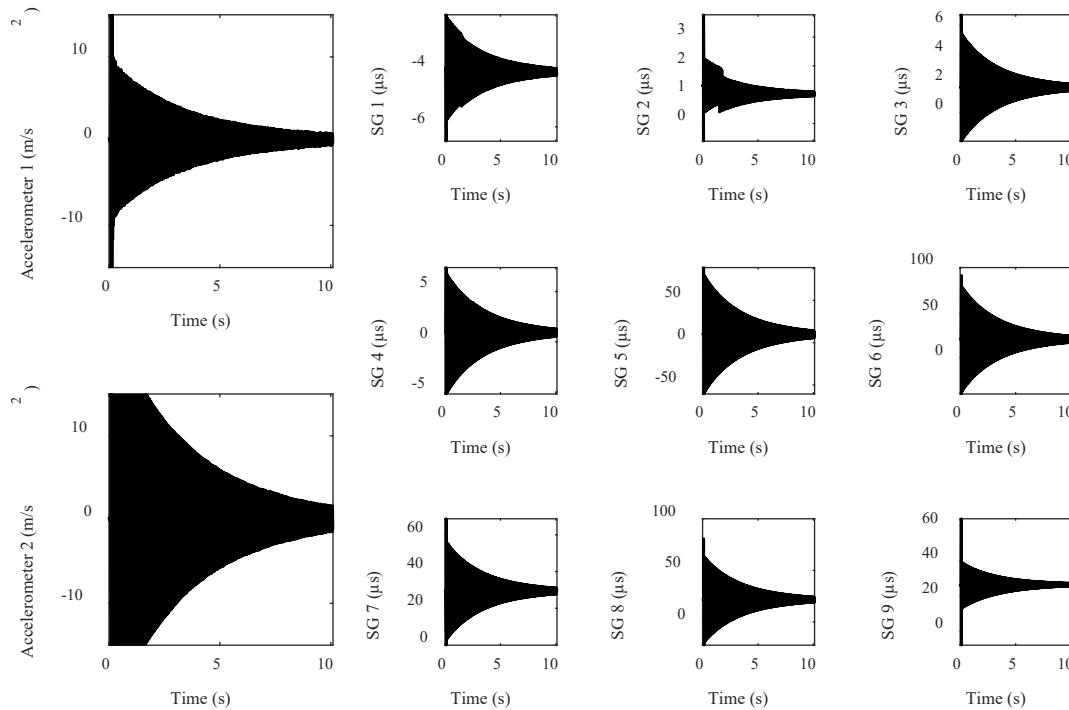
Applications

Datasets

## DATASET 4 – TEST 17

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $594 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

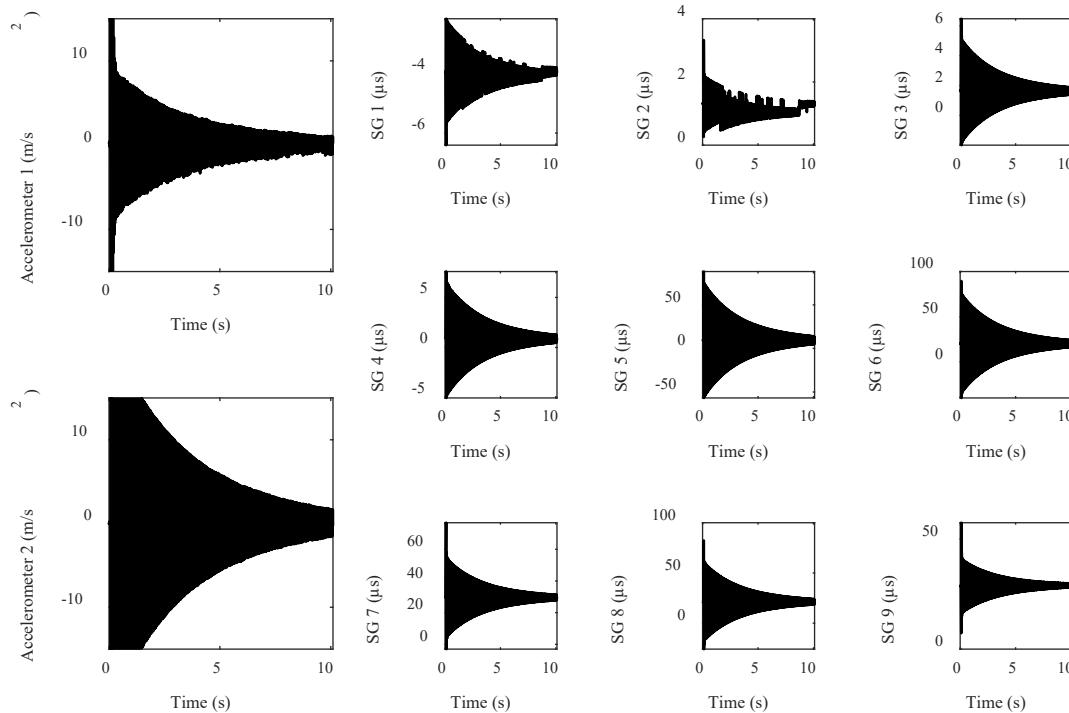
Applications

Datasets

## DATASET 4 – TEST 18

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $434 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

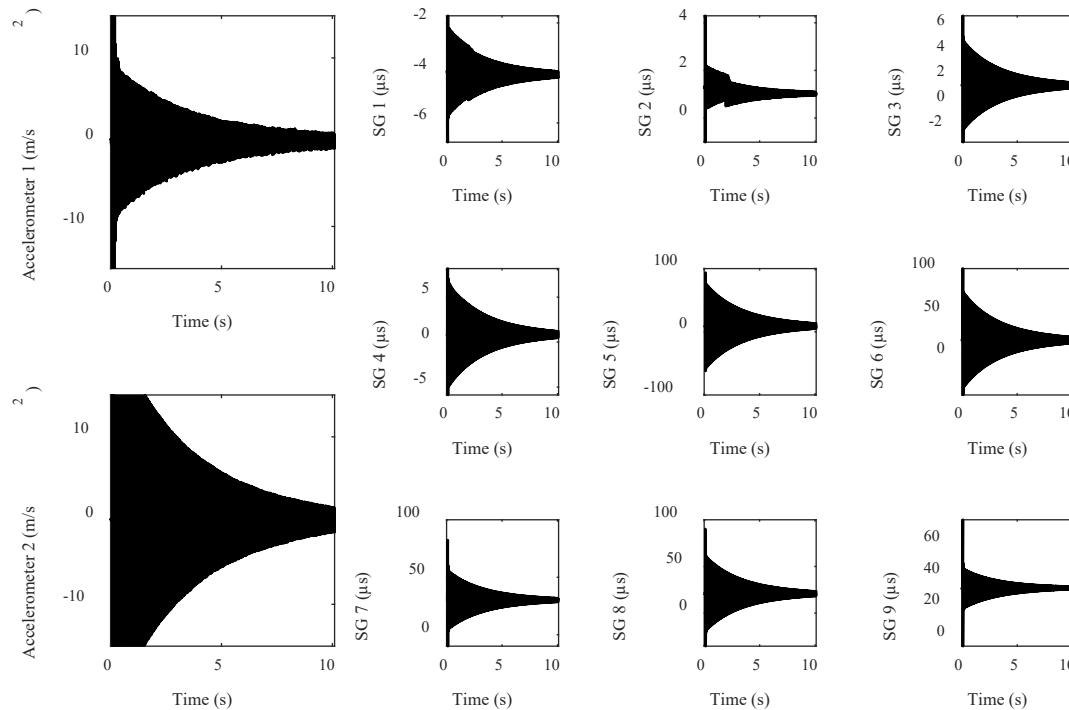
Applications

Datasets

## DATASET 4 – TEST 19

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $747 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

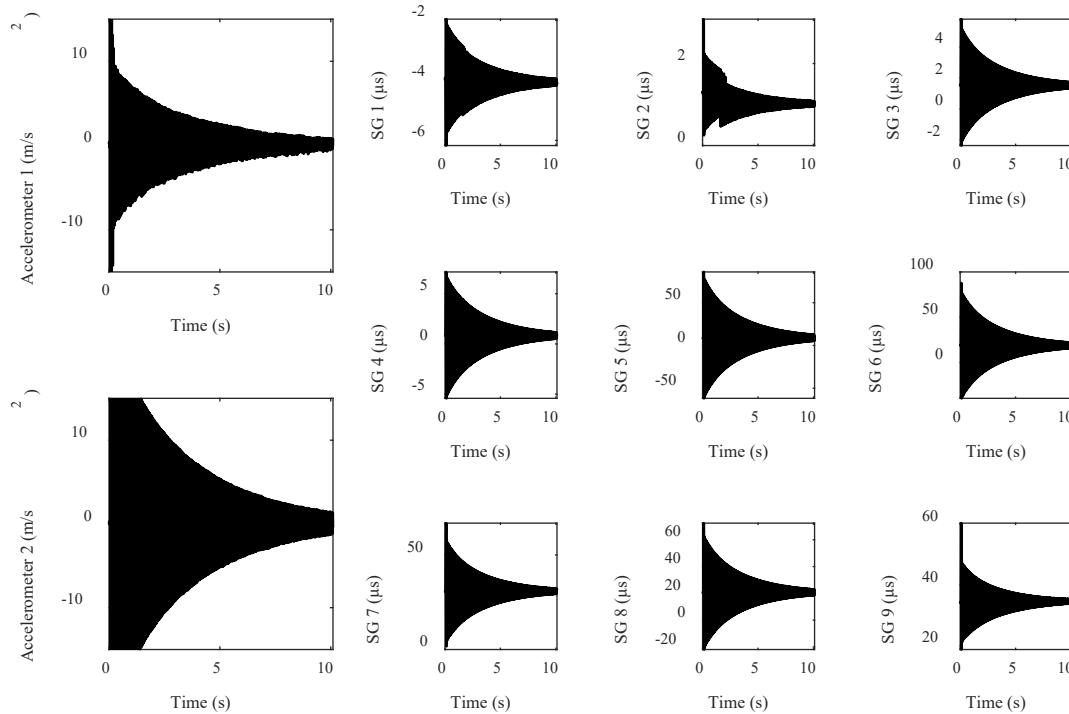
Applications

Datasets

## DATASET 4 – TEST 20

### EXCITATIONS:

- Static cart action (50 mm)
- Single hammer impact
- Electromagnet mass
- Max acceleration :  $461 \text{ m/s}^2$
- Hammer impact time: 0.1s
- Mass drop time: N/a



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 5 – SENSORS

### SENSORS:

1x Accelerometer (PCB 353B17)

1. 306 mm

1x Laser vibrometer

1. 306 mm

2x Strain gauge

1. 306 mm
2. 306 mm

### Excitation notes

- Single hammer impact 0.5 seconds into test at 500 mm from clamp
- Electromagnetic mass remains on beam during testing

Sampling frequency: 1000 samples/s

# Datasets

High-Rate  
Overview

Benchmark

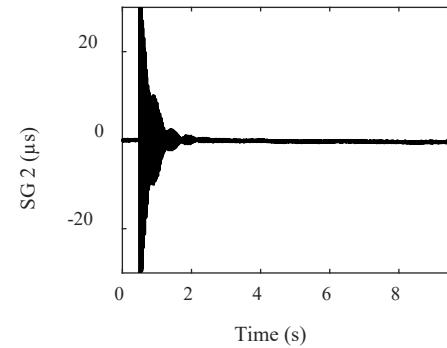
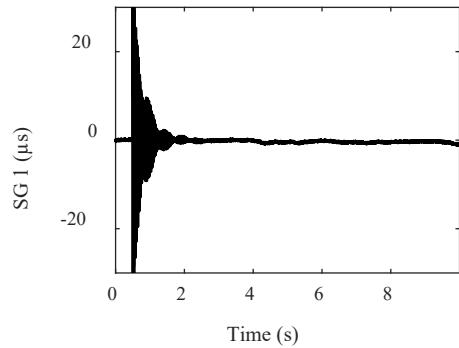
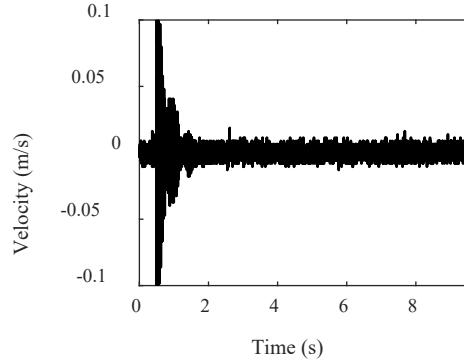
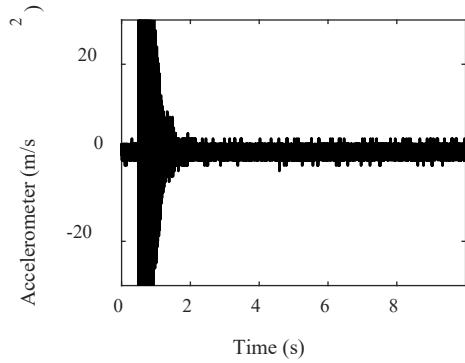
Applications

Datasets

## DATASET 5 – TEST 1

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $754.4 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

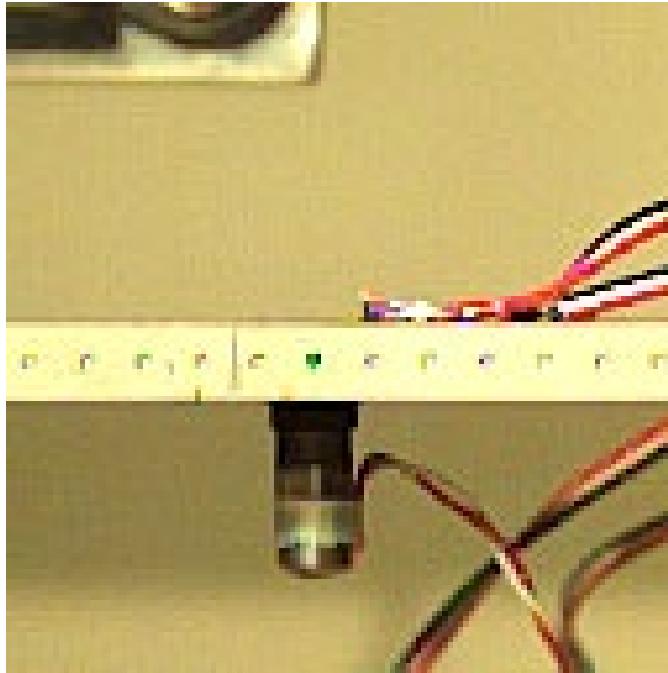
Applications

Datasets

## DATASET 5 – TEST 1

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $754.4 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

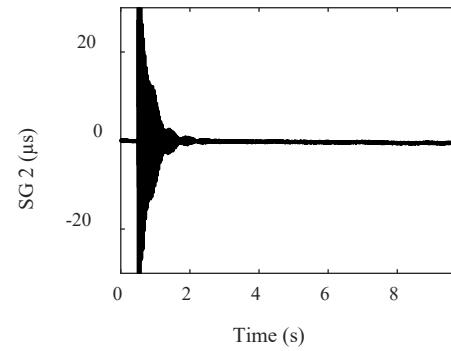
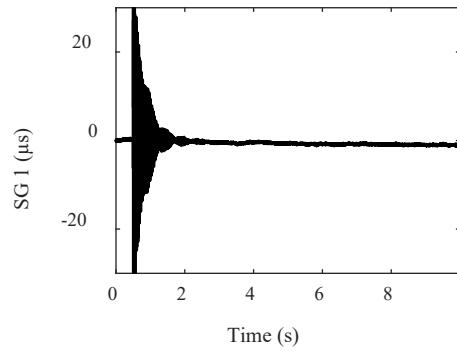
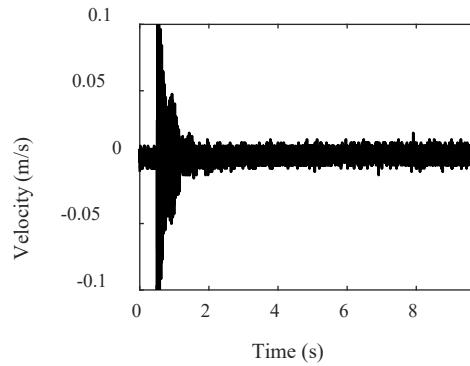
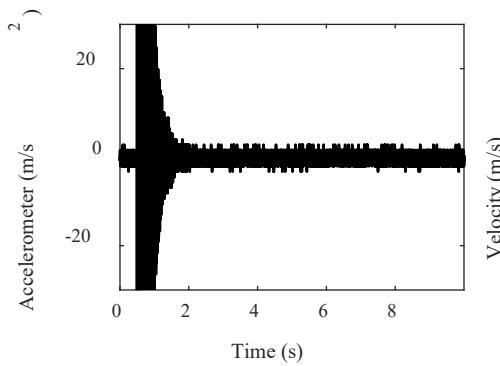
Applications

Datasets

## DATASET 5 – TEST 2

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $845.9 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

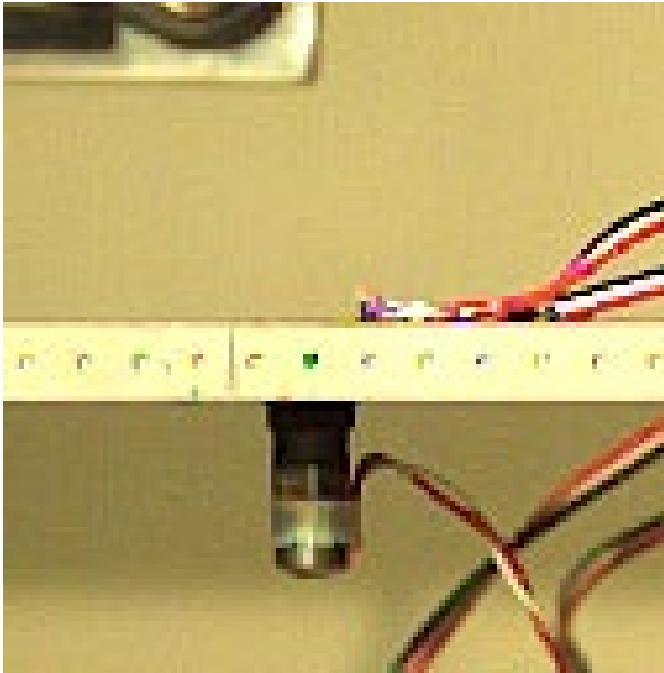
Applications

Datasets

## DATASET 5 – TEST 2

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $845.9 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

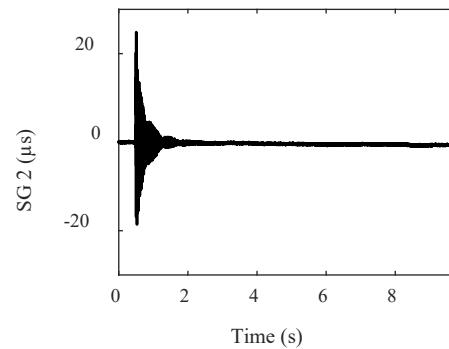
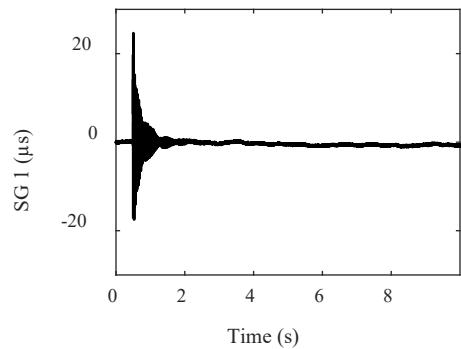
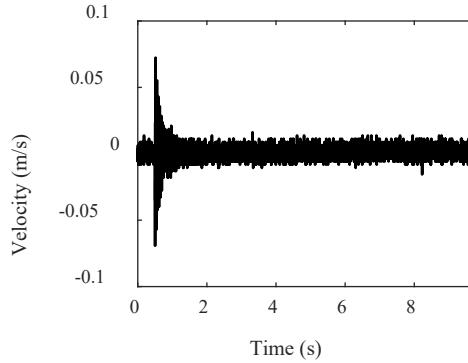
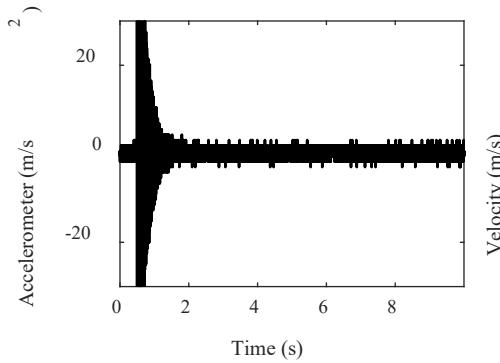
Applications

Datasets

## DATASET 5 – TEST 3

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $481.0 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 5 – TEST 3

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration : 481.0 m/s<sup>2</sup>
- Mass drop: N/a

# Datasets

High-Rate  
Overview

Benchmark

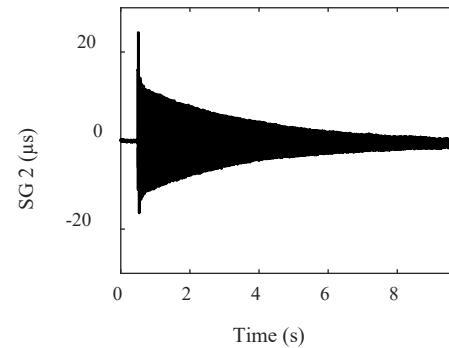
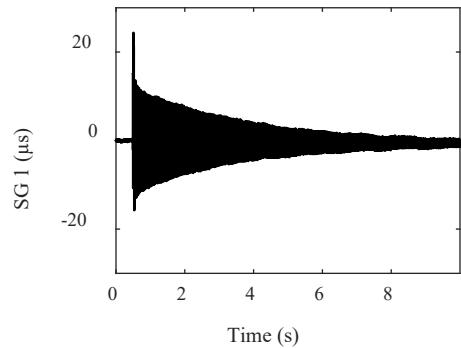
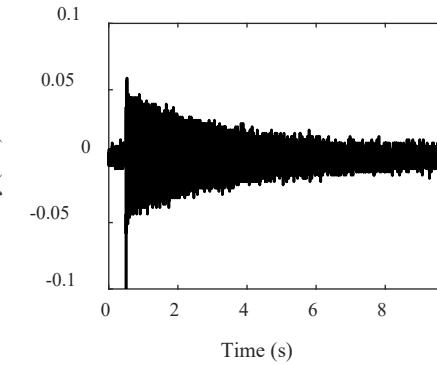
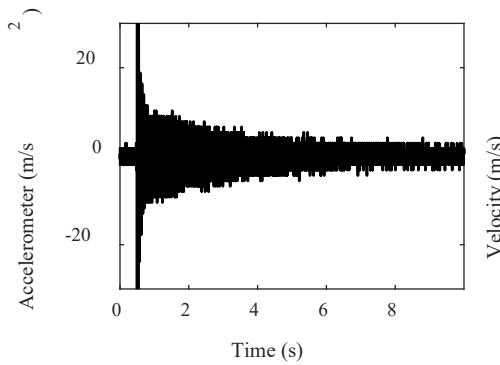
Applications

Datasets

## DATASET 5 – TEST 4

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $137.9 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

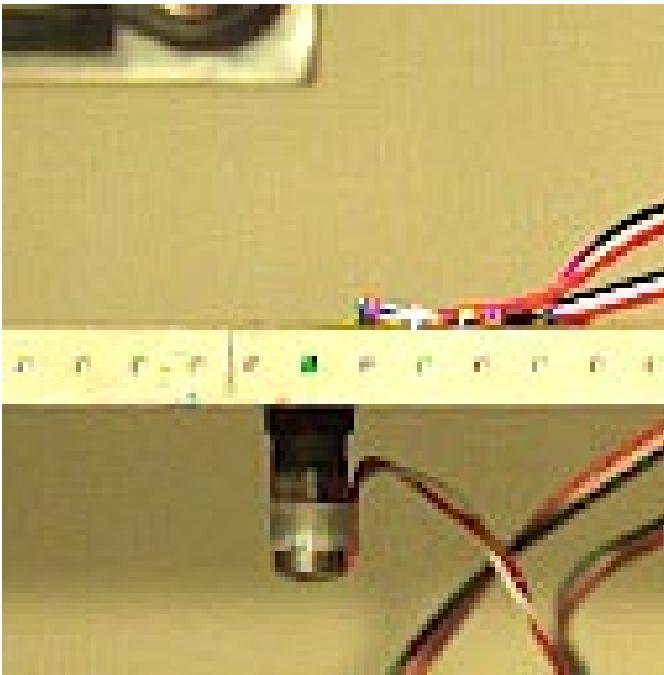
Applications

Datasets

## DATASET 5 – TEST 4

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $137.9 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

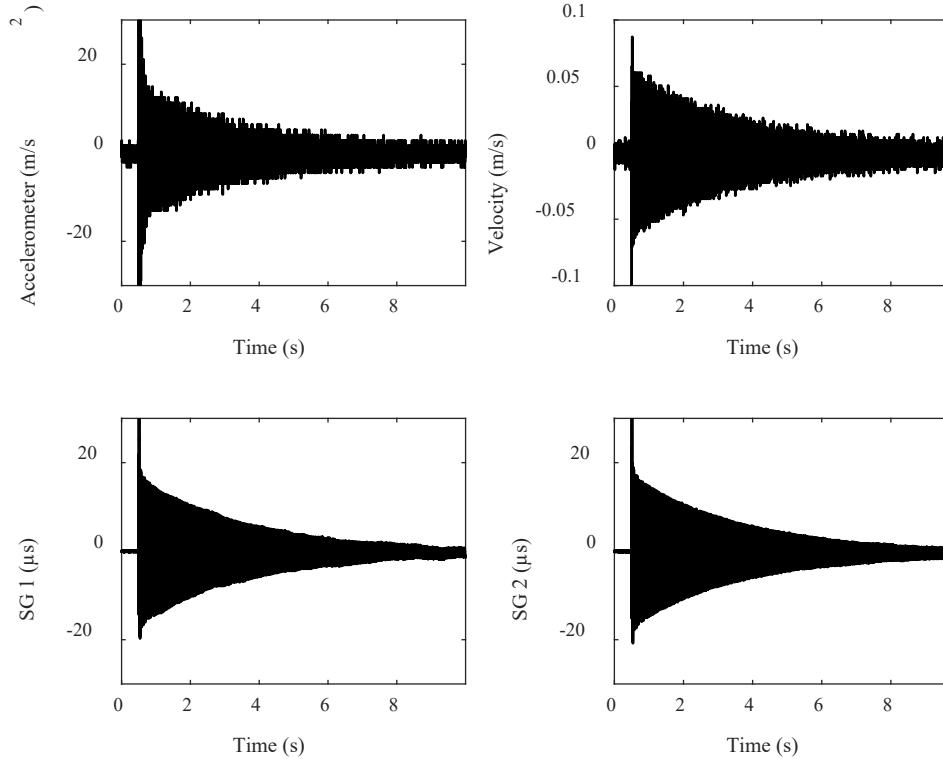
Applications

Datasets

## DATASET 5 – TEST 5

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $185.5 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

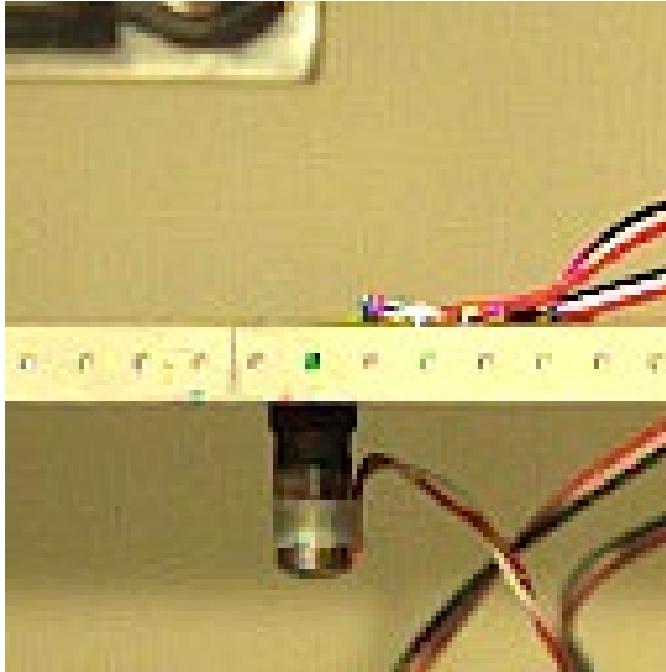
Applications

Datasets

## DATASET 5 – TEST 5

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $185.5 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

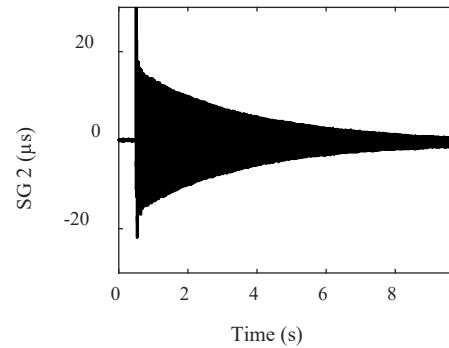
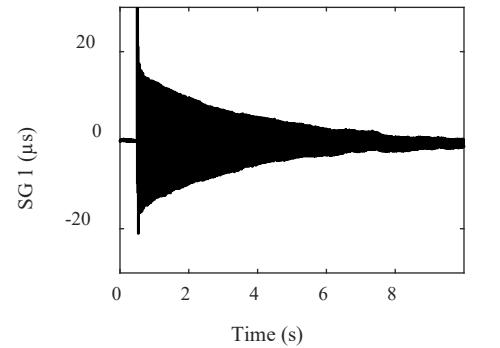
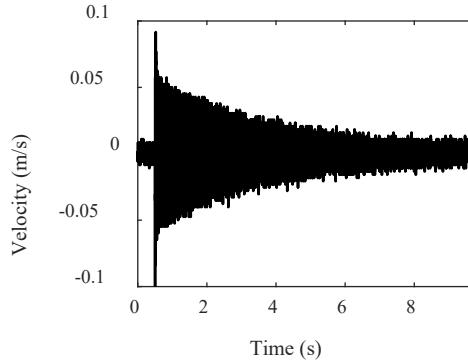
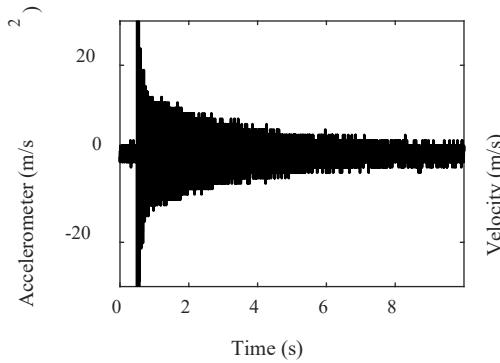
Applications

Datasets

## DATASET 5 – TEST 6

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $871.6 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

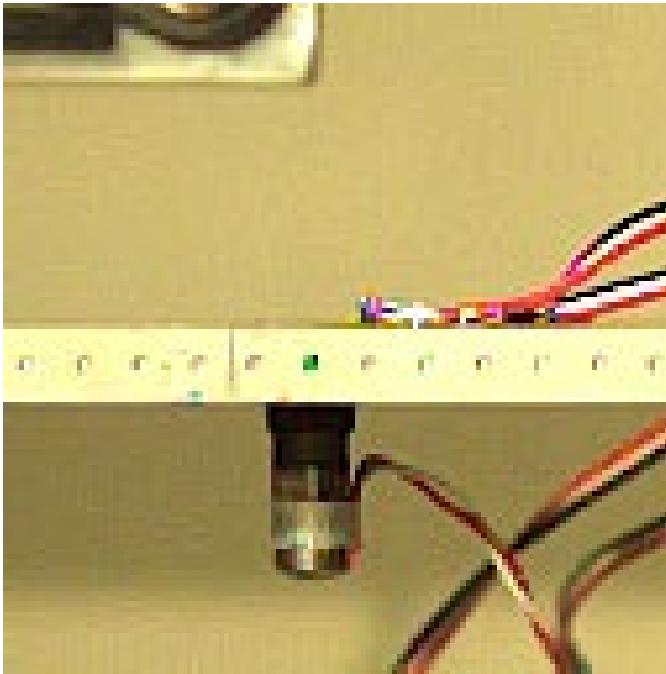
Applications

Datasets

## DATASET 5 – TEST 6

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $871.6 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

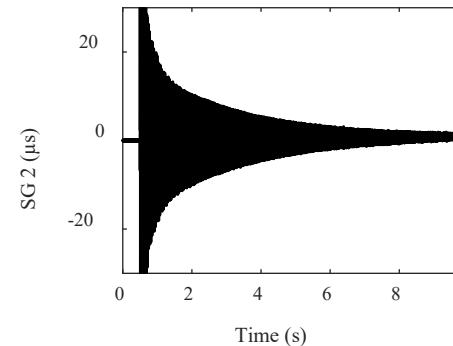
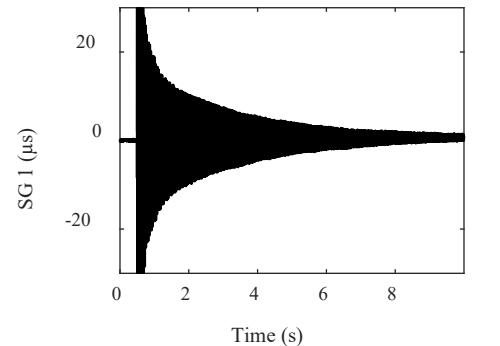
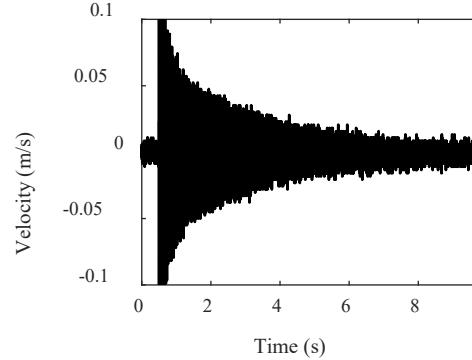
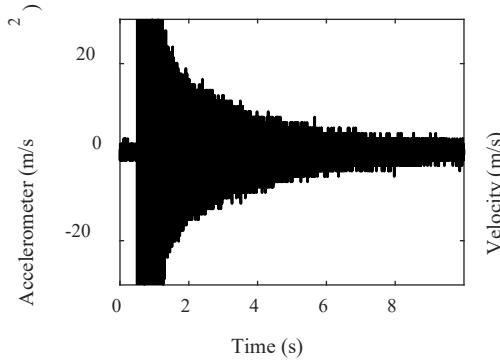
Applications

Datasets

## DATASET 5 – TEST 7

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $1866 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

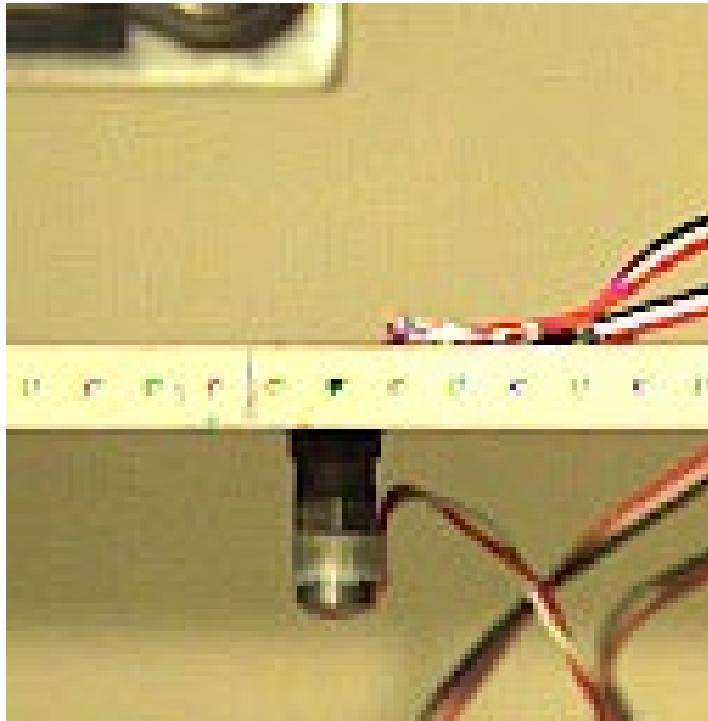
Applications

Datasets

## DATASET 5 – TEST 7

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $1866 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

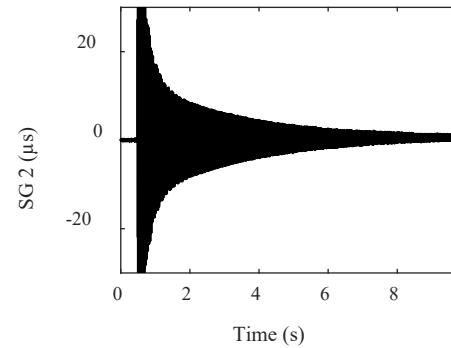
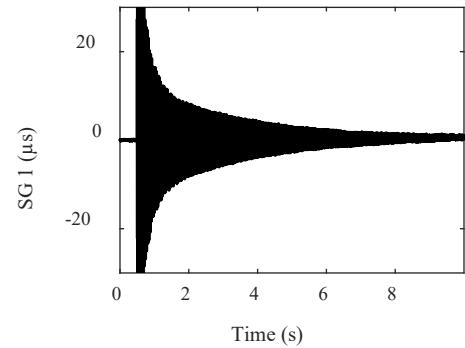
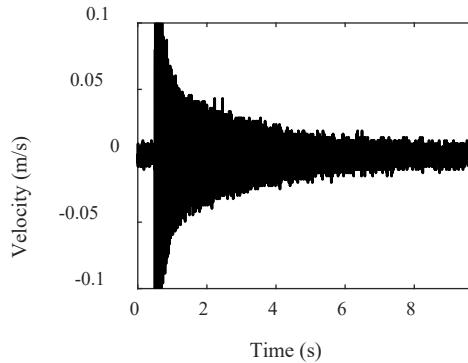
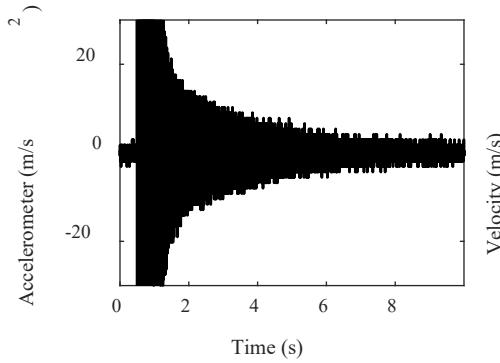
Applications

Datasets

## DATASET 5 – TEST 8

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $1084 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

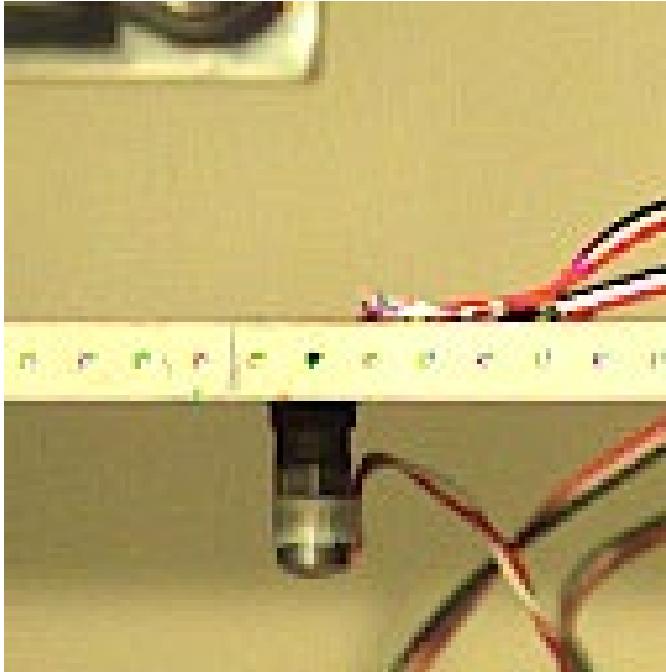
Applications

Datasets

## DATASET 5 – TEST 8

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $1084 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

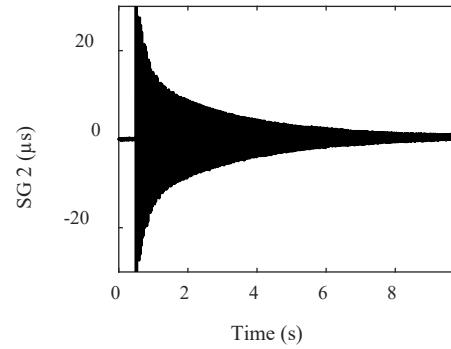
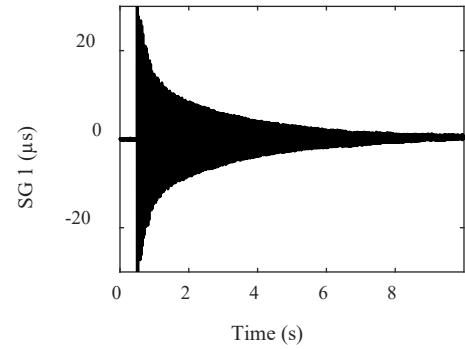
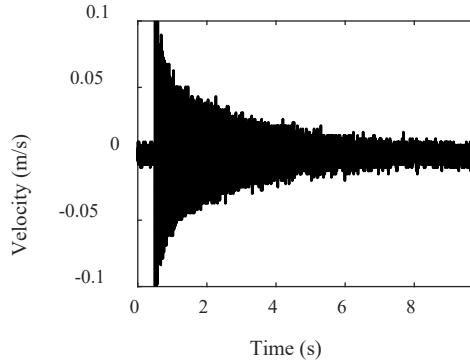
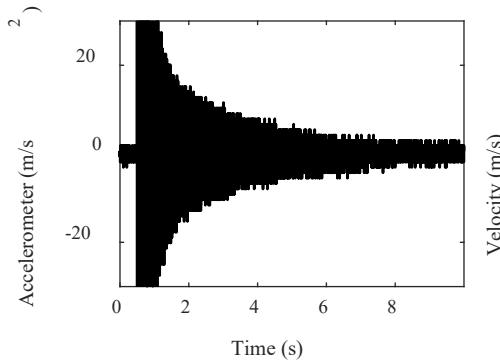
Applications

Datasets

## DATASET 5 – TEST 9

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $1542 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

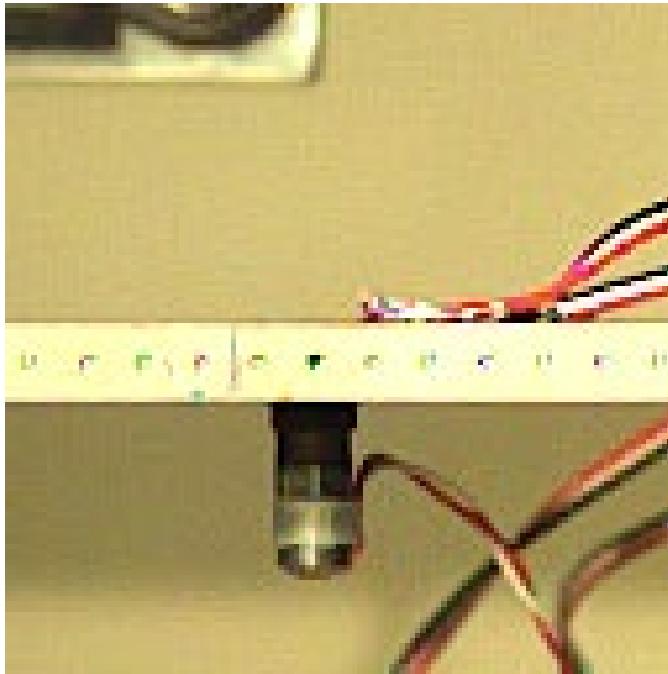
Applications

Datasets

## DATASET 5 – TEST 9

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $1542 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

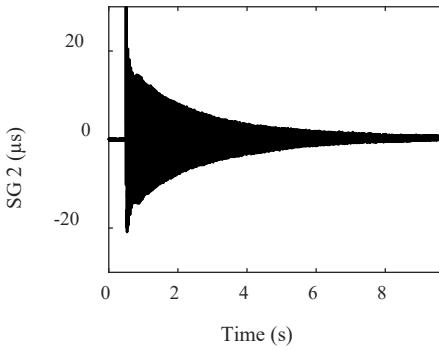
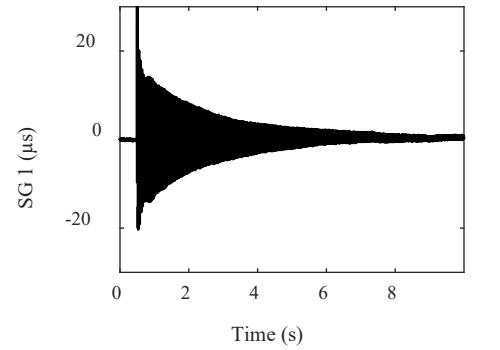
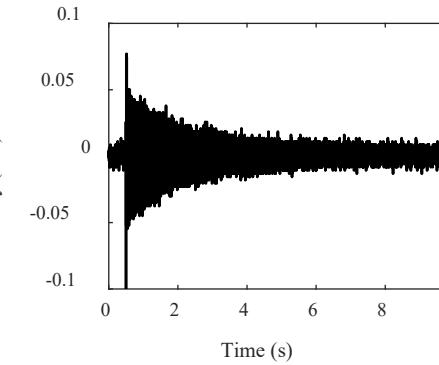
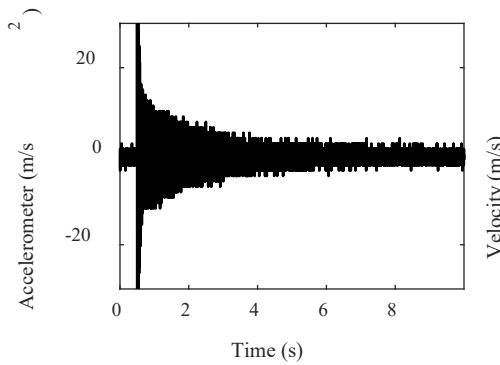
Applications

Datasets

## DATASET 5 – TEST 10

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $405.3 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

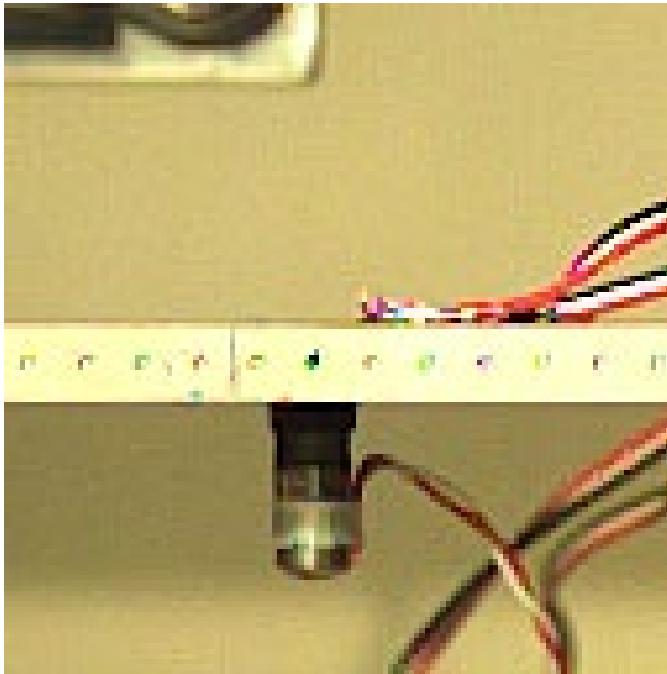
Applications

Datasets

## DATASET 5 – TEST 10

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $405.3 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

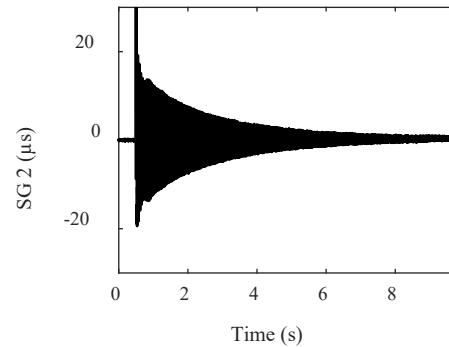
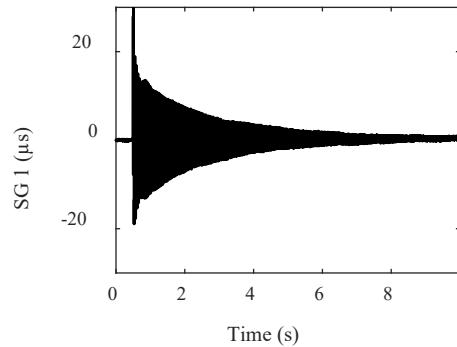
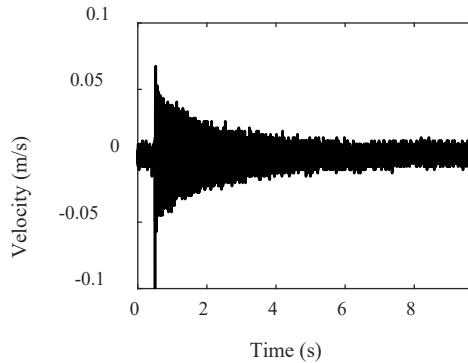
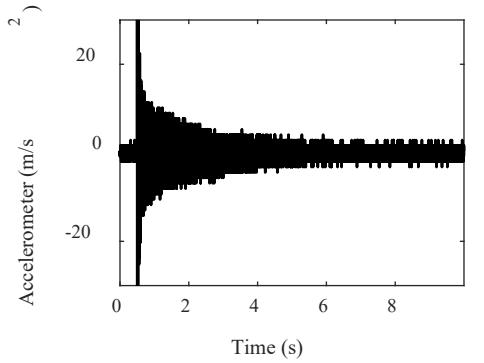
Applications

Datasets

## DATASET 5 – TEST 11

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $317.4 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

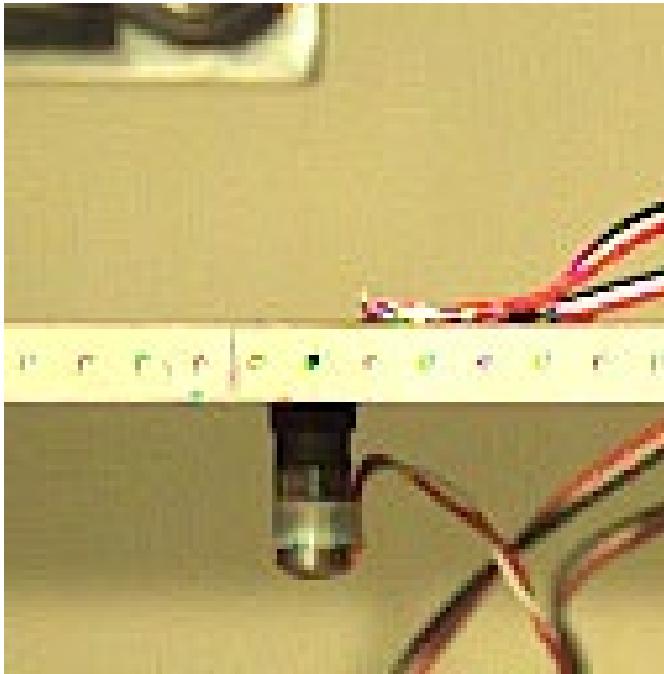
Applications

Datasets

## DATASET 5 – TEST 11

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $317.4 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

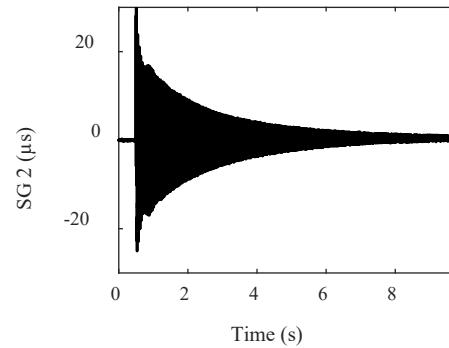
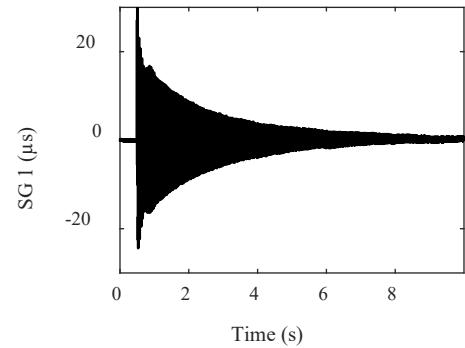
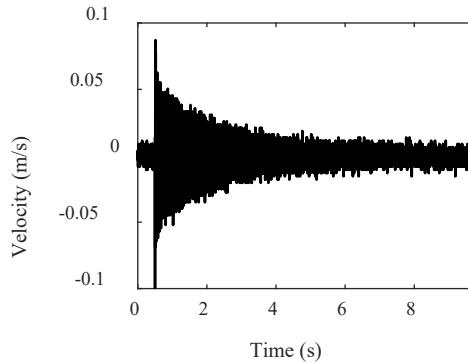
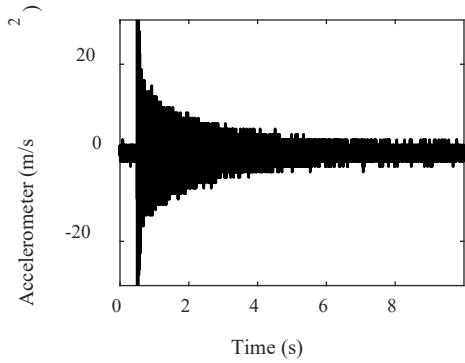
Applications

Datasets

## DATASET 5 – TEST 12

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $173.3 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

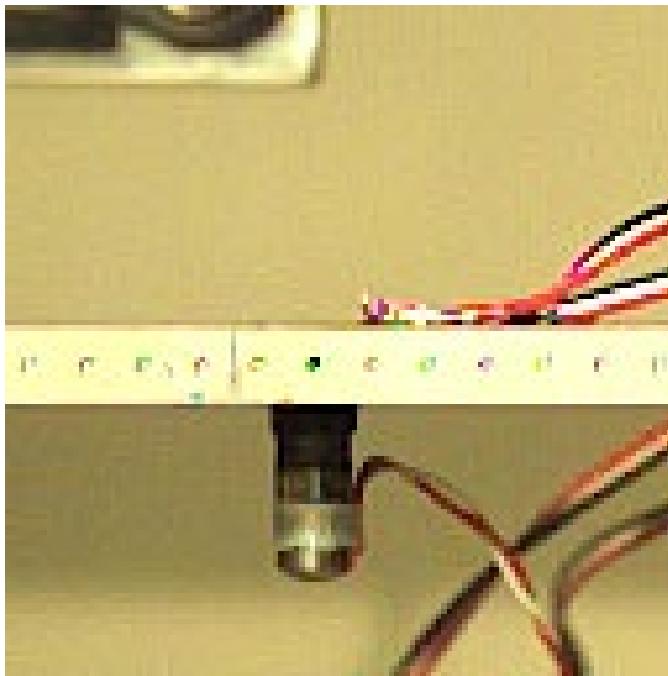
Applications

Datasets

## DATASET 5 – TEST 12

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $173.3 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

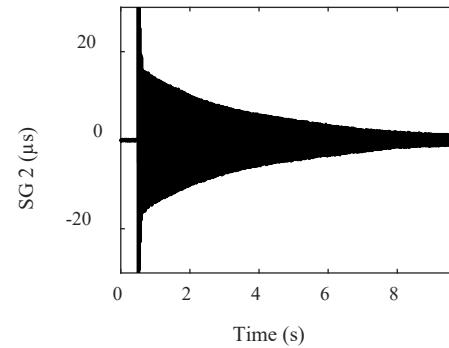
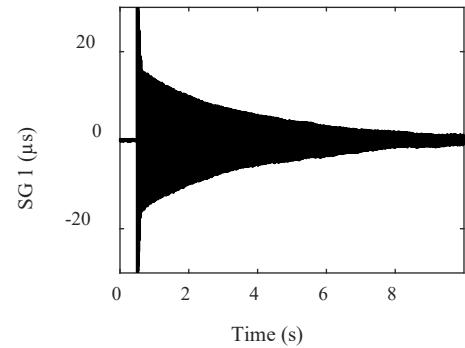
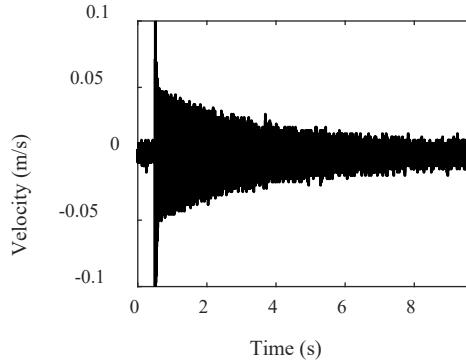
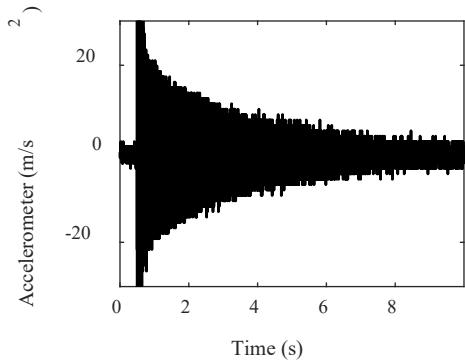
Applications

Datasets

## DATASET 5 – TEST 13

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $1054 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

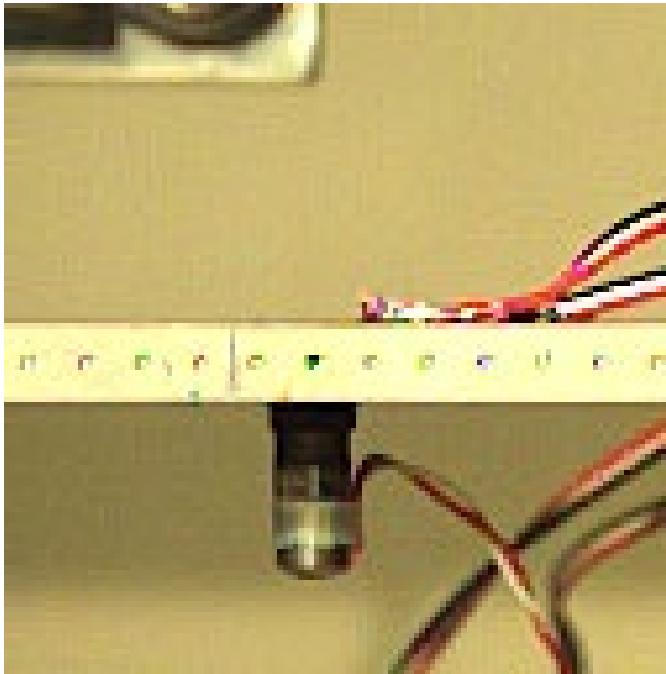
Applications

Datasets

## DATASET 5 – TEST 13

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $1054 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

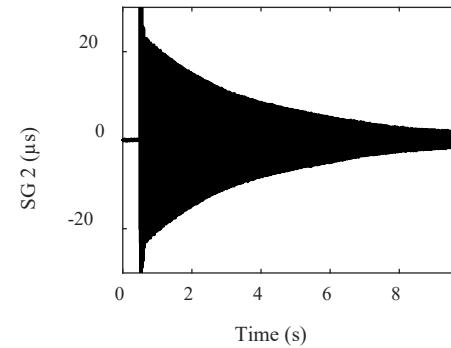
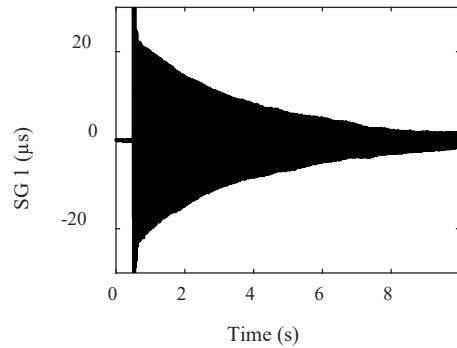
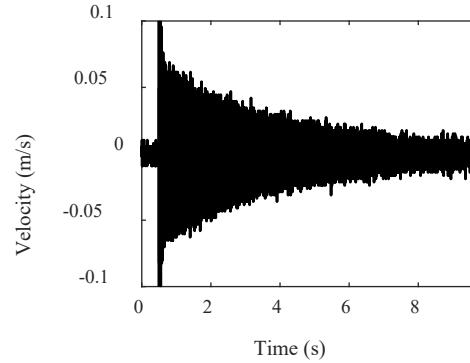
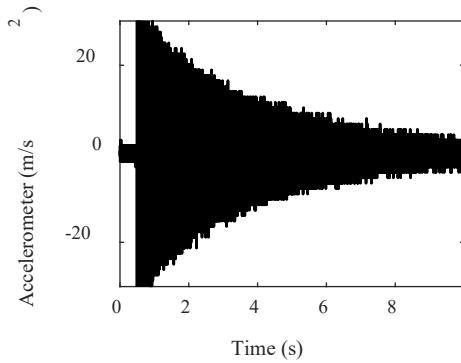
Applications

Datasets

## DATASET 5 – TEST 14

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $1156 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

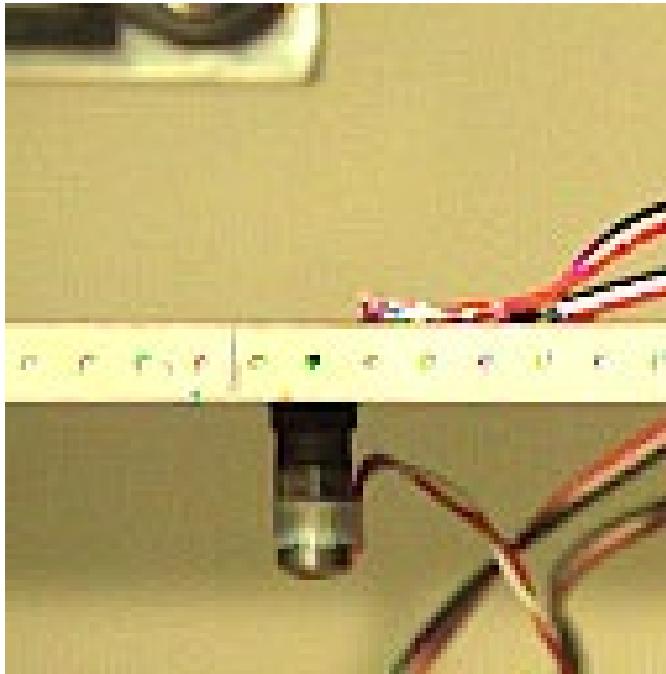
Applications

Datasets

## DATASET 5 – TEST 14

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $1156 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

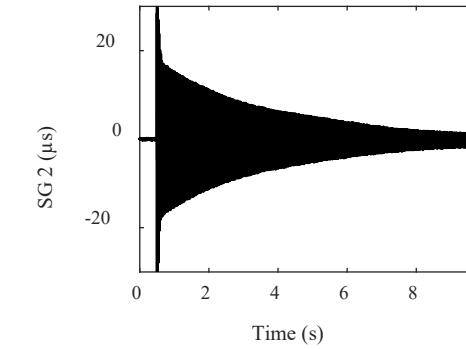
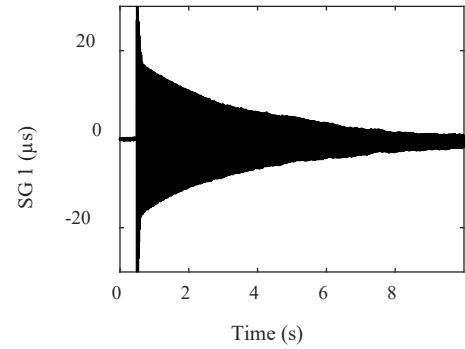
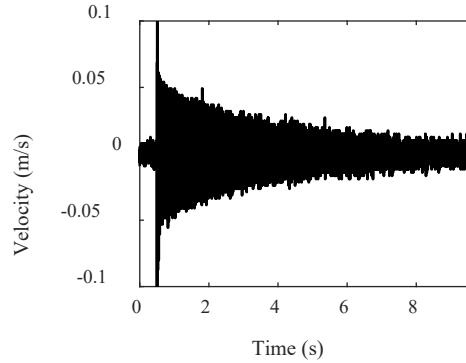
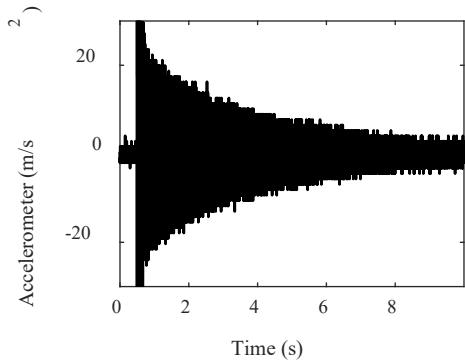
Applications

Datasets

## DATASET 5 – TEST 15

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $611.6 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

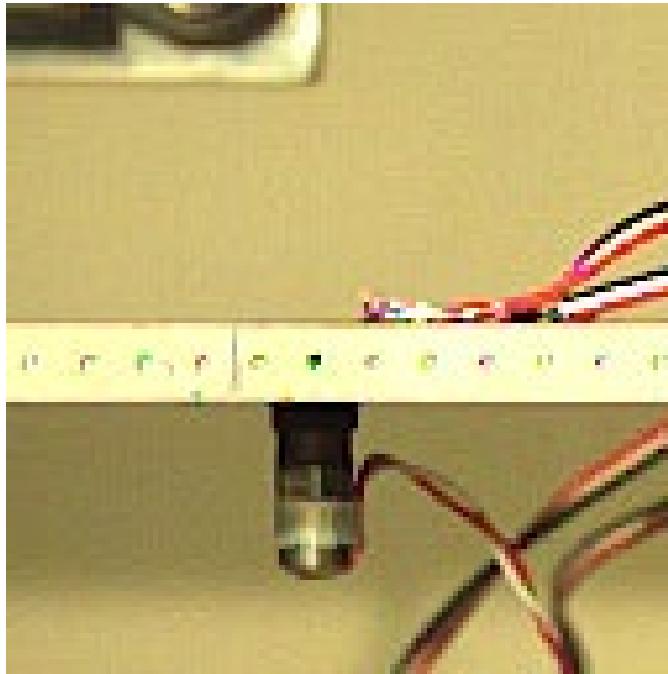
Applications

Datasets

## DATASET 5 – TEST 15

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $611.6 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

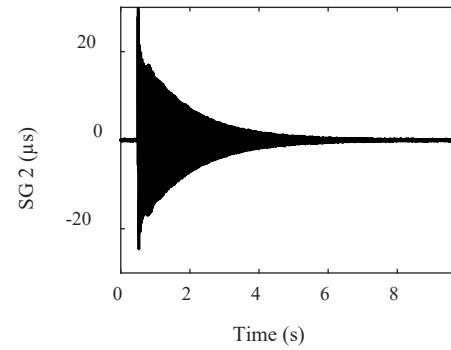
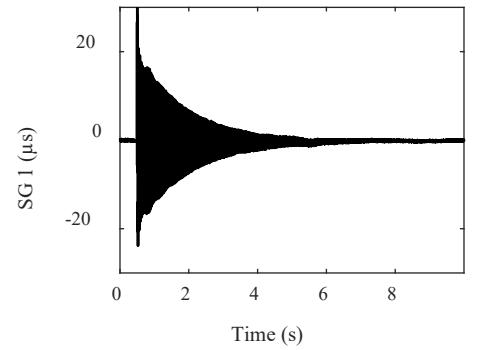
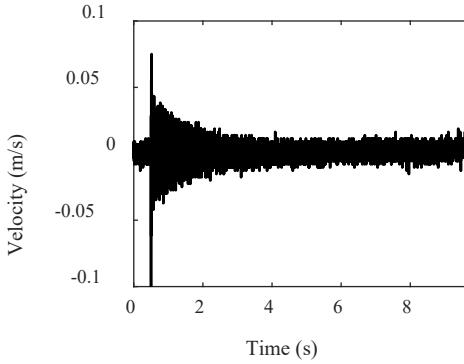
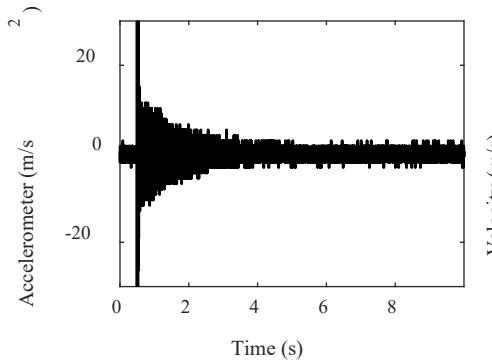
Applications

Datasets

## DATASET 5 – TEST 16

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $485.8 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

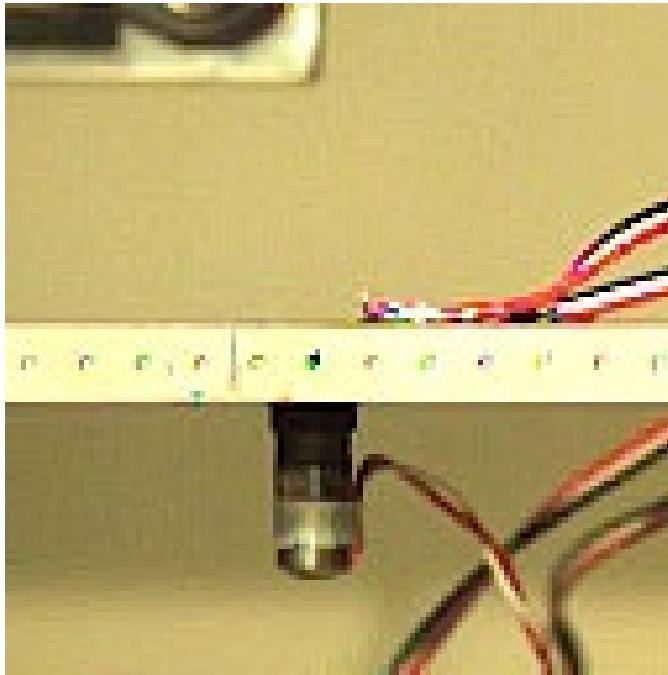
Applications

Datasets

## DATASET 5 – TEST 16

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $485.8 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

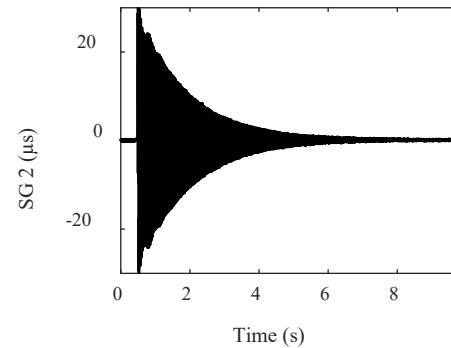
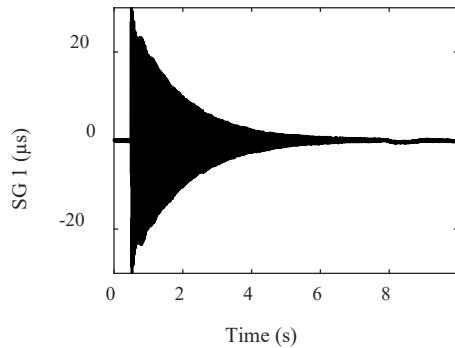
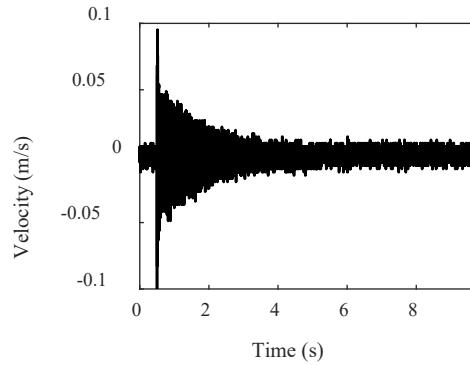
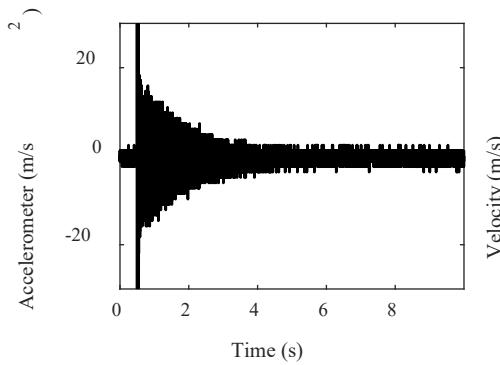
Applications

Datasets

## DATASET 5 – TEST 17

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $197.8 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

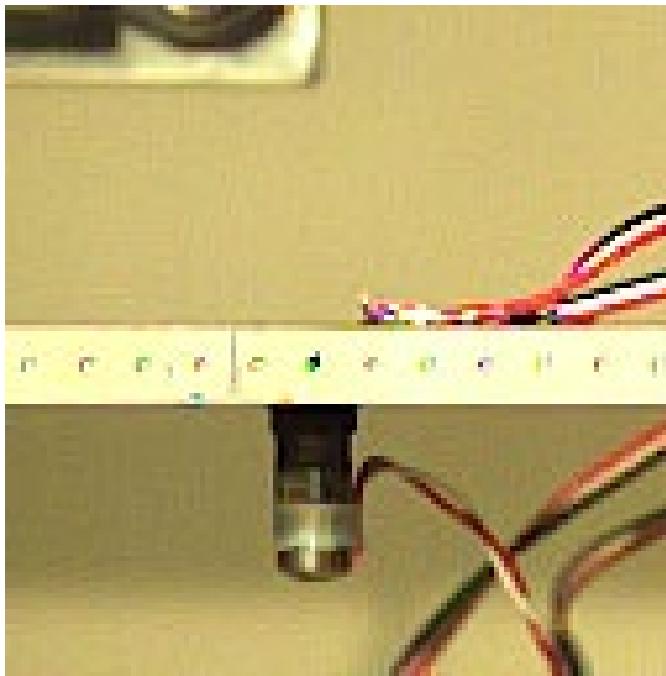
Applications

Datasets

## DATASET 5 – TEST 17

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $197.8 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

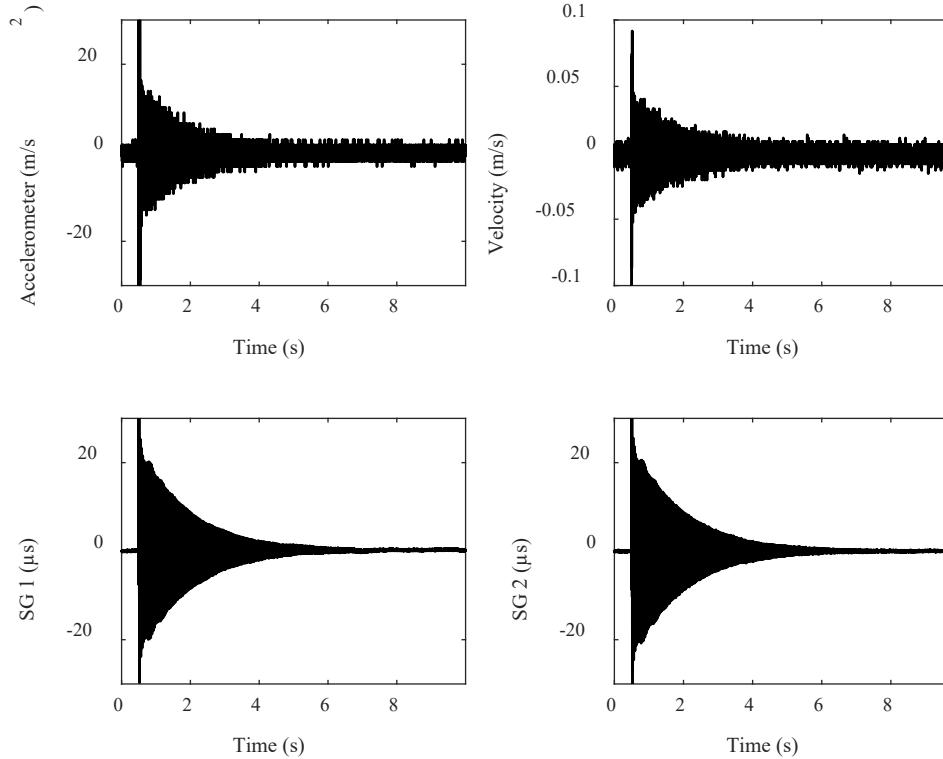
Applications

Datasets

## DATASET 5 – TEST 18

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $454.1 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 5 – TEST 18

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $454.1 \text{ m/s}^2$
- Mass drop: No

# Datasets

High-Rate  
Overview

Benchmark

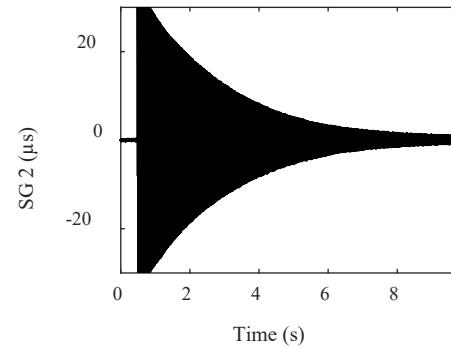
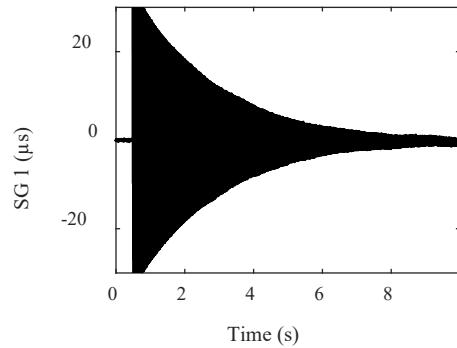
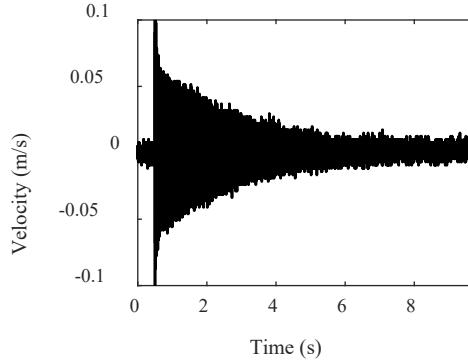
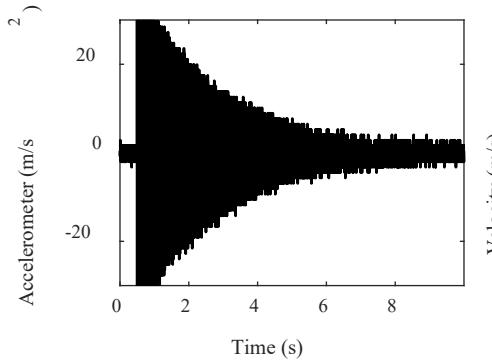
Applications

Datasets

## DATASET 5 – TEST 19

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $1315 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

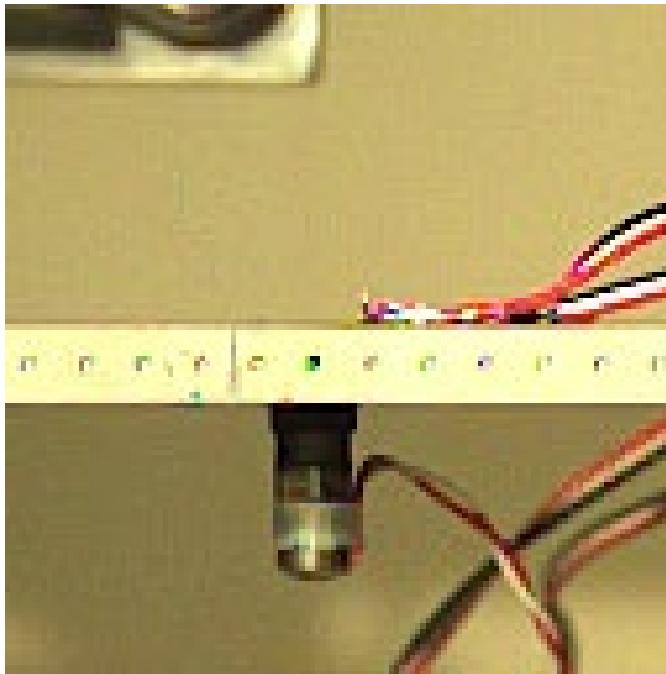
Applications

Datasets

## DATASET 5 – TEST 19

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $1315 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

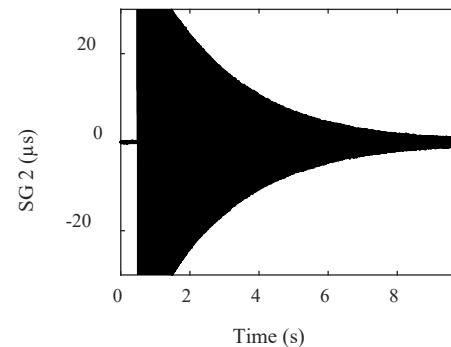
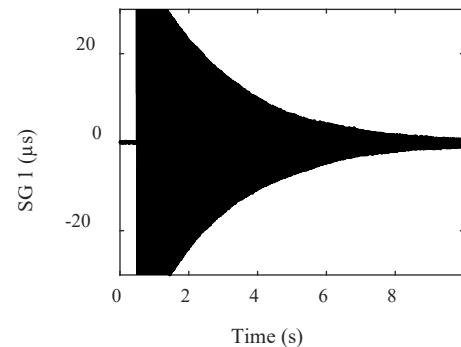
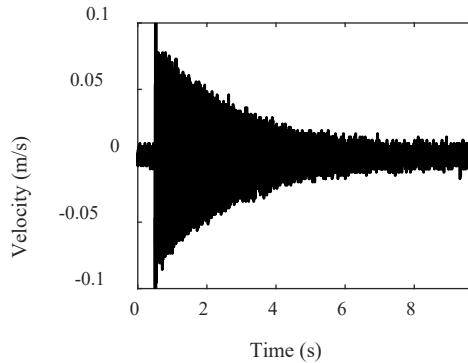
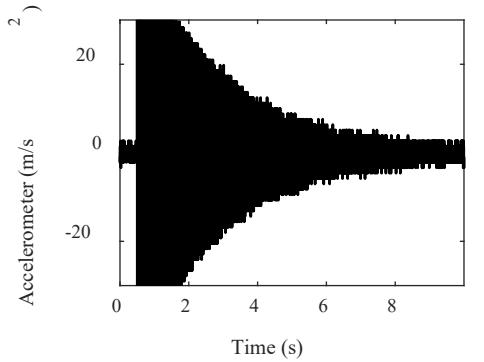
Applications

Datasets

## DATASET 5 – TEST 20

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $1191 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

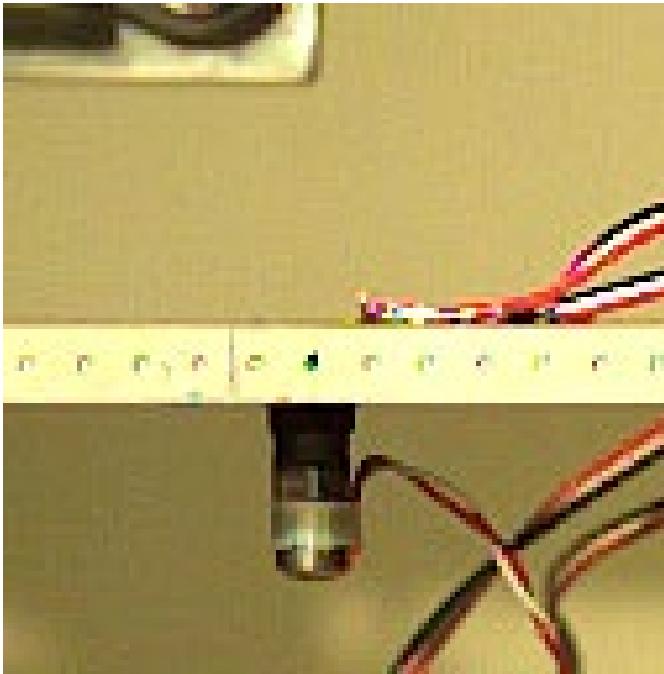
Applications

Datasets

## DATASET 5 – TEST 20

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $1191 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

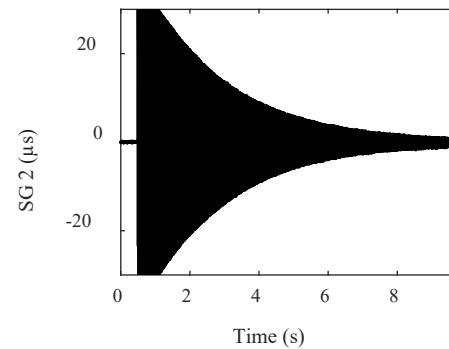
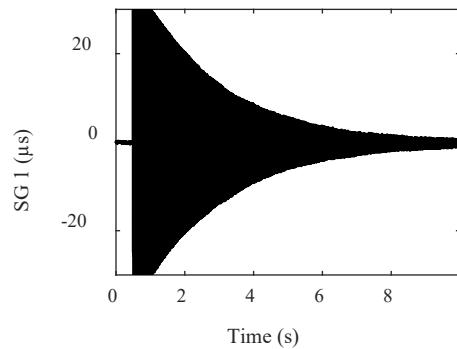
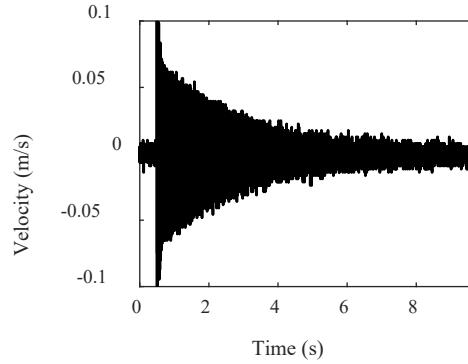
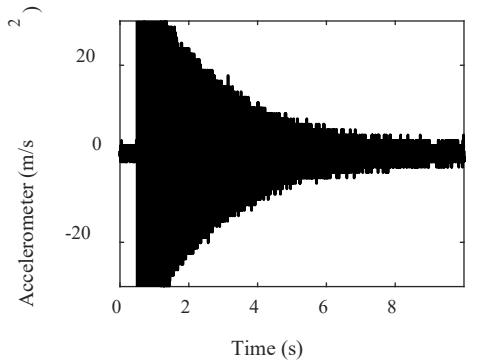
Applications

Datasets

## DATASET 5 – TEST 21

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $1738 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

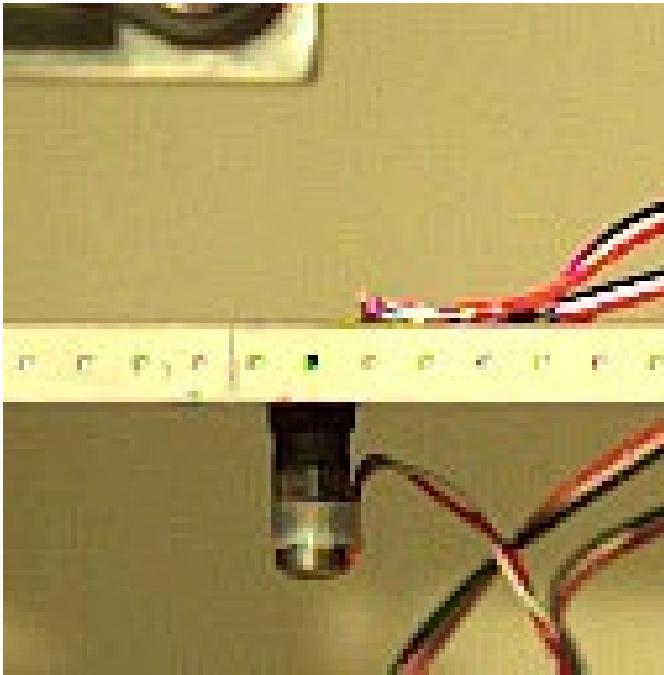
Applications

Datasets

## DATASET 5 – TEST 21

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $1738 \text{ m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

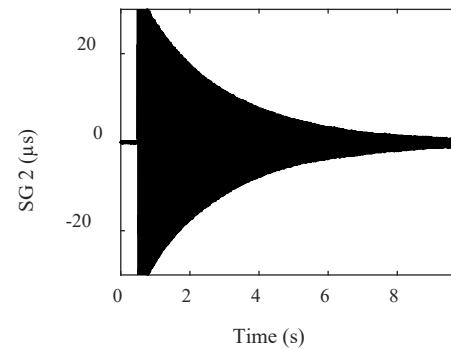
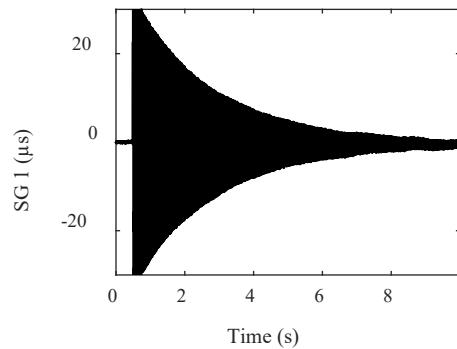
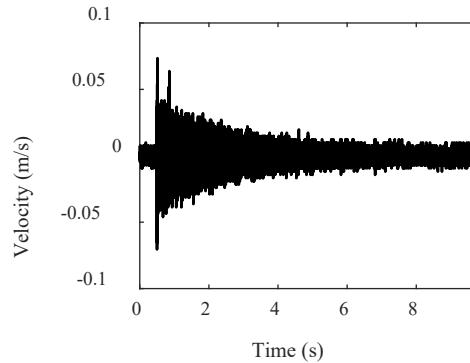
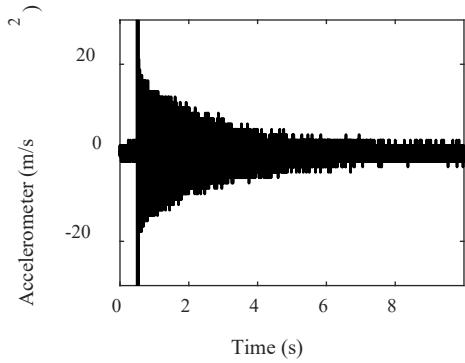
Applications

Datasets

## DATASET 5 – TEST 22

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $229.5 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

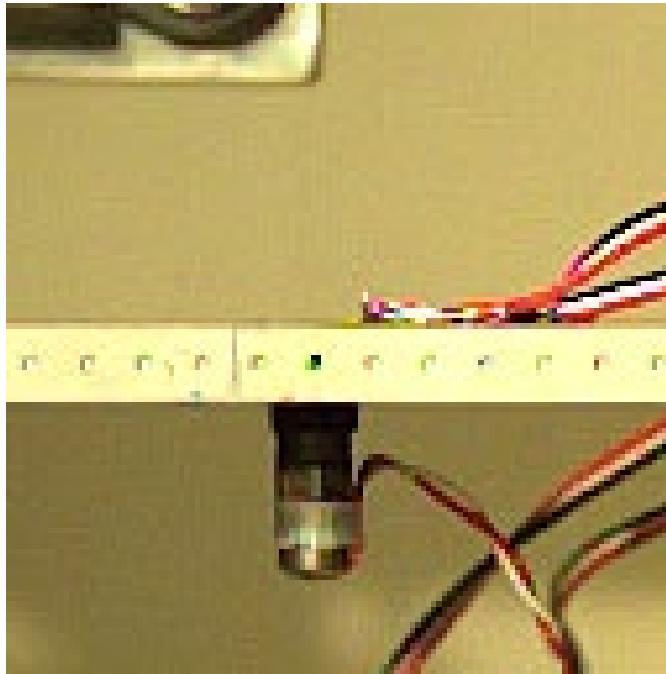
Applications

Datasets

## DATASET 5 – TEST 22

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $229.5 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

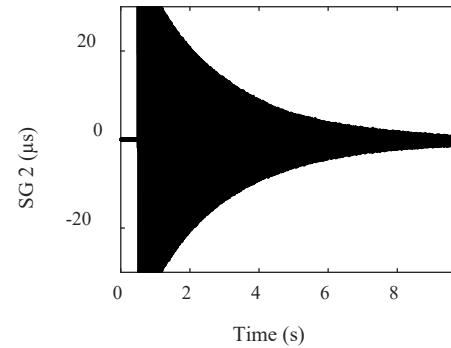
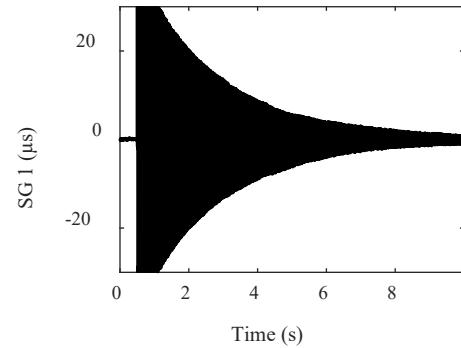
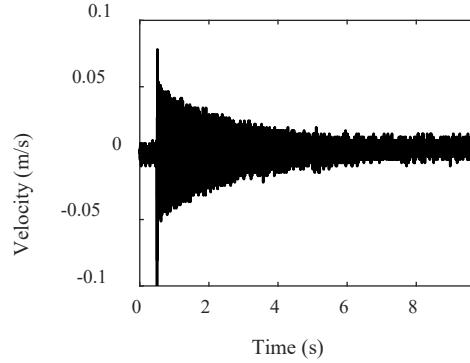
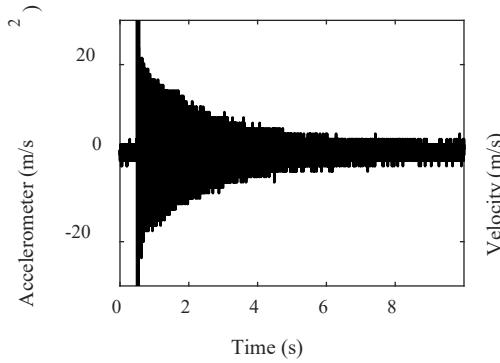
Applications

Datasets

## DATASET 5 – TEST 23

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnetic mass
- Cart position: 200 mm
- Max acceleration :  $191.7 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

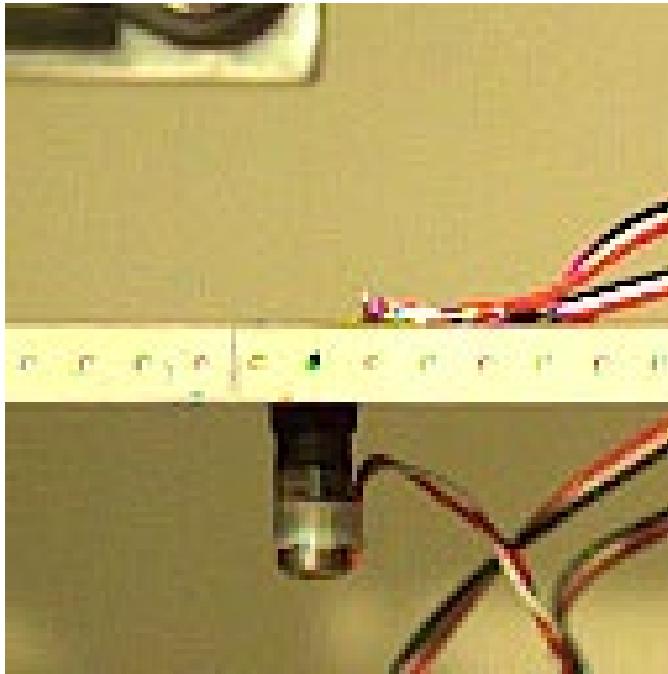
Applications

Datasets

## DATASET 5 – TEST 23

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnetic mass
- Cart position: 200 mm
- Max acceleration :  $191.7 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

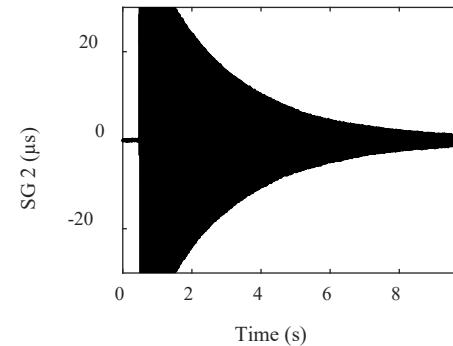
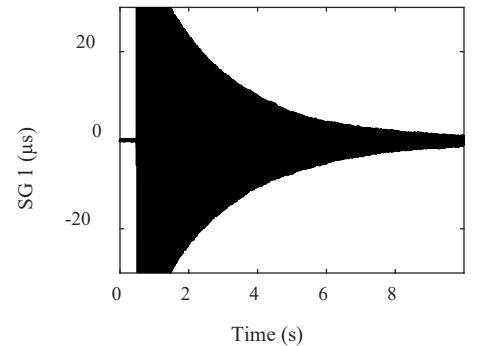
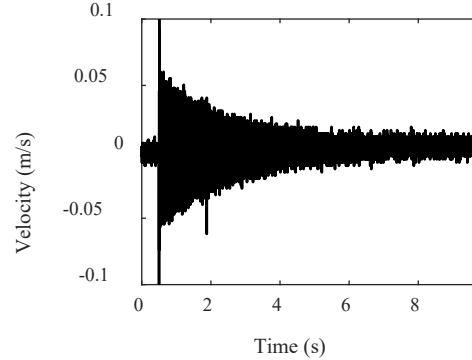
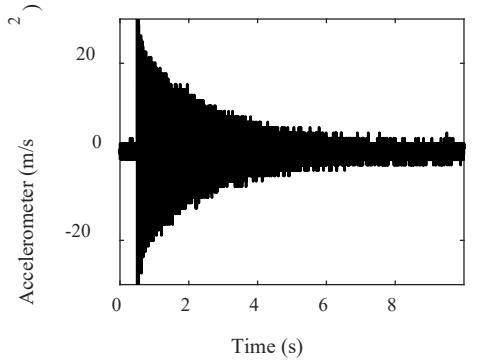
Applications

Datasets

## DATASET 5 – TEST 24

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnetic mass
- Cart position: 200 mm
- Max acceleration :  $183 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

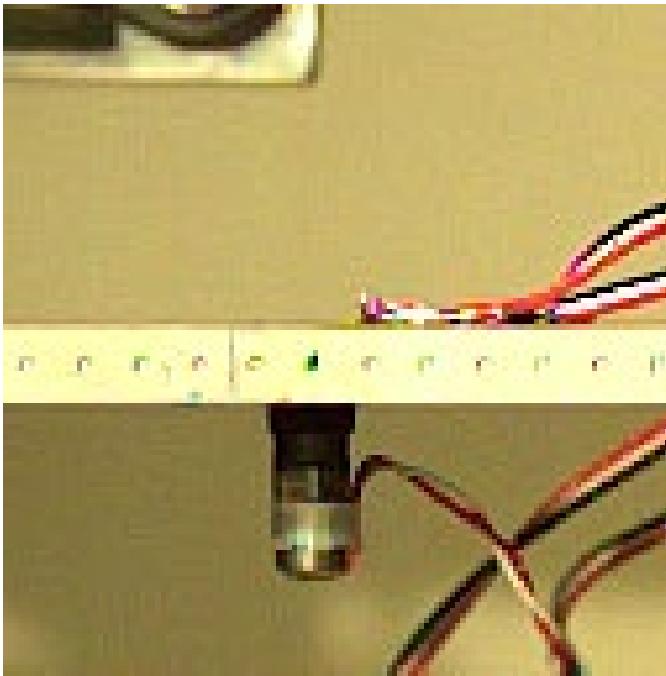
Applications

Datasets

## DATASET 5 – TEST 24

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnetic mass
- Cart position: 200 mm
- Max acceleration :  $183 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

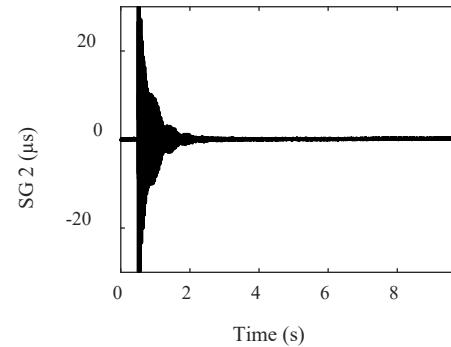
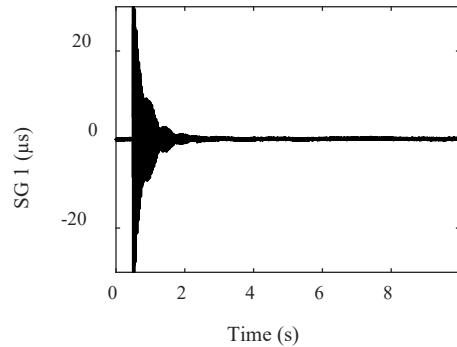
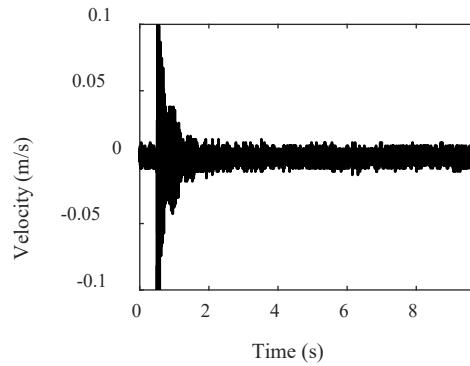
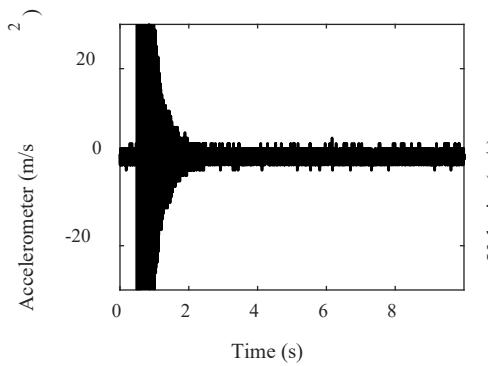
Applications

Datasets

## DATASET 5 – TEST 25

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $183 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 5 – TEST 25

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $183 \text{ m/s}^2$
- Mass drop: No

# Datasets

High-Rate  
Overview

Benchmark

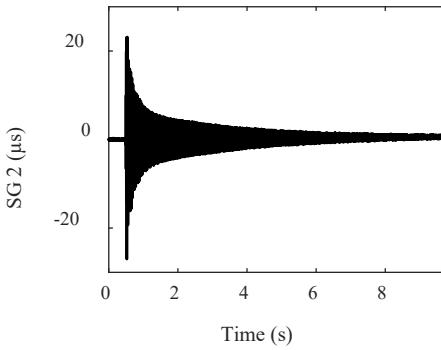
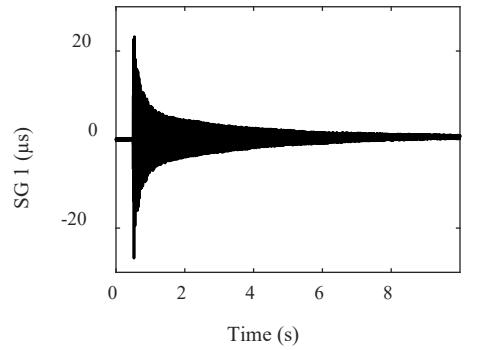
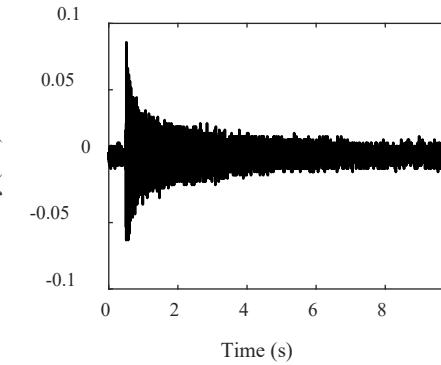
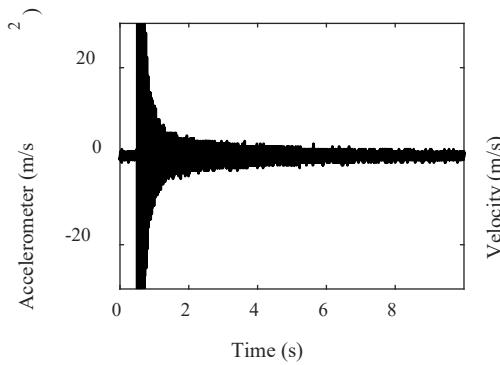
Applications

Datasets

## DATASET 5 – TEST 26

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $215 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 5 – TEST 26

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $215 \text{ m/s}^2$
- Mass drop: No

# Datasets

High-Rate  
Overview

Benchmark

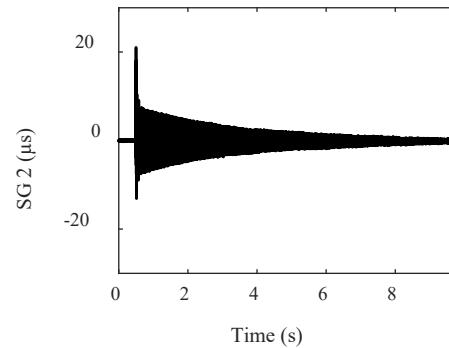
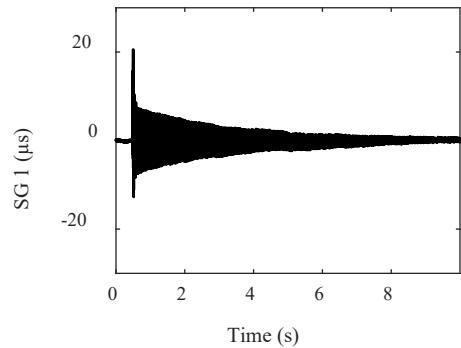
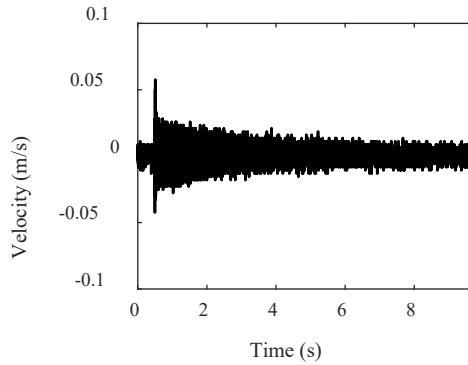
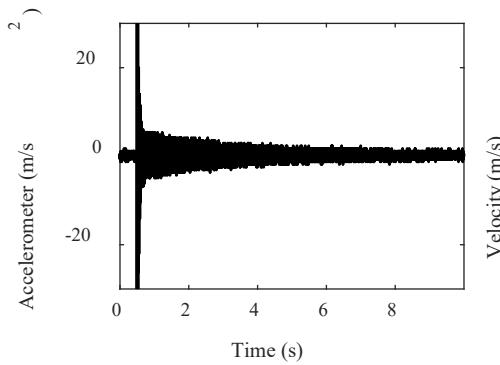
Applications

Datasets

## DATASET 5 – TEST 27

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $75 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 5 – TEST 27

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $75 \text{ m/s}^2$
- Mass drop: No

# Datasets

High-Rate  
Overview

Benchmark

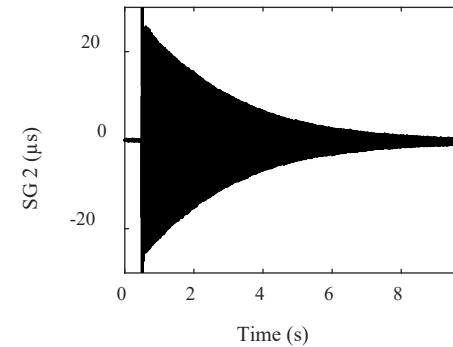
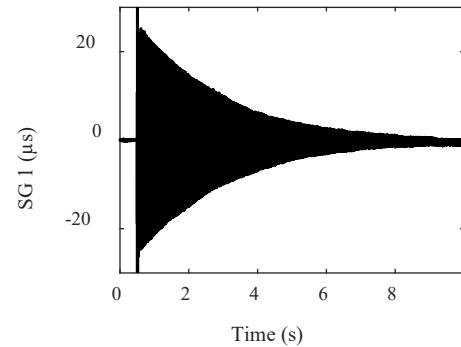
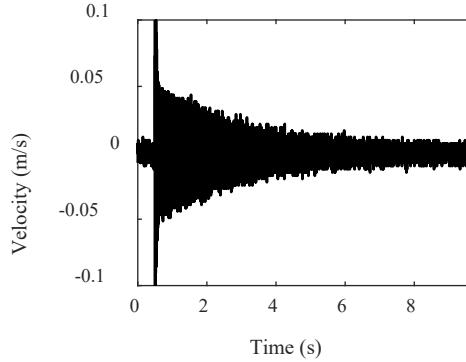
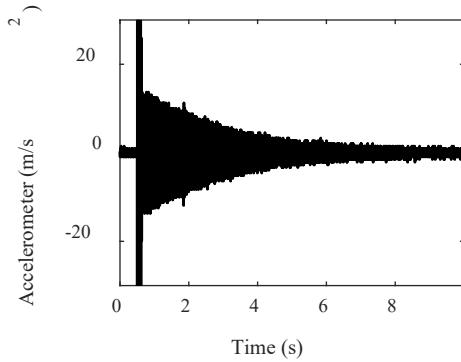
Applications

Datasets

## DATASET 5 – TEST 28

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $600 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 5 – TEST 28

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $600 \text{ m/s}^2$
- Mass drop: No

# Datasets

High-Rate  
Overview

Benchmark

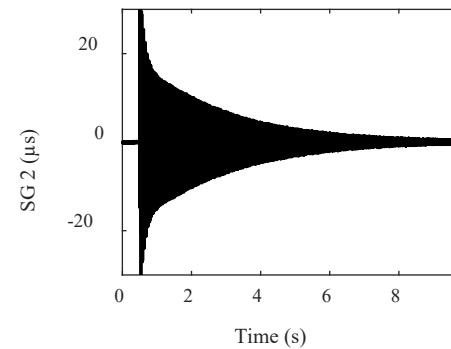
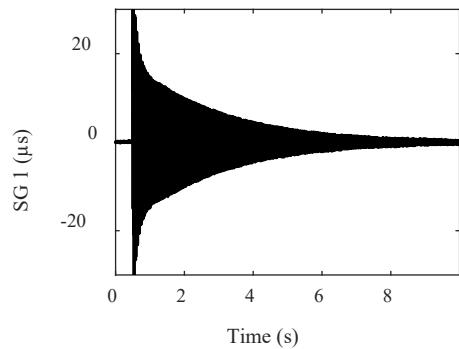
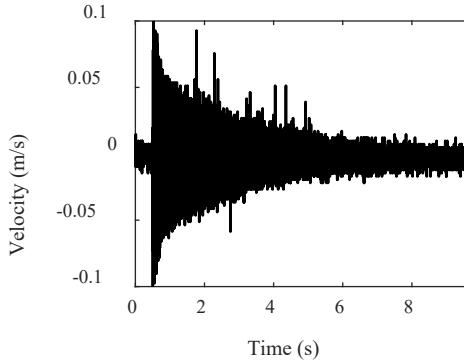
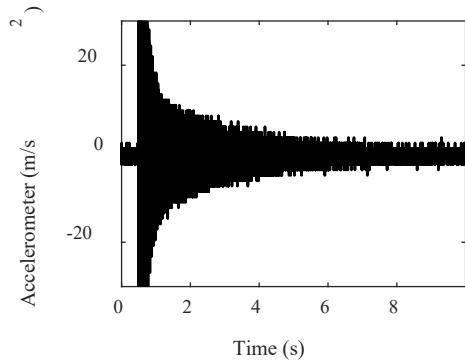
Applications

Datasets

## DATASET 5 – TEST 29

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $424 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

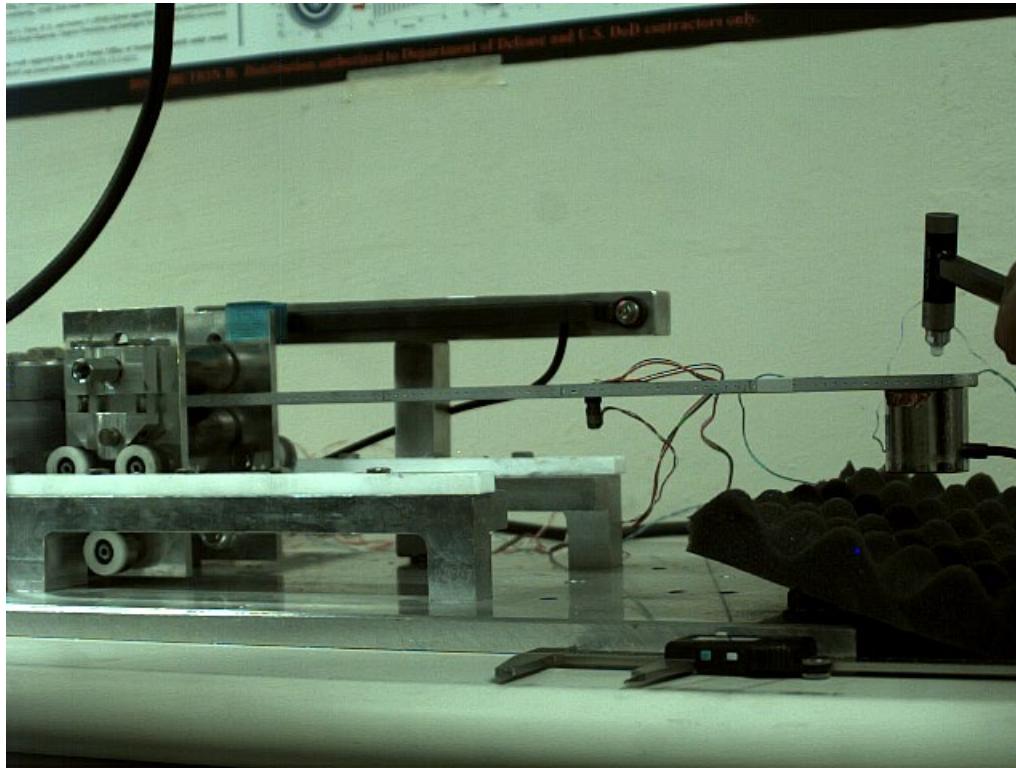
Applications

Datasets

## DATASET 5 – TEST 29

### EXCITATIONS:

- Static cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 mm
- Max acceleration :  $424 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

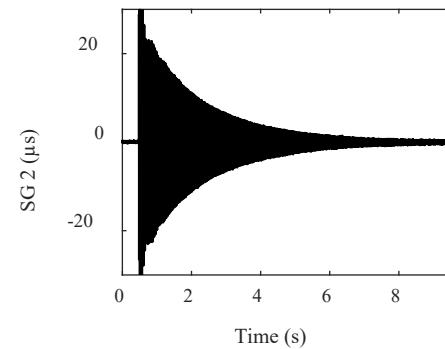
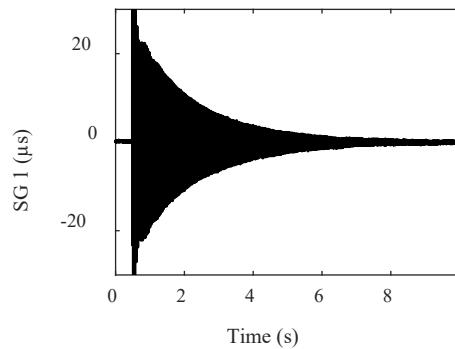
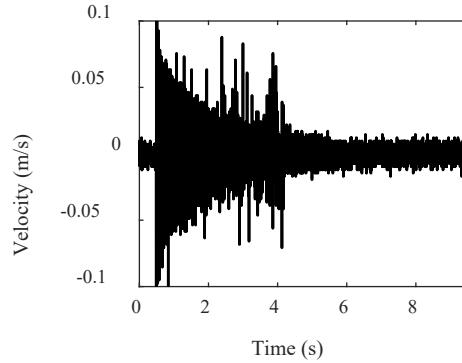
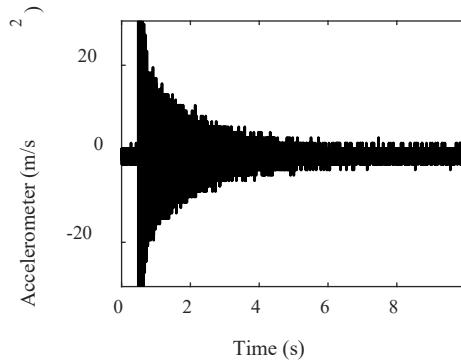
Applications

Datasets

## DATASET 5 – TEST 30

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $618.9 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

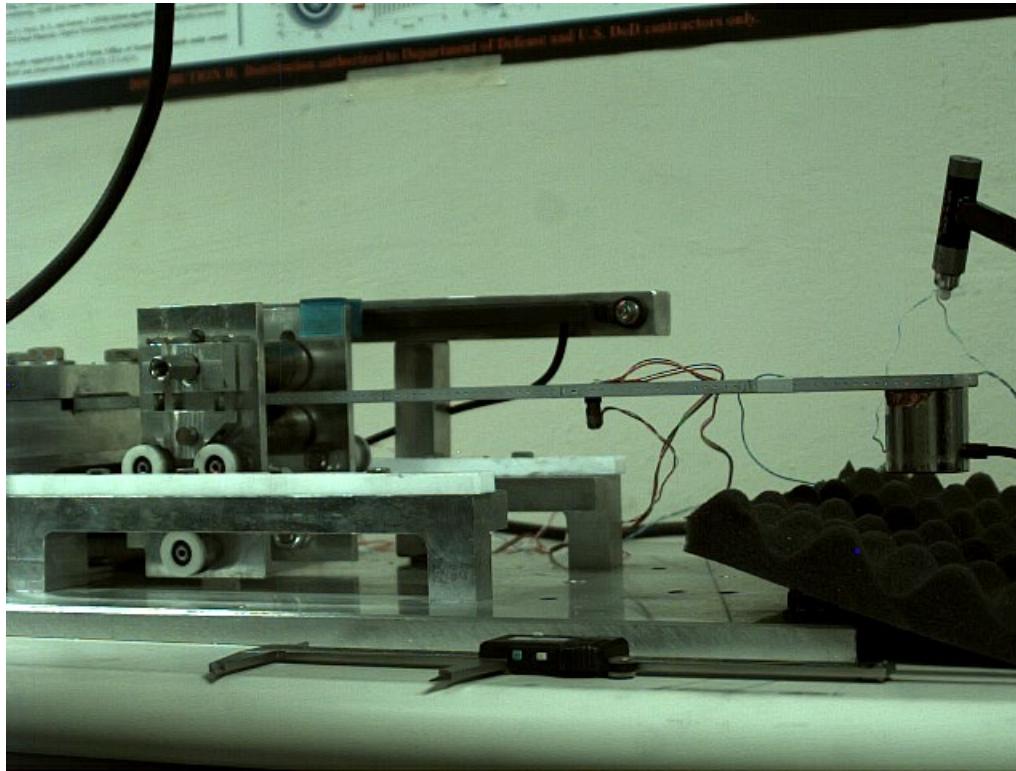
Applications

Datasets

## DATASET 5 – TEST 30

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 100 mm
- Max acceleration :  $618.9 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

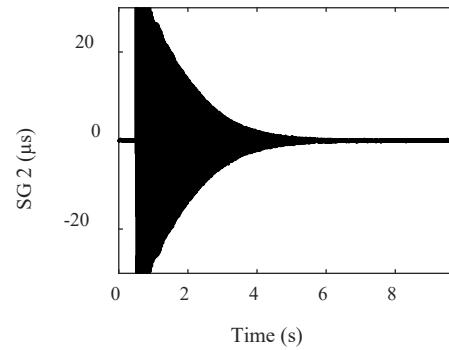
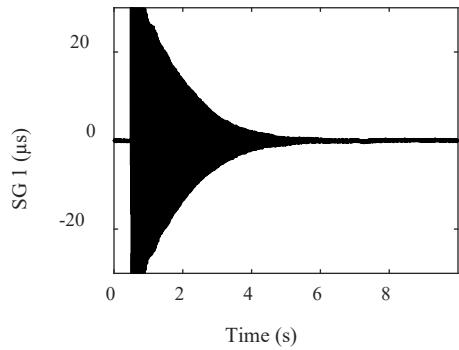
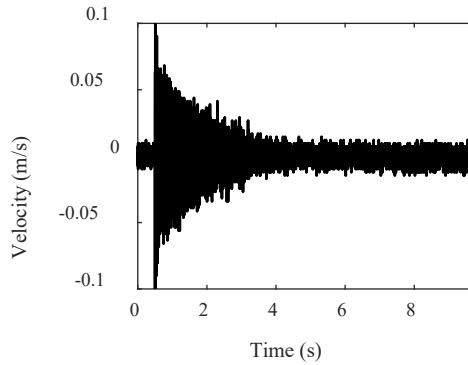
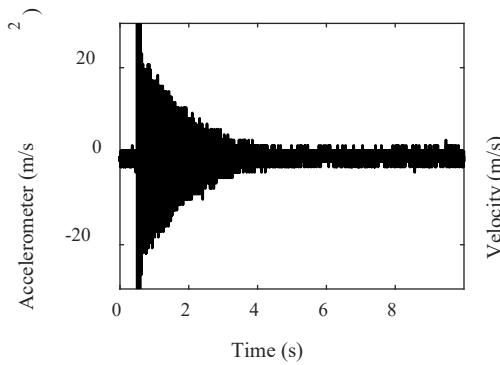
Applications

Datasets

## DATASET 5 – TEST 31

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $1134 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

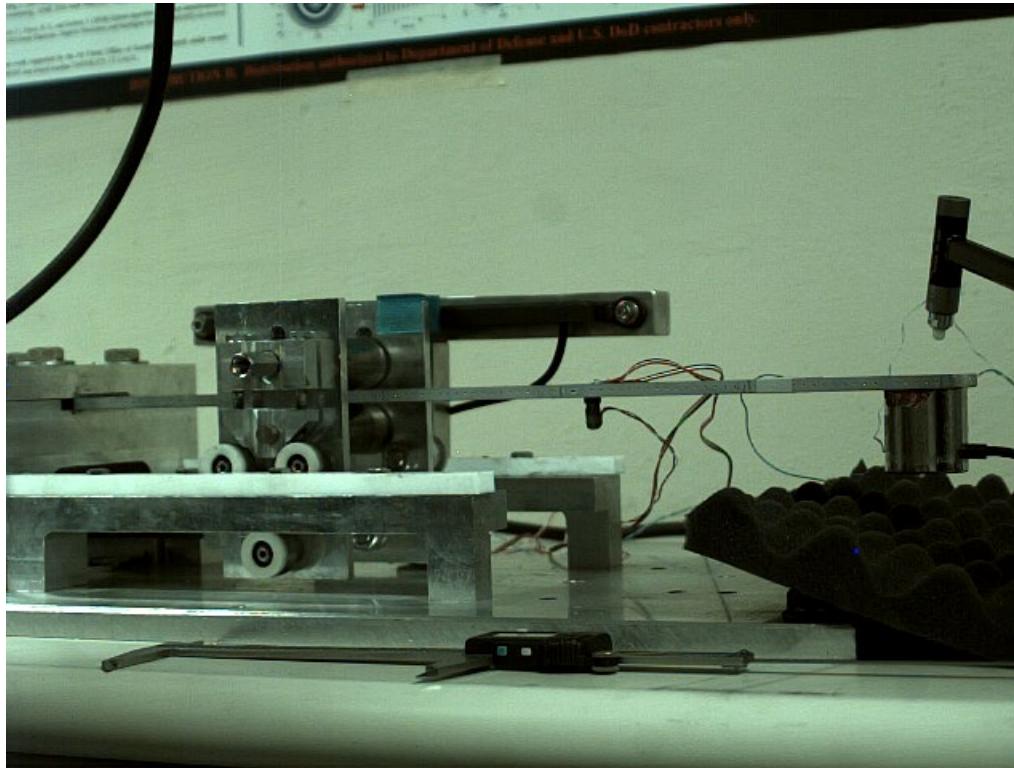
Applications

Datasets

## DATASET 5 – TEST 31

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 150 mm
- Max acceleration :  $1134 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

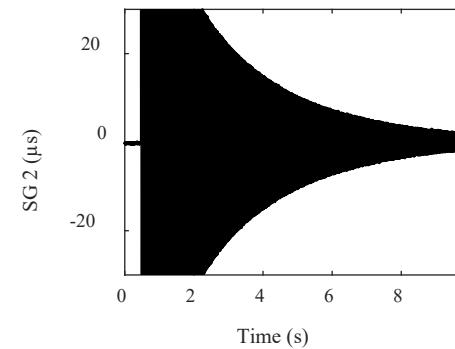
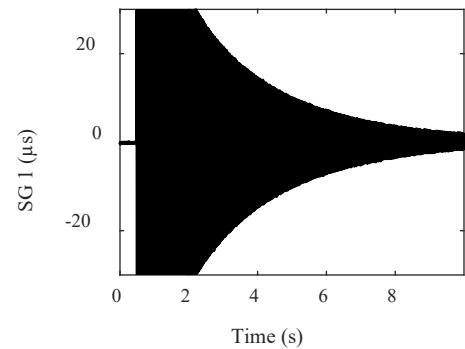
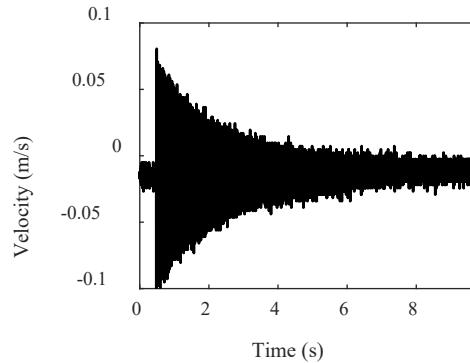
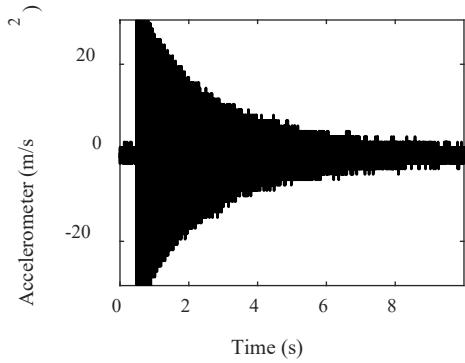
Applications

Datasets

## DATASET 5 – TEST 32

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $876 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

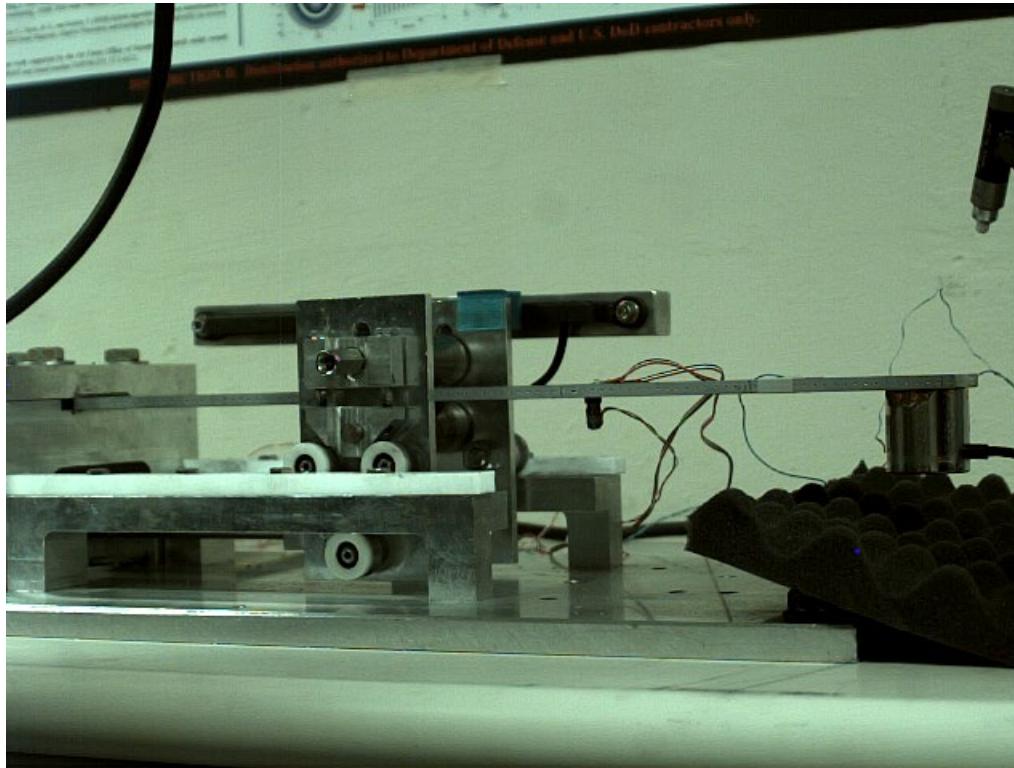
Applications

Datasets

## DATASET 5 – TEST 32

### EXCITATIONS:

- Static cart action
- Single hammer impact
- Electromagnet mass
- Cart position: 200 mm
- Max acceleration :  $876 \text{ m/s}^2$
- Mass drop: No



# Datasets

High-Rate  
Overview

Benchmark

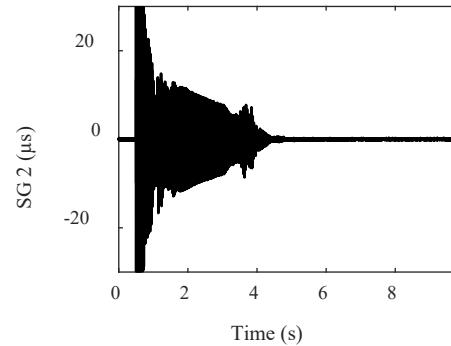
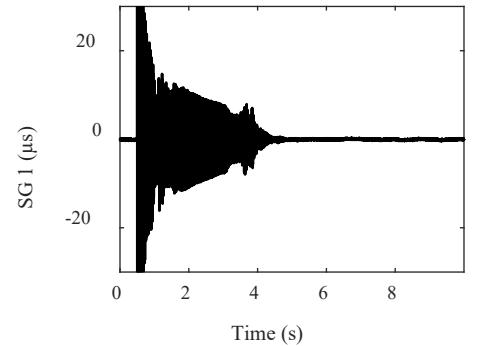
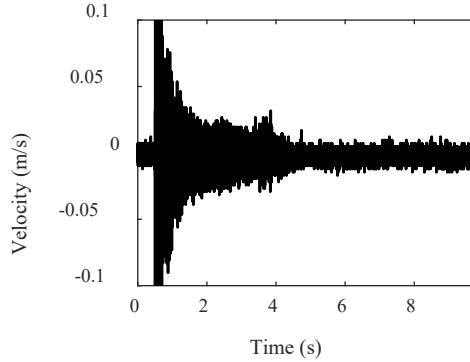
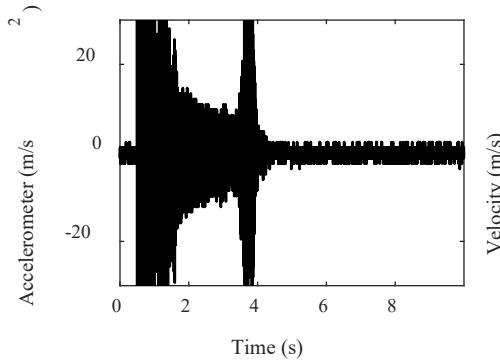
Applications

Datasets

## DATASET 5 – TEST 33

### EXCITATIONS:

- Dynamic cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 -200 mm
- Max acceleration :  $2606\text{m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

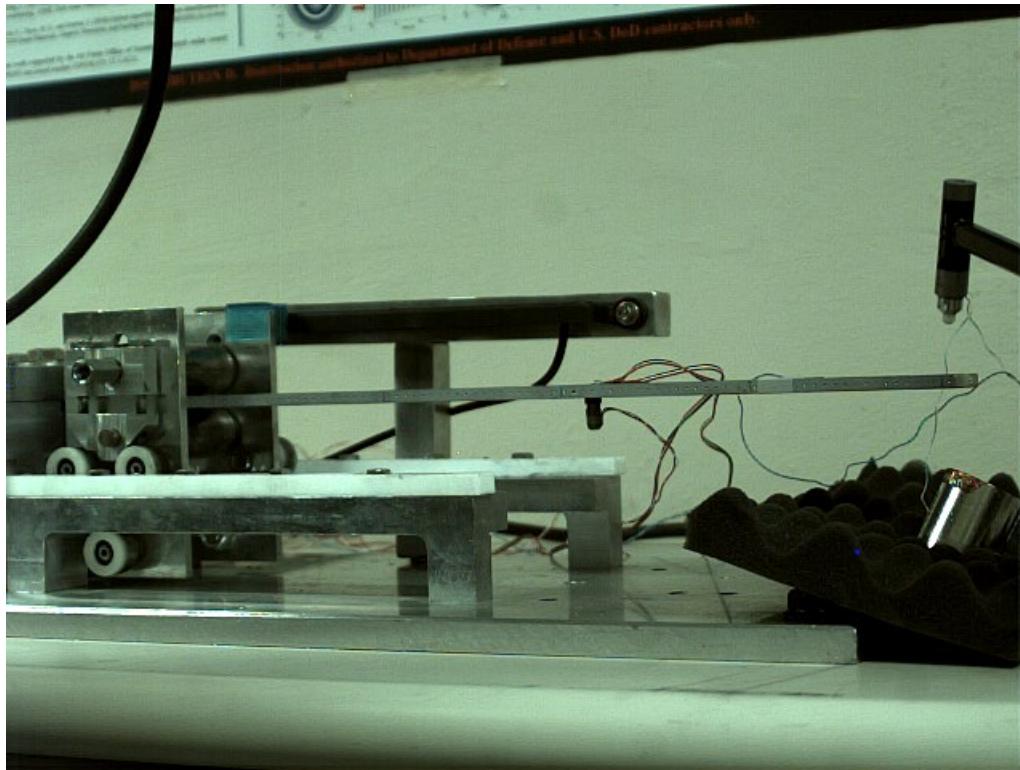
Applications

Datasets

## DATASET 5 – TEST 33

### EXCITATIONS:

- Dynamic cart action
- Single hammer impact
- No electromagnet mass
- Cart position: 50 -200 mm
- Max acceleration :  $2606\text{m/s}^2$
- Mass drop: N/a



# Datasets

High-Rate  
Overview

Benchmark

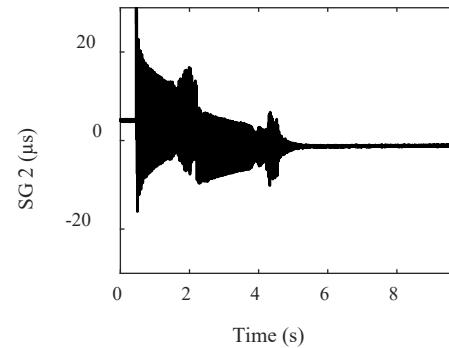
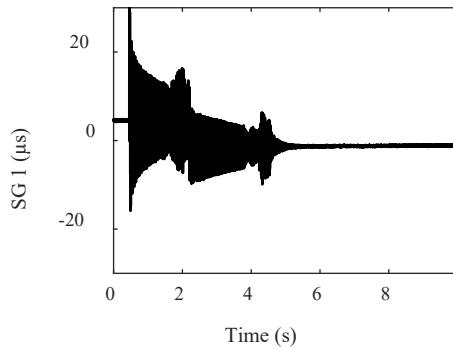
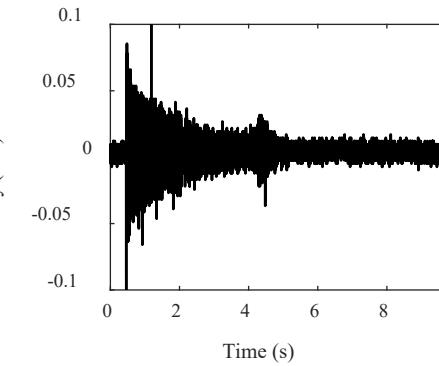
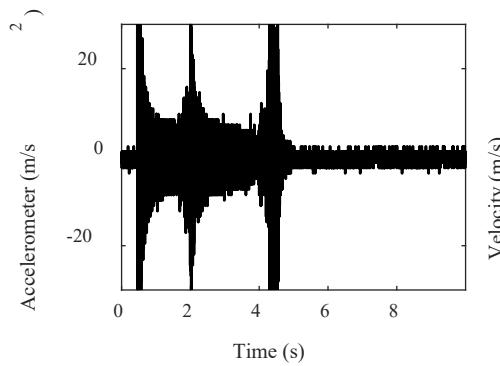
Applications

Datasets

## DATASET 5 – TEST 34

### EXCITATIONS:

- Dynamic cart action
- Single hammer impact
- Electromagnet mass drop
- Cart position: 50 -200 mm
- Max acceleration :  $869.14 \text{ m/s}^2$
- Mass drop: 1 s



# Datasets

High-Rate  
Overview

Benchmark

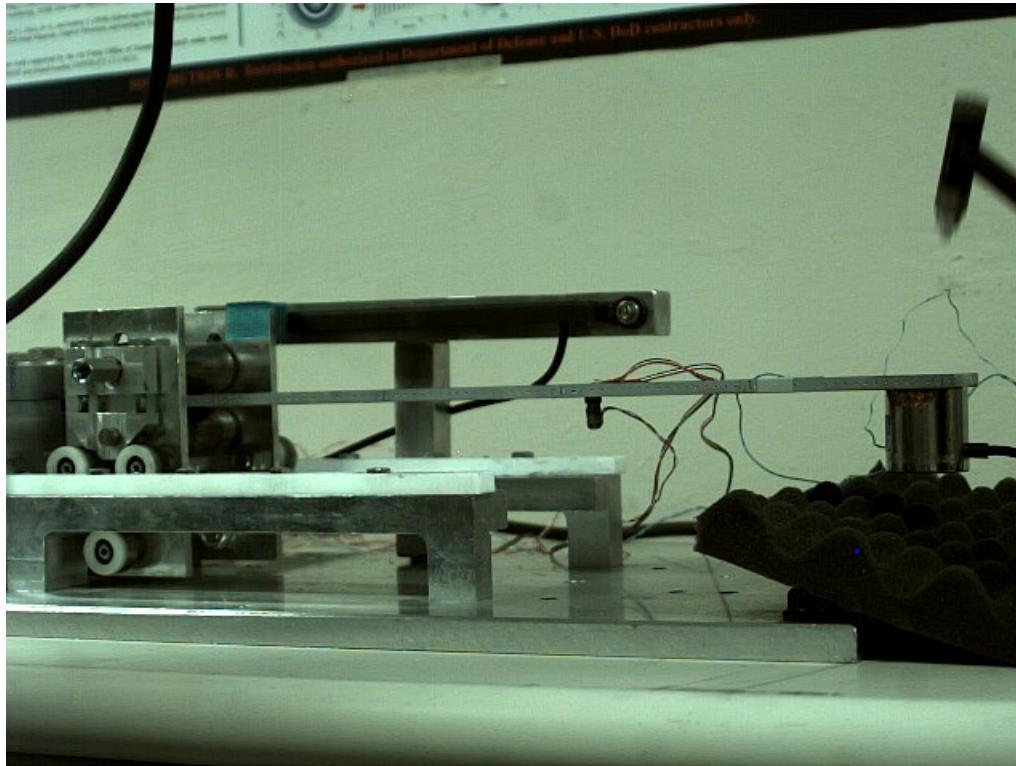
Applications

Datasets

## DATASET 5 – TEST 34

### EXCITATIONS:

- Dynamic cart action
- Single hammer impact
- Electromagnet mass drop
- Cart position: 50 -200 mm
- Max acceleration :  $869.14 \text{ m/s}^2$
- Mass drop: 1 s



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 6 – SENSORS

### SENSORS:

2x Strain gauge

1. Both at 306 mm

1x Laser vibrometer

1. 306 mm

1x Accelerometer (PCB 353B17)

1. 306 mm

### Excitation notes:

- Hammer excitations shown on figures for each test
- Dynamic cart action shown through figures if present

Sampling frequency: 25,000 samples/s

# Datasets

High-Rate  
Overview

Benchmark

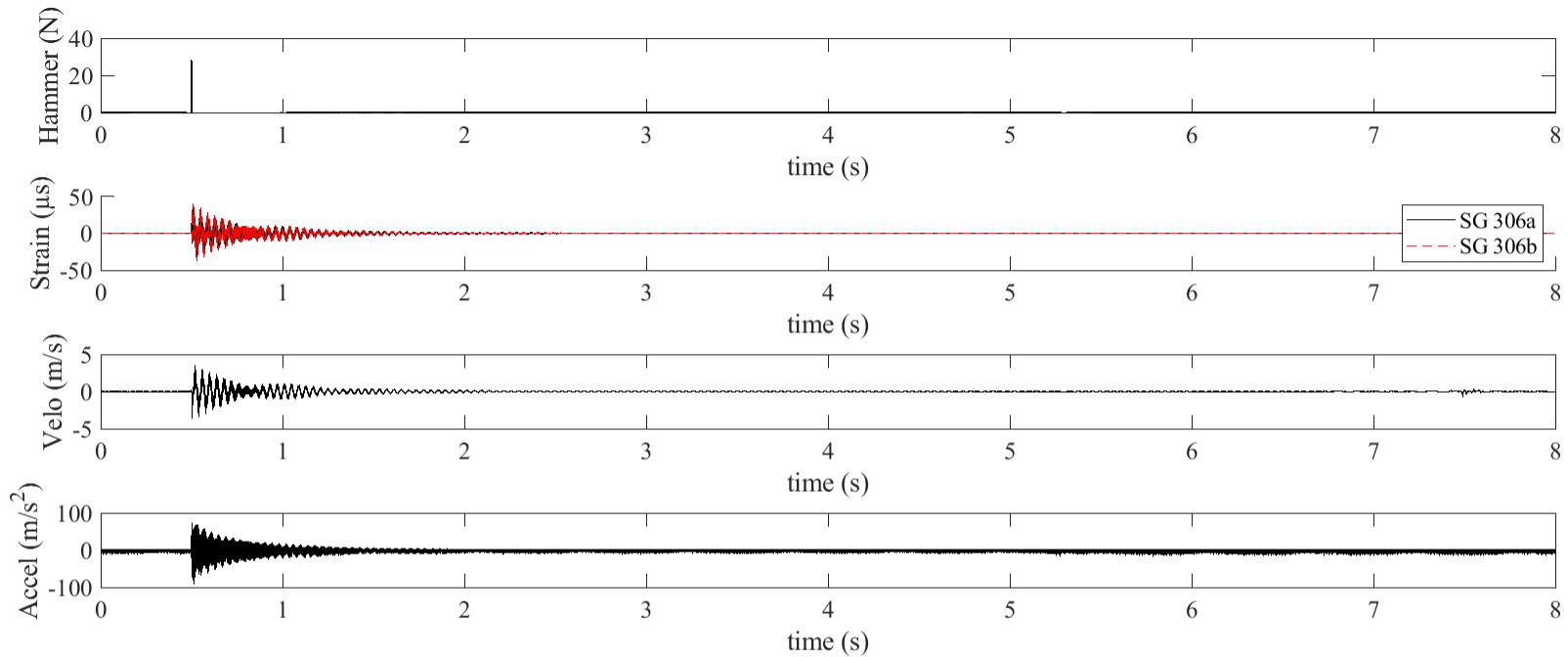
Applications

Datasets

## DATASET 6 – TEST 1

### EXCITATIONS:

- Static cart action
- No electromagnetic mass
- Cart position: 50 mm
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

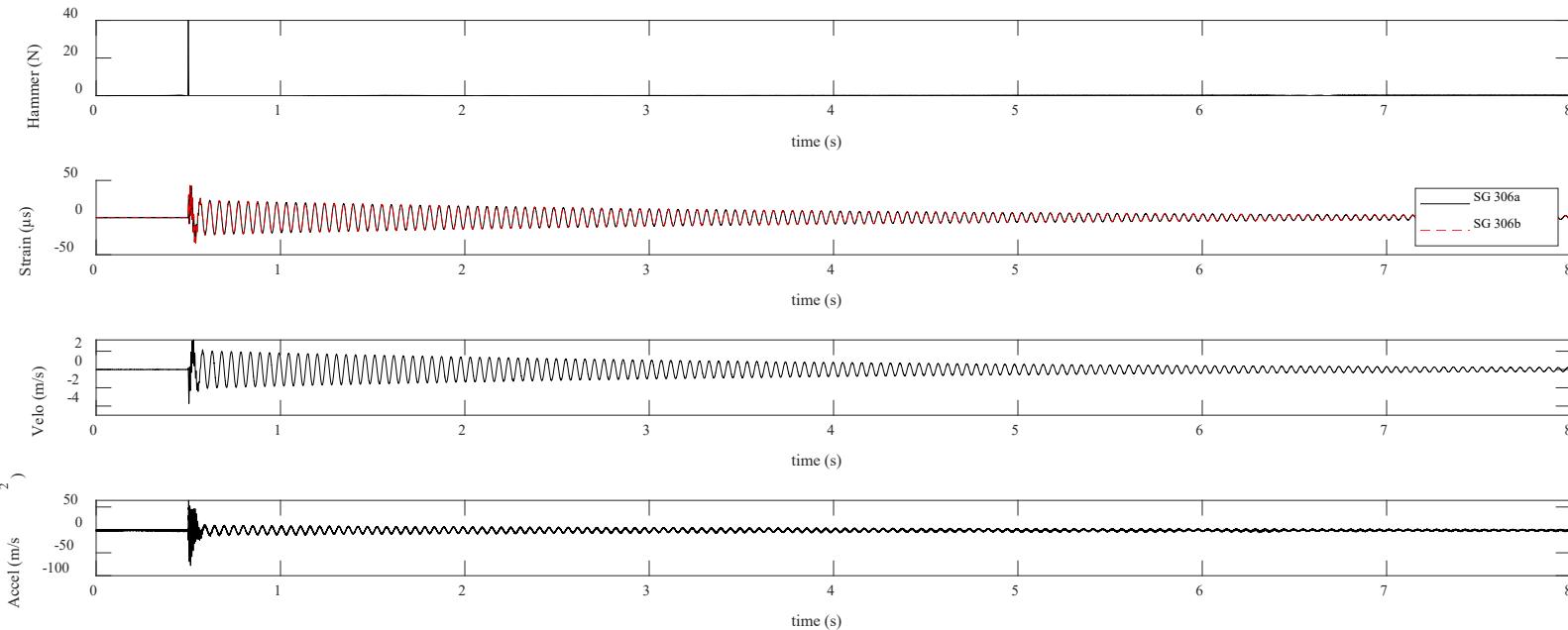
Applications

Datasets

## DATASET 6 – TEST 2

### EXCITATIONS:

- Static cart action
- Electromagnetic mass
- Cart position: 50 mm
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

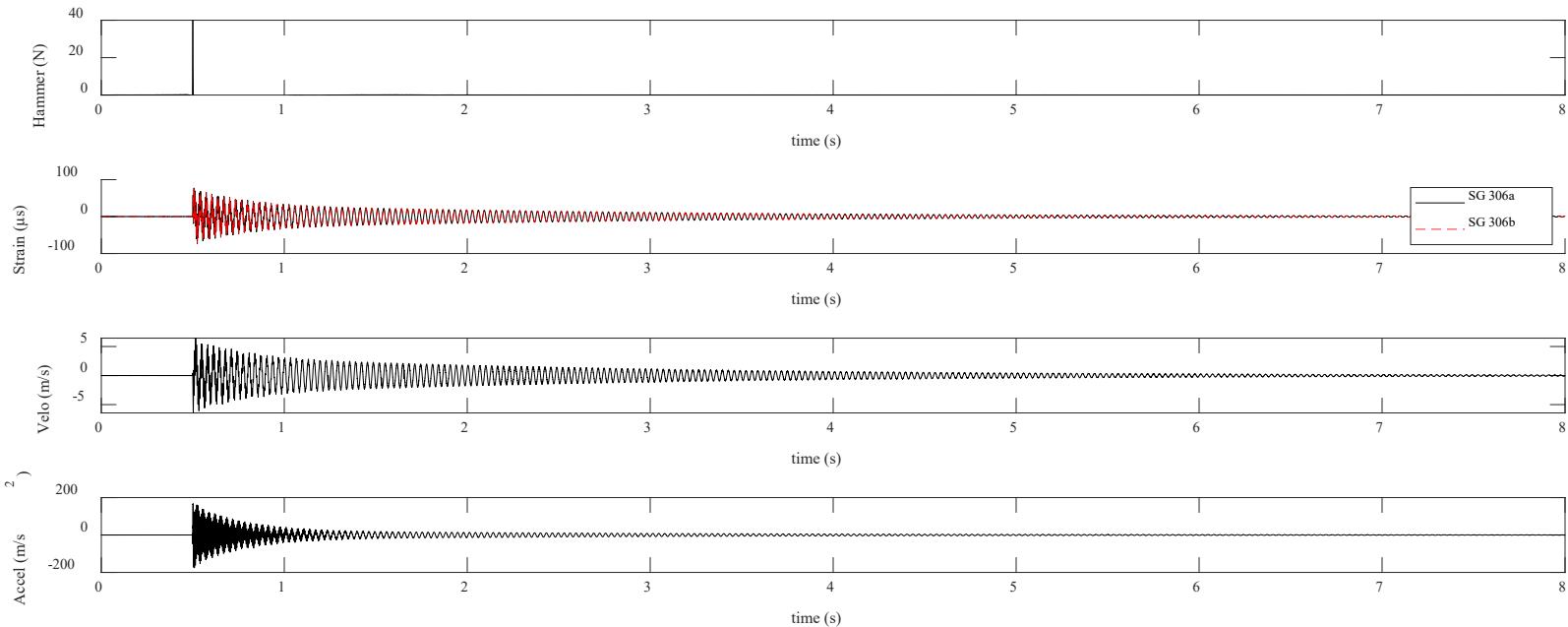
Applications

Datasets

## DATASET 6 – TEST 3

### EXCITATIONS:

- Static cart action
- No electromagnetic mass
- Cart position: 100 mm
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

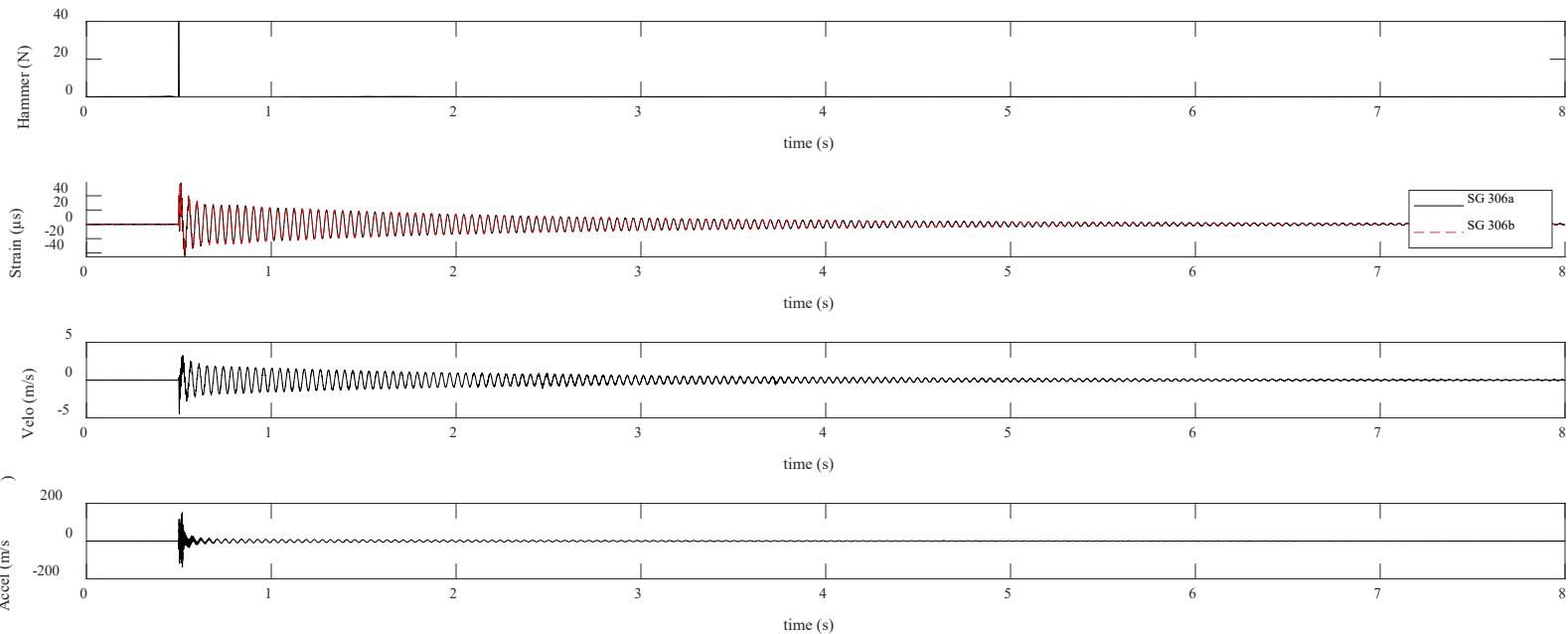
Applications

Datasets

## DATASET 6 – TEST 4

### EXCITATIONS:

- Static cart action
- Electromagnetic mass
- Cart position: 100 mm
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

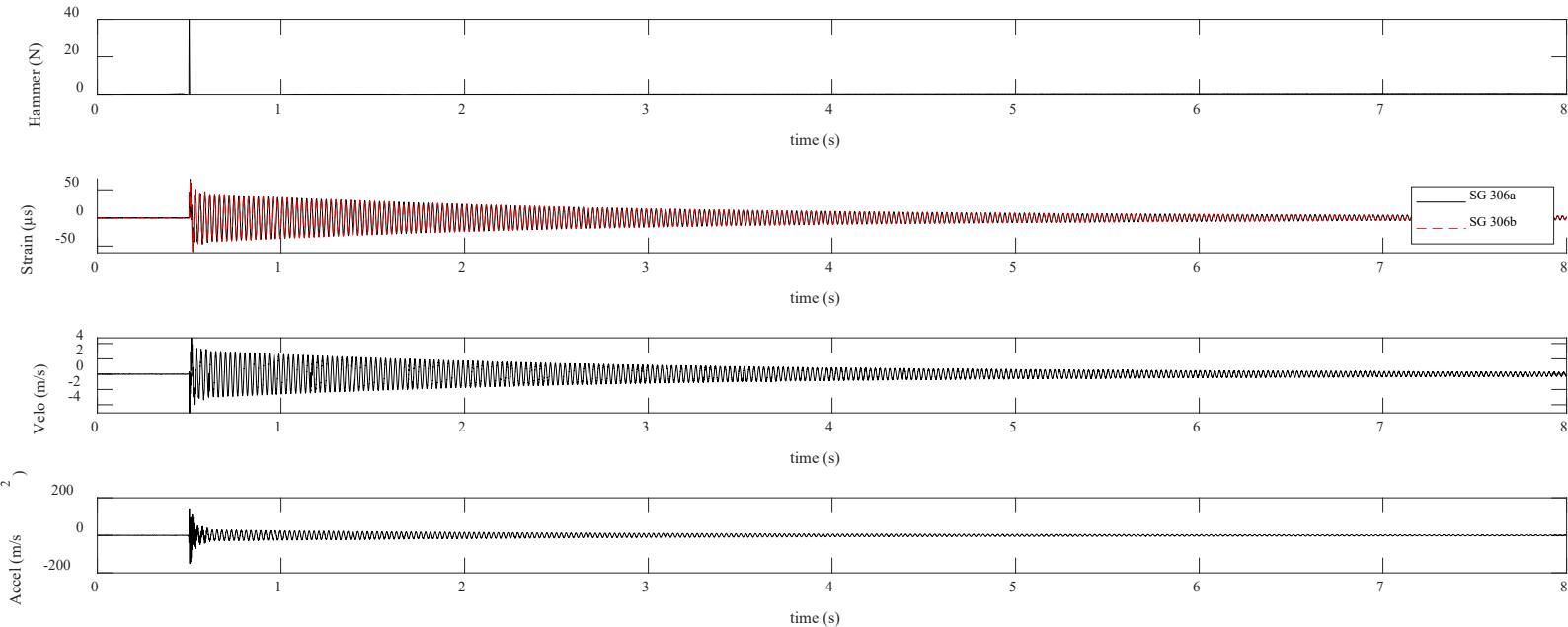
Applications

Datasets

## DATASET 6 – TEST 5

### EXCITATIONS:

- Static cart action
- No electromagnet mass
- Cart position: 150 mm
- Mass drop time: No



\*Accelerometer FSIN 300

# Datasets

High-Rate  
Overview

Benchmark

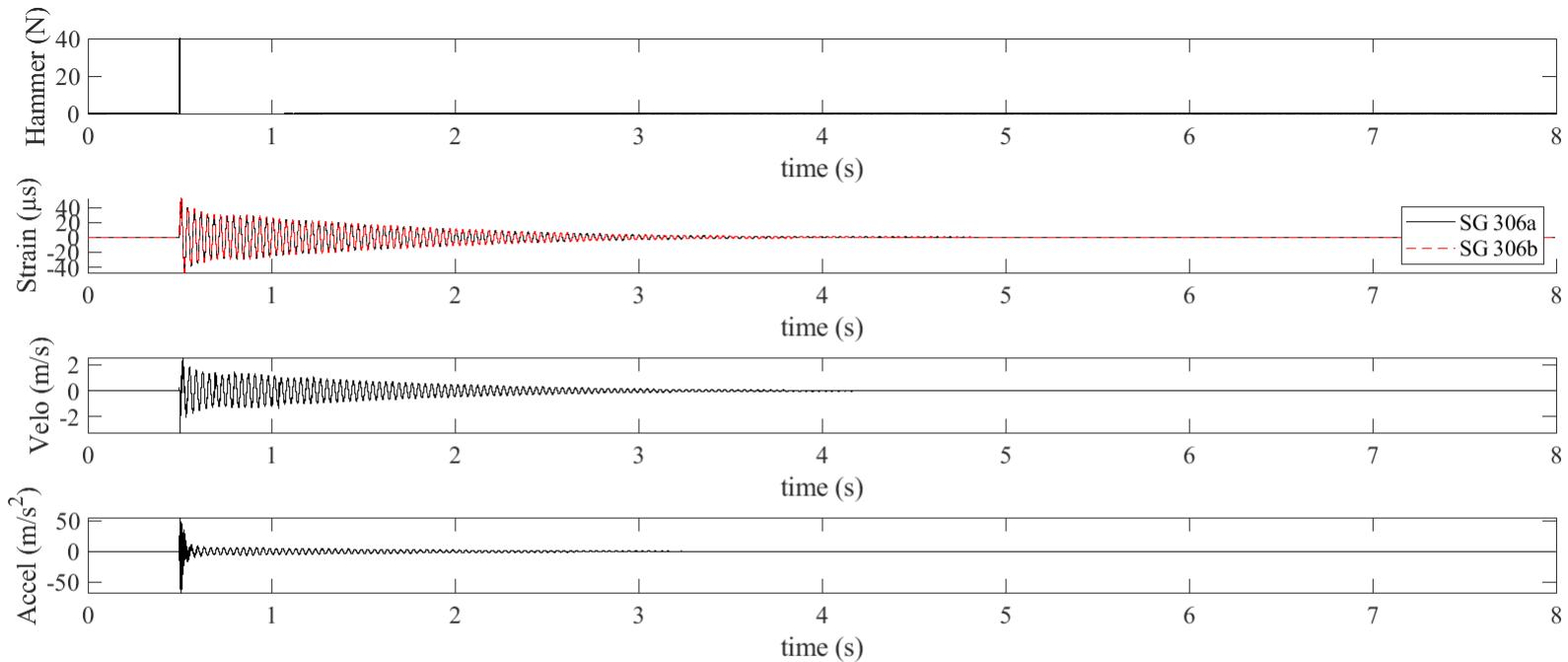
Applications

Datasets

## DATASET 6 – TEST 6

### EXCITATIONS:

- Static cart action
- Electromagnetic mass
- Cart position: 200 mm
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

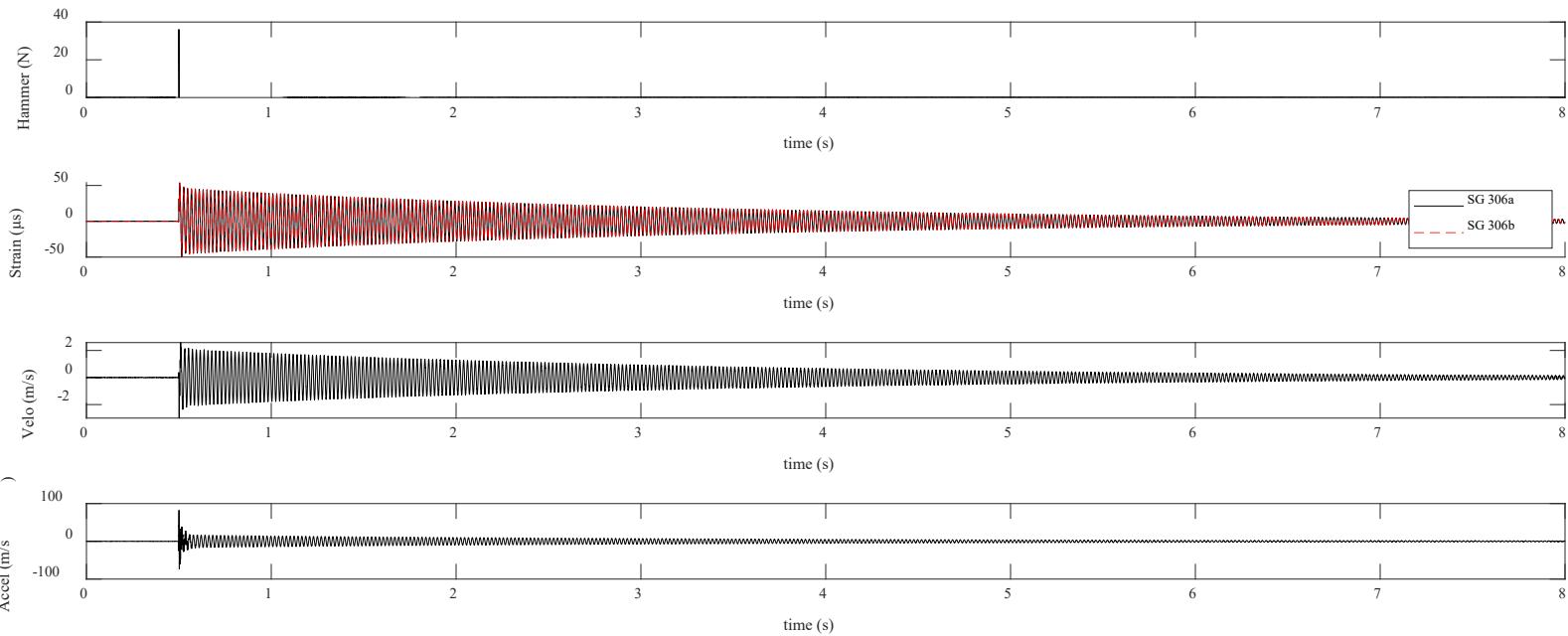
Applications

Datasets

## DATASET 6 – TEST 7

### EXCITATIONS:

- Static cart action
- No electromagnet mass
- Cart position: 200 mm
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

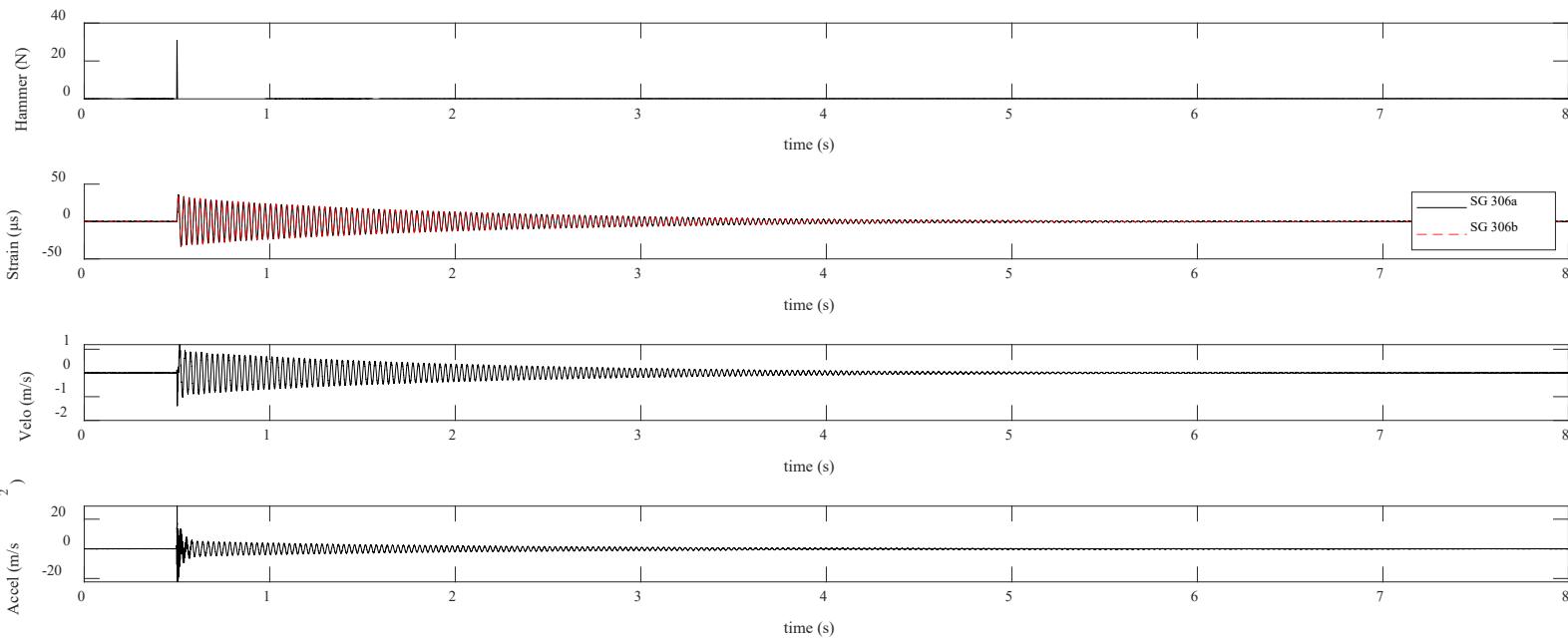
Applications

Datasets

## DATASET 6 – TEST 8

### EXCITATIONS:

- Static cart action
- Electromagnetic mass
- Cart position: 200 mm
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

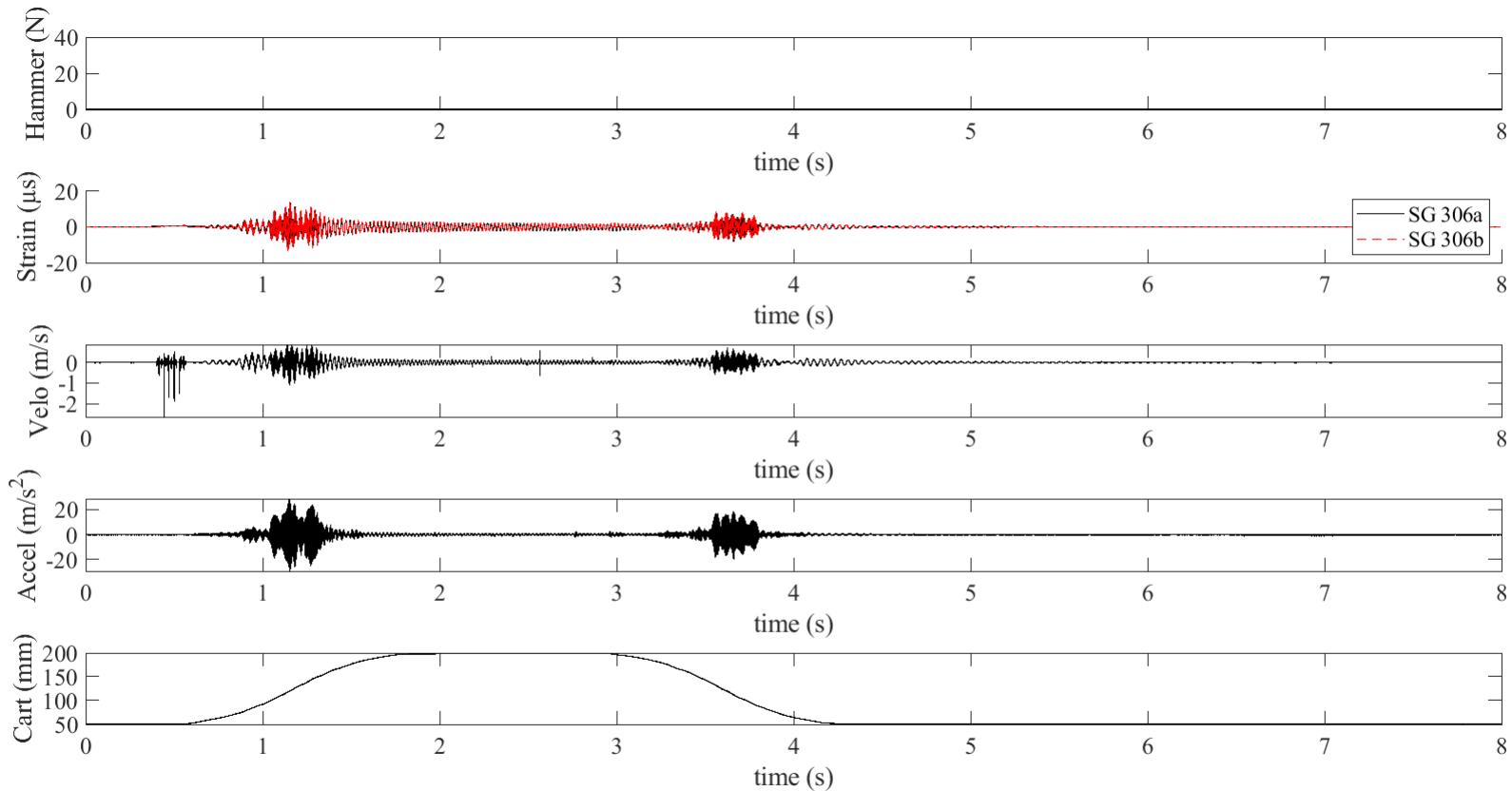
Applications

Datasets

## DATASET 6 – TEST 9

### EXCITATIONS:

- No electromagnet mass
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

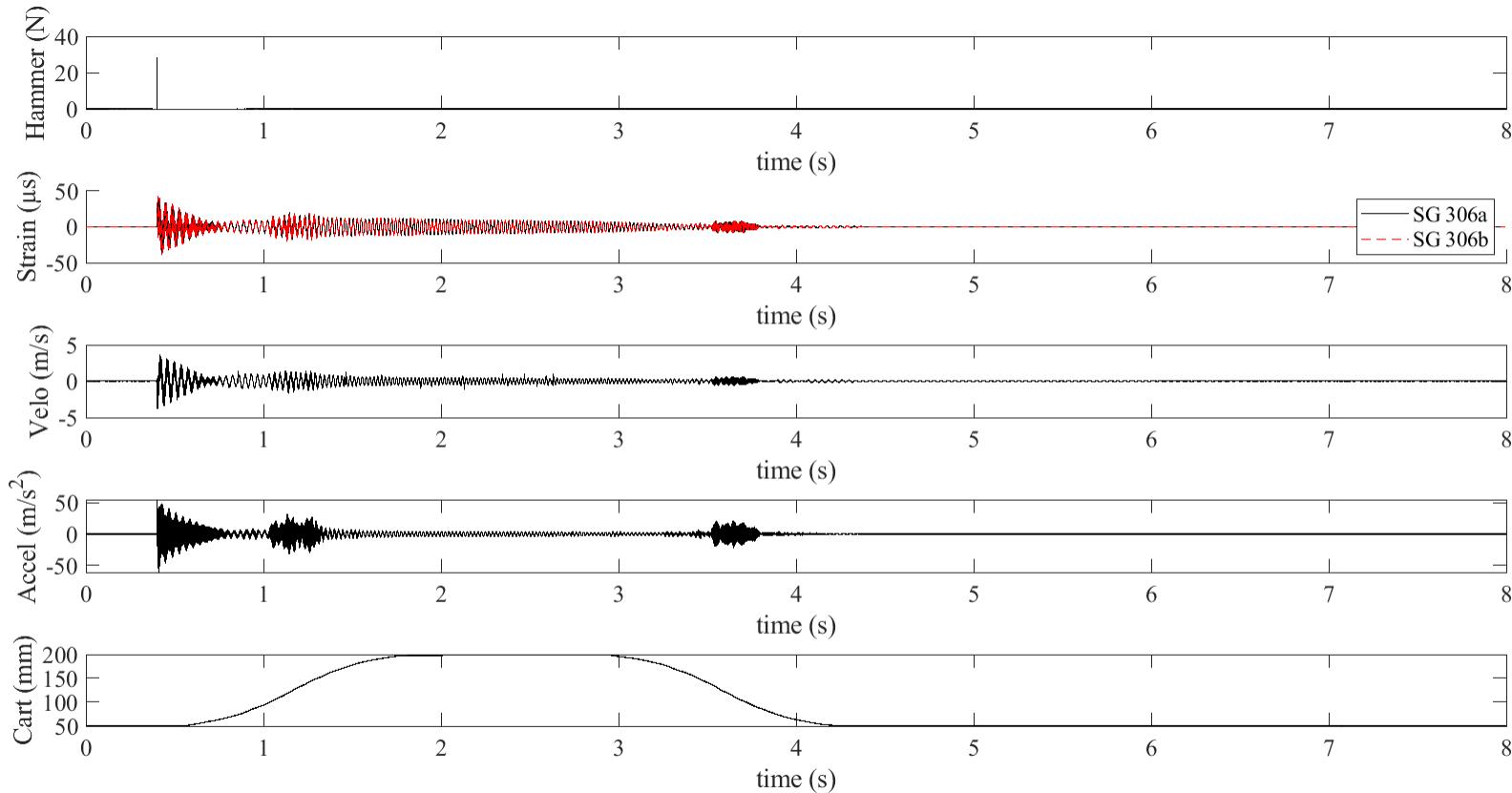
Applications

Datasets

## DATASET 6 – TEST 10

### EXCITATIONS:

- No electromagnet mass
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

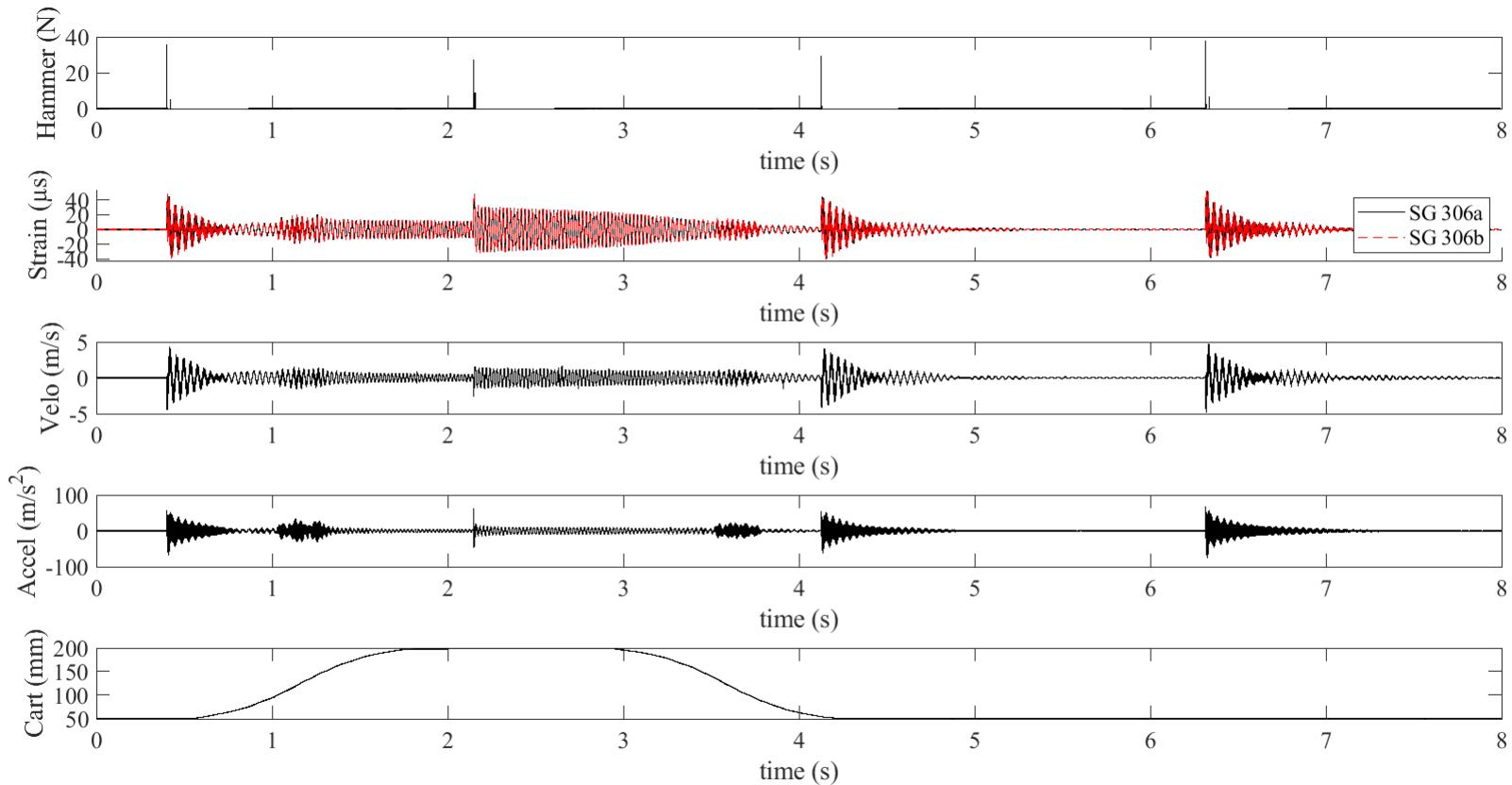
Applications

Datasets

## DATASET 6 – TEST 11

### EXCITATIONS:

- No electromagnet mass
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

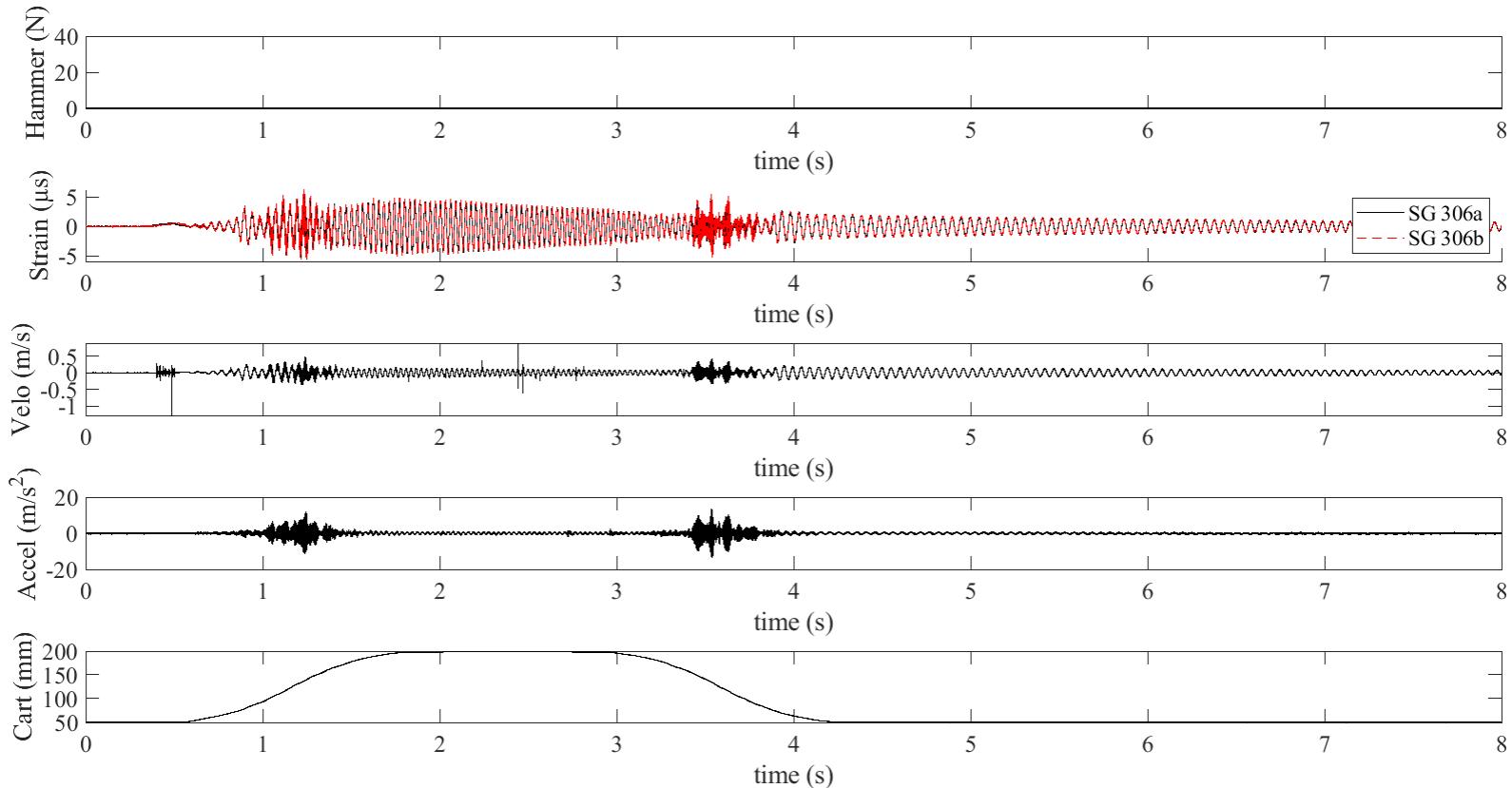
Applications

Datasets

## DATASET 6 – TEST 12

### EXCITATIONS:

- Electromagnet mass
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

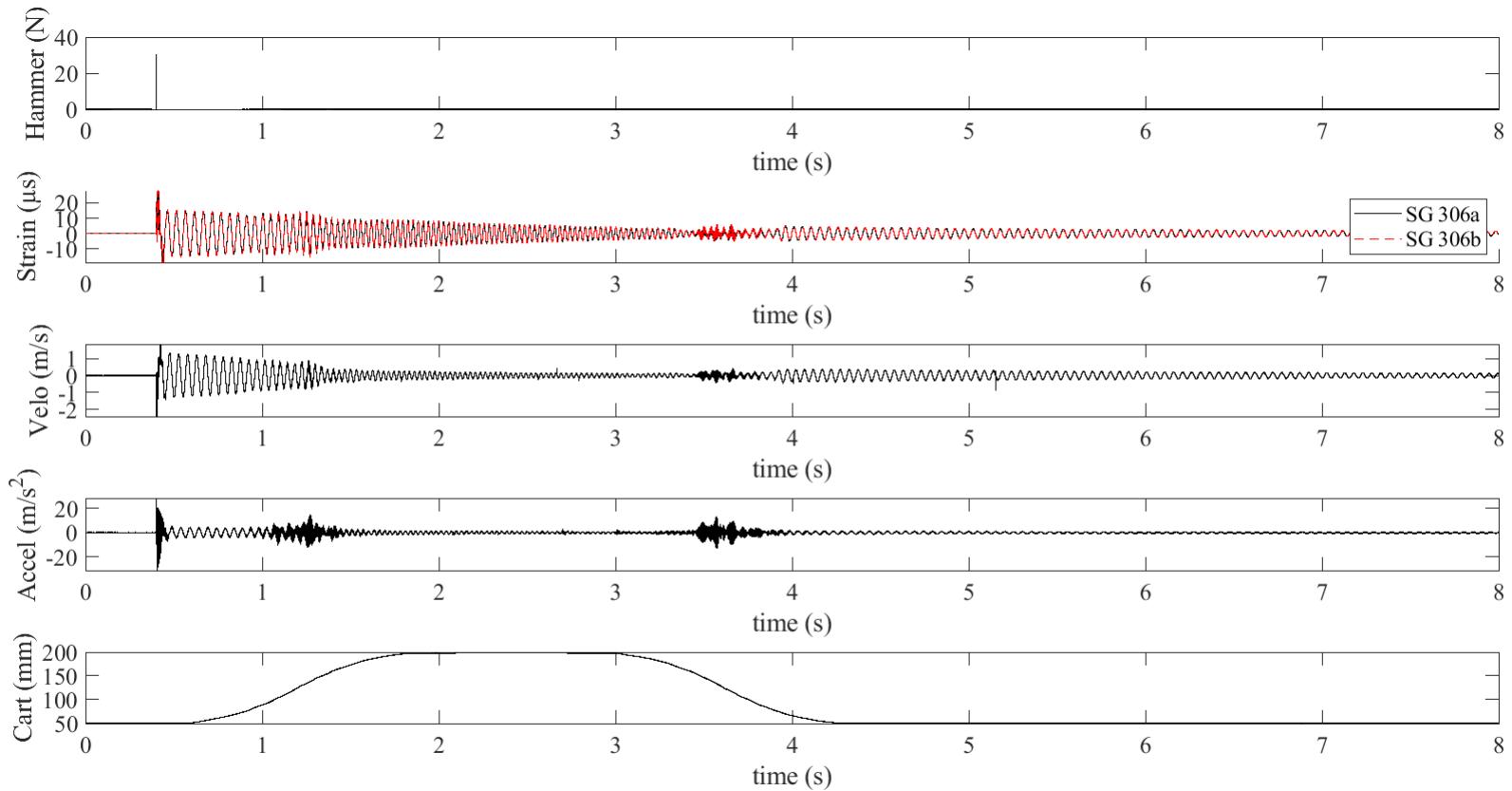
Applications

Datasets

## DATASET 6 – TEST 13

### EXCITATIONS:

- Electromagnet mass
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

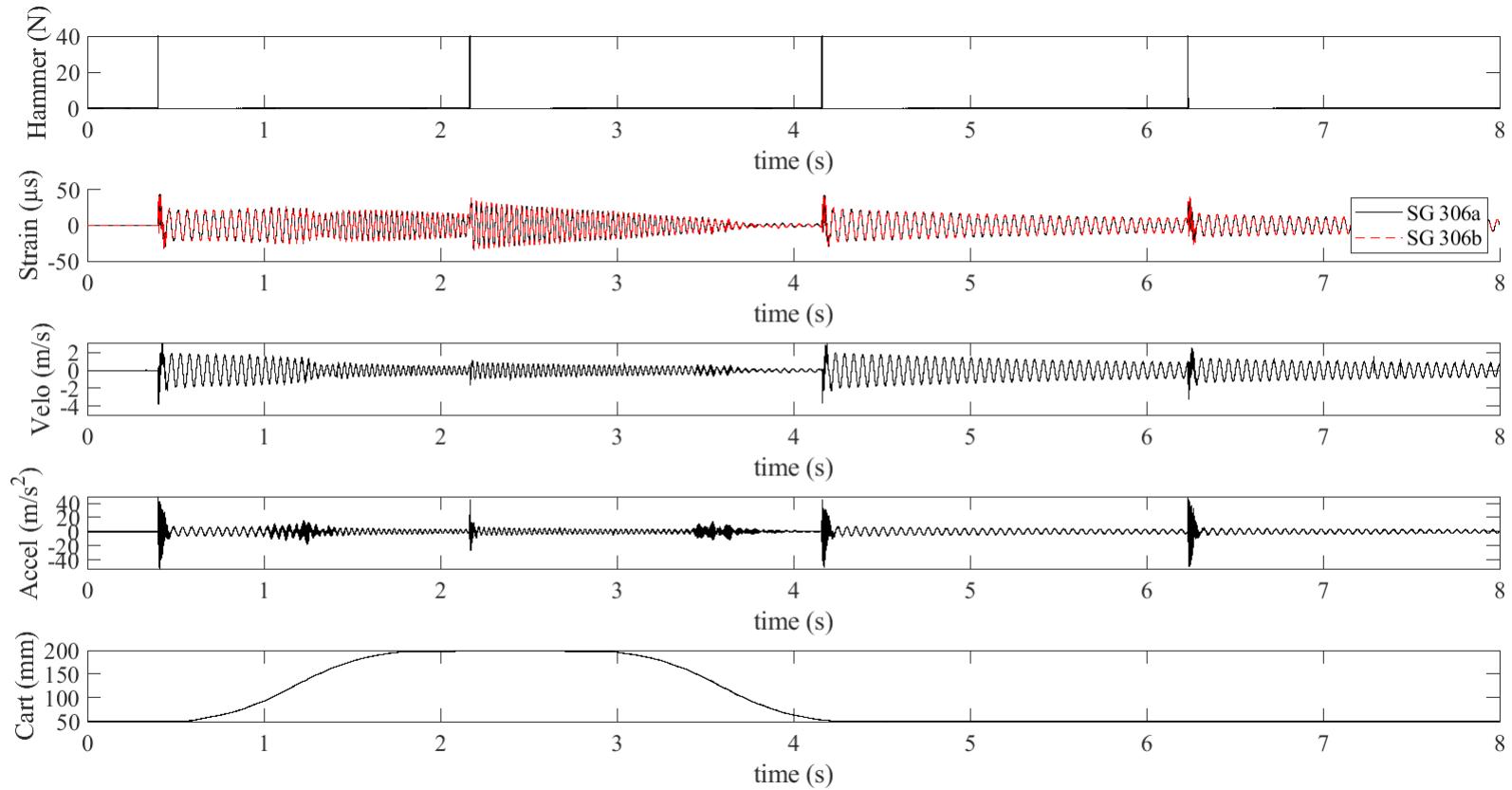
Applications

Datasets

## DATASET 6 – TEST 14

### EXCITATIONS:

- Electromagnet mass
- Mass drop time: No



# Datasets

High-Rate  
Overview

Benchmark

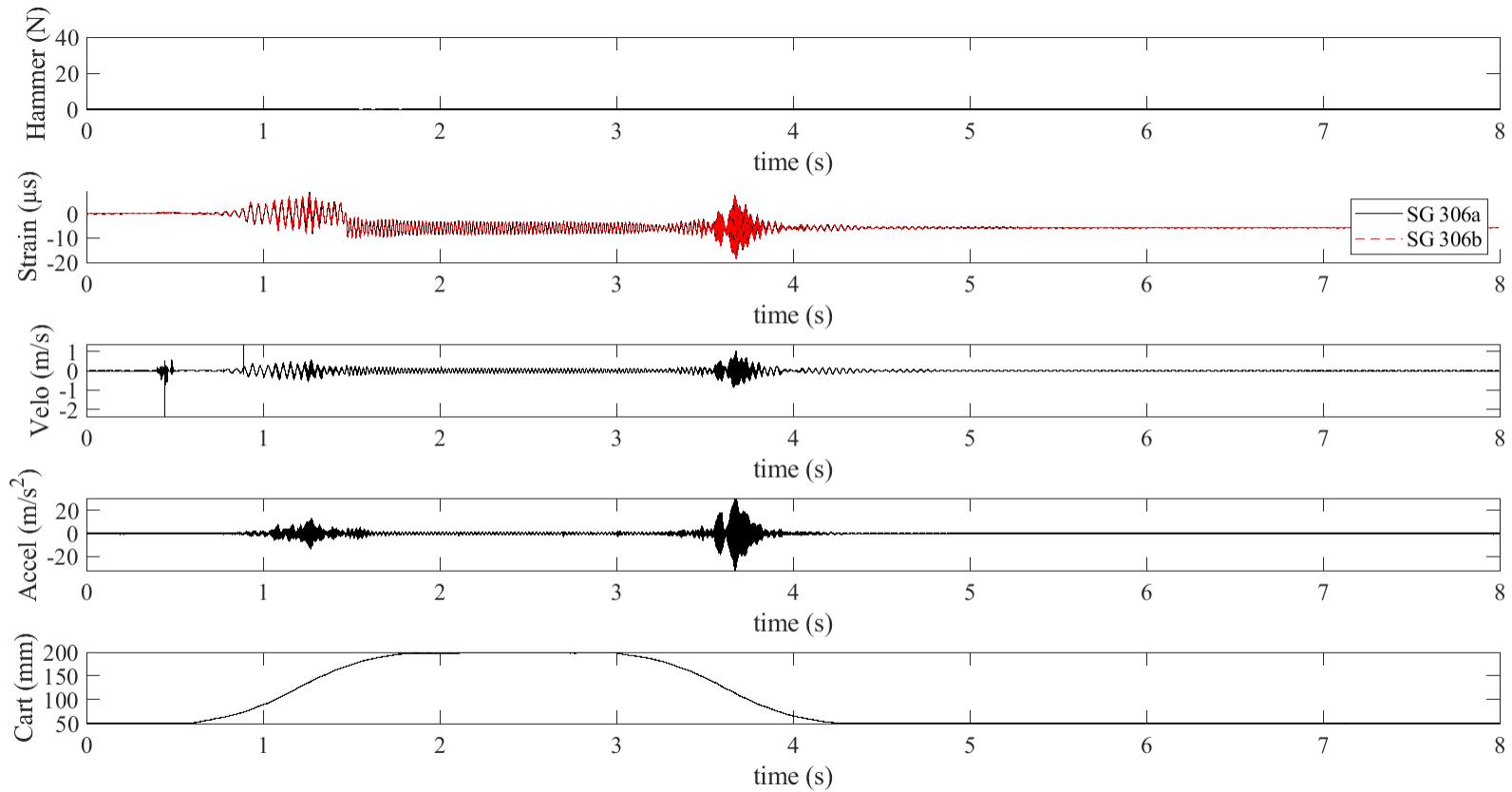
Applications

Datasets

## DATASET 6 – TEST 15

### EXCITATIONS:

- Electromagnet mass
- Mass drop time: 1 sec



# Datasets

High-Rate  
Overview

Benchmark

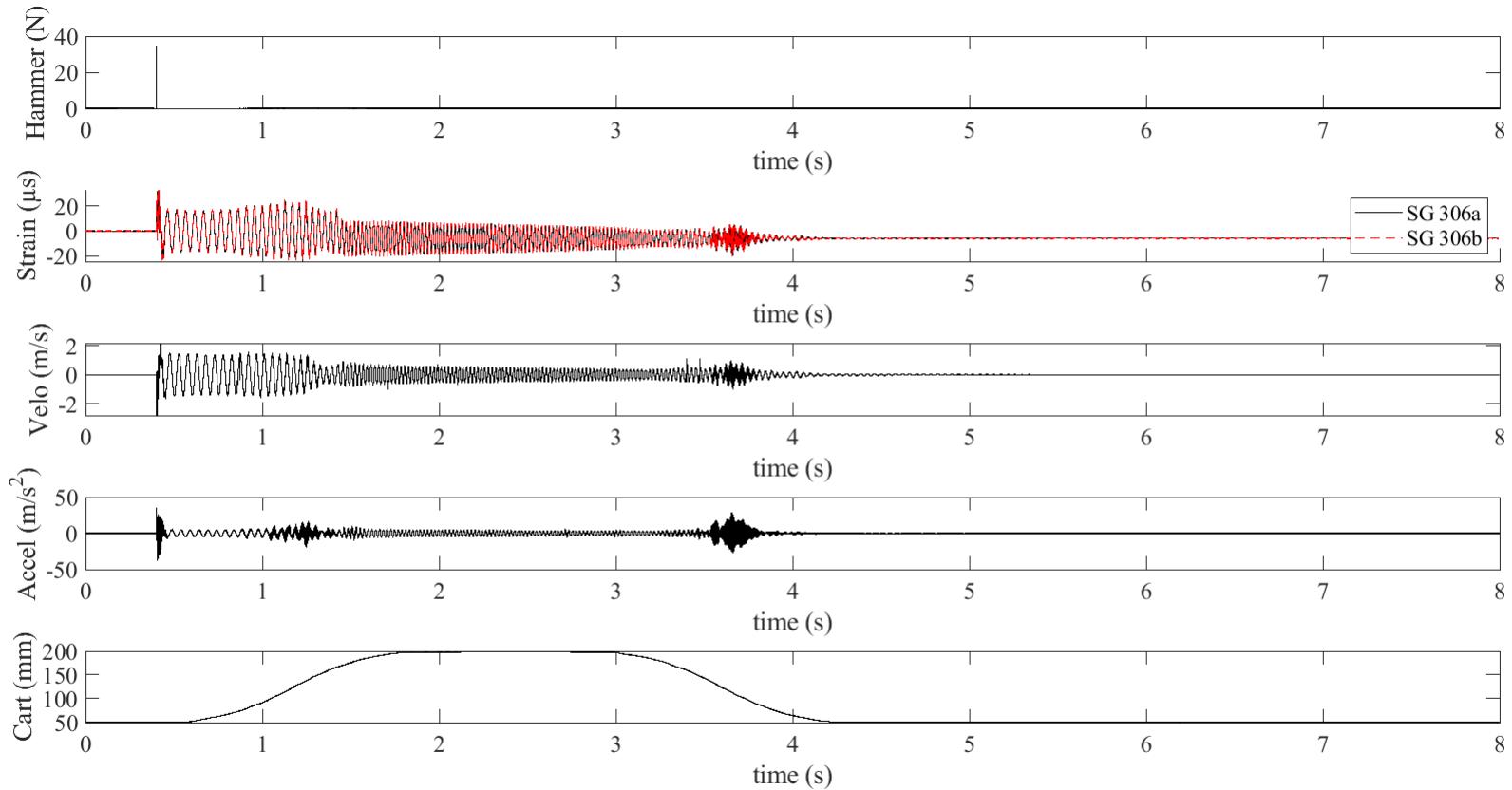
Applications

Datasets

## DATASET 6 – TEST 16

### EXCITATIONS:

- Electromagnet mass
- Mass drop time: 1 sec



# Datasets

High-Rate  
Overview

Benchmark

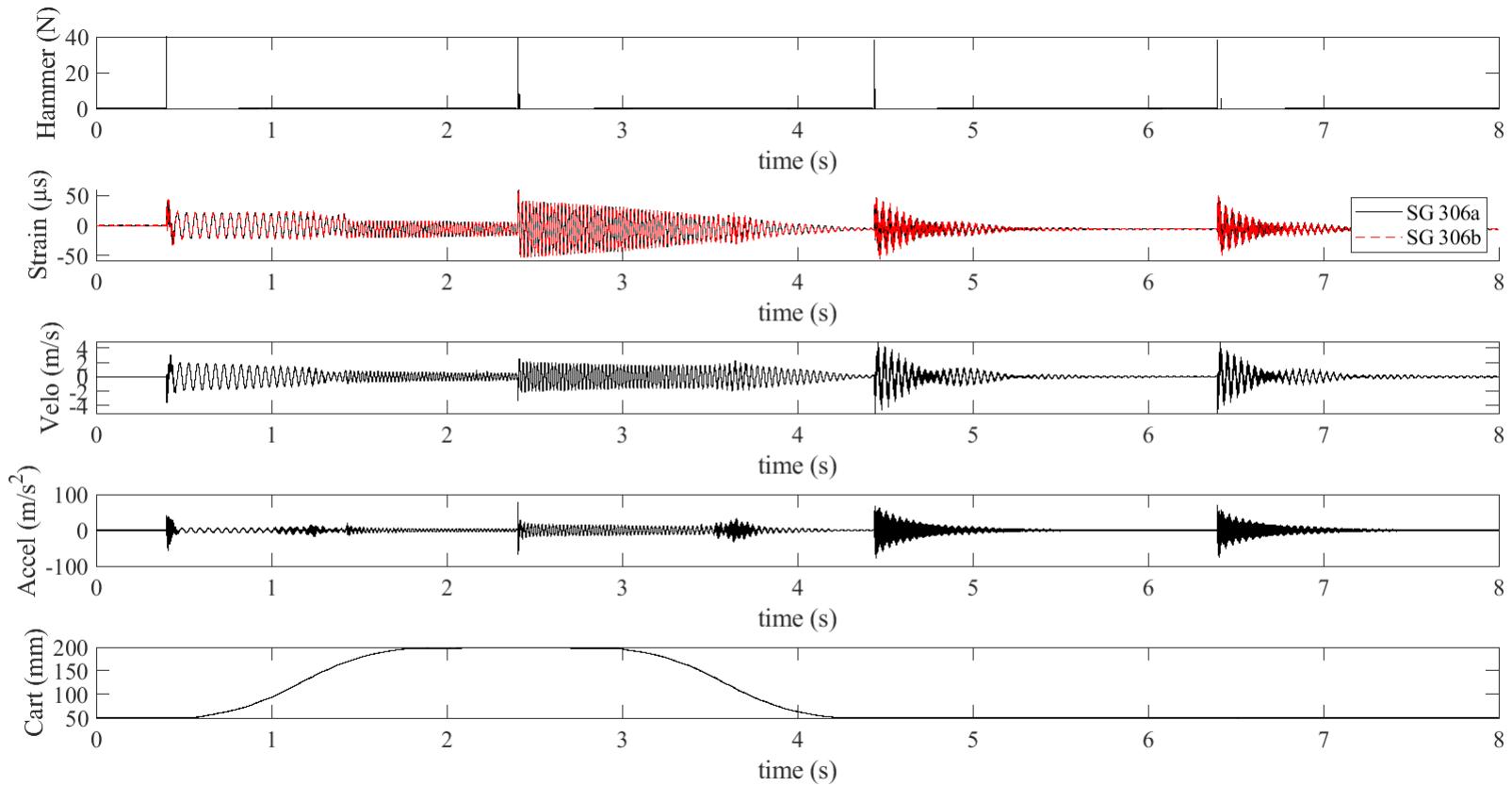
Applications

Datasets

## DATASET 6 – TEST 17

### EXCITATIONS:

- Electromagnet mass
- Mass drop time: 1 sec



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – SENSORS

### SENSORS:

2x Strain gauge

1. Both at 306 mm

1x Laser vibrometer

1. 306 mm

1x Accelerometer (PCB 353B17)

1. 306 mm

1x Extensometer

1. 306 mm

### Excitation notes:

- Hammer excitations shown on figures for each test
- Dynamic cart action shown through figures
- No electromagnetic mass

Sampling frequency: 25,000 samples/s

# Datasets

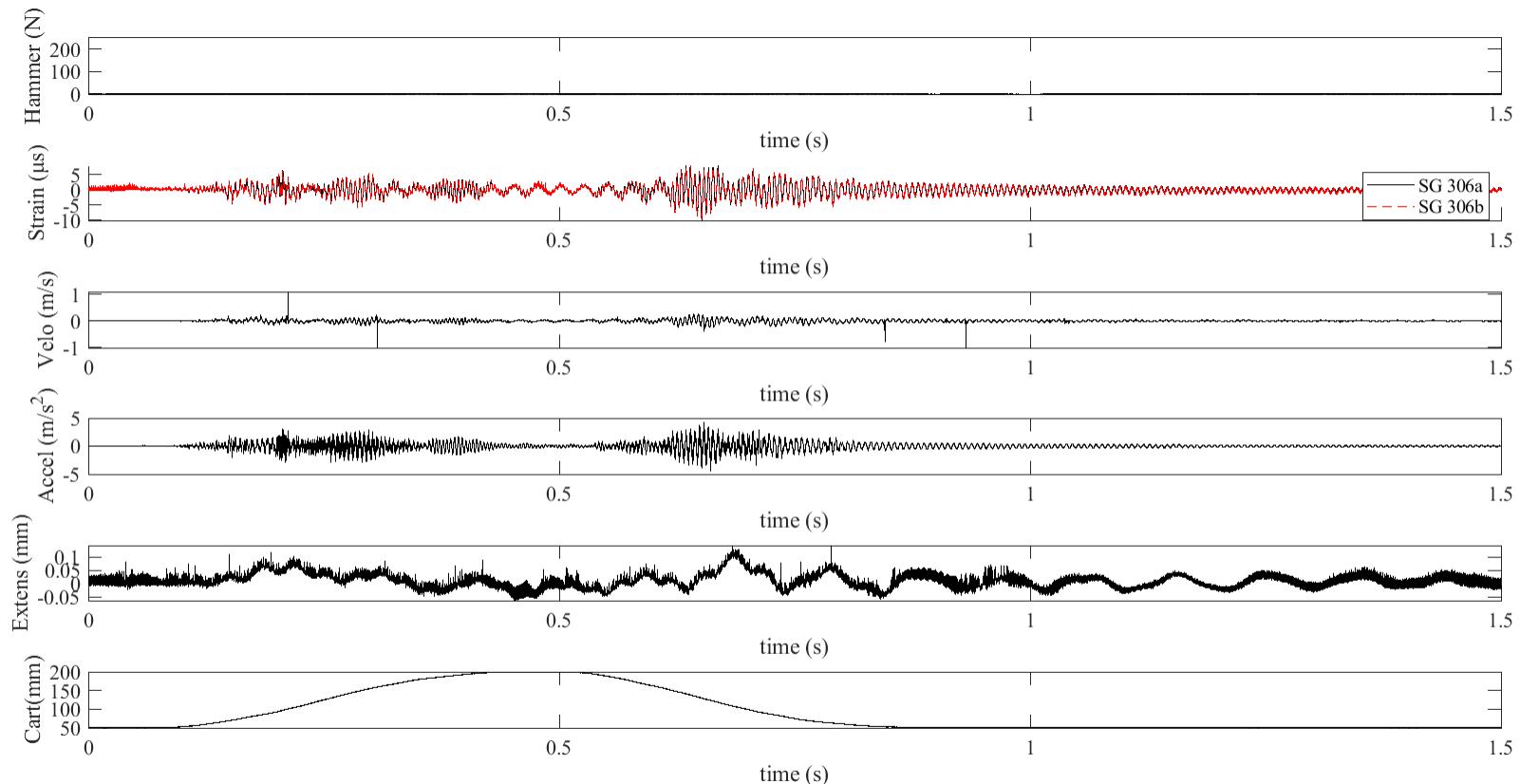
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 1



# Datasets

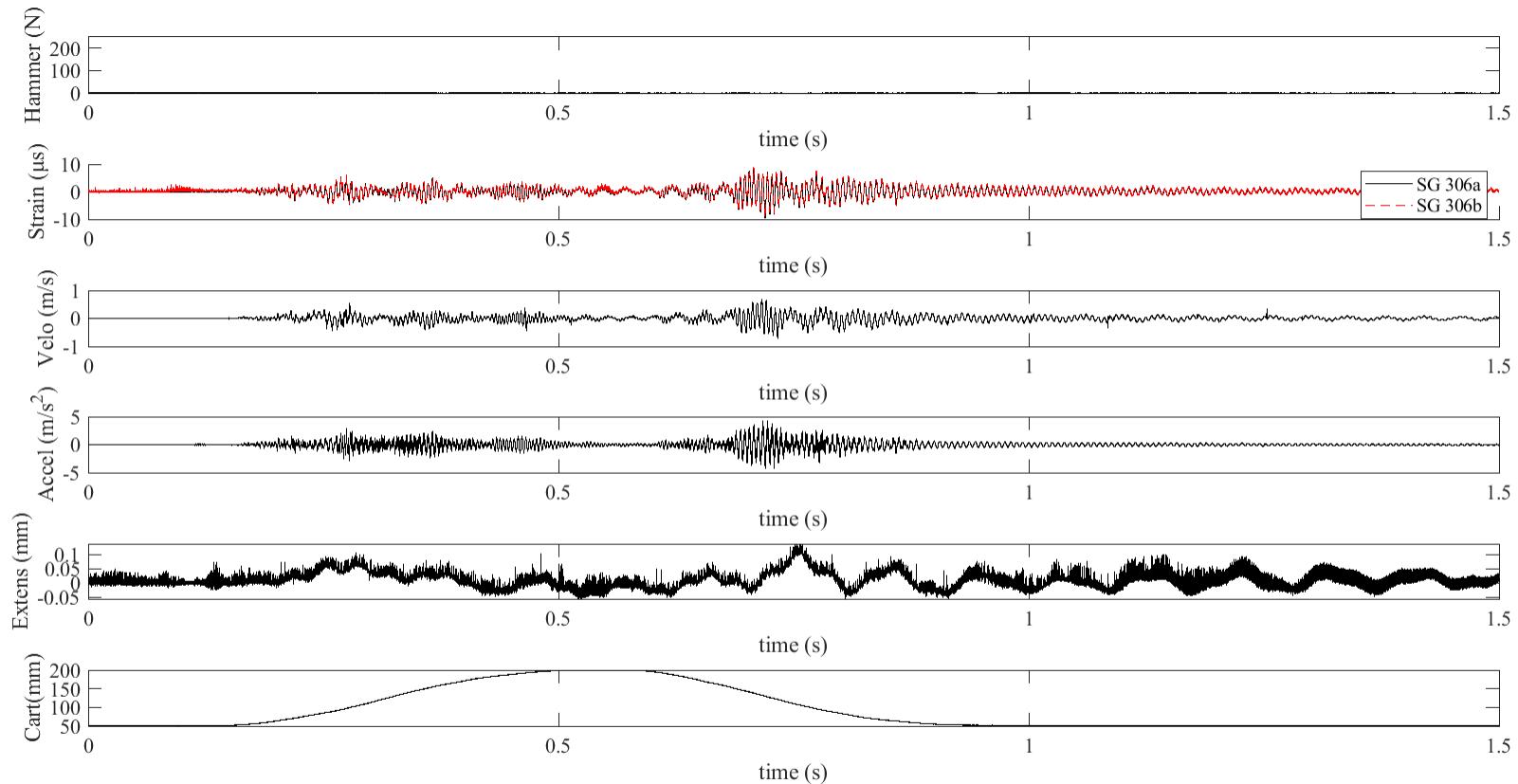
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 2



# Datasets

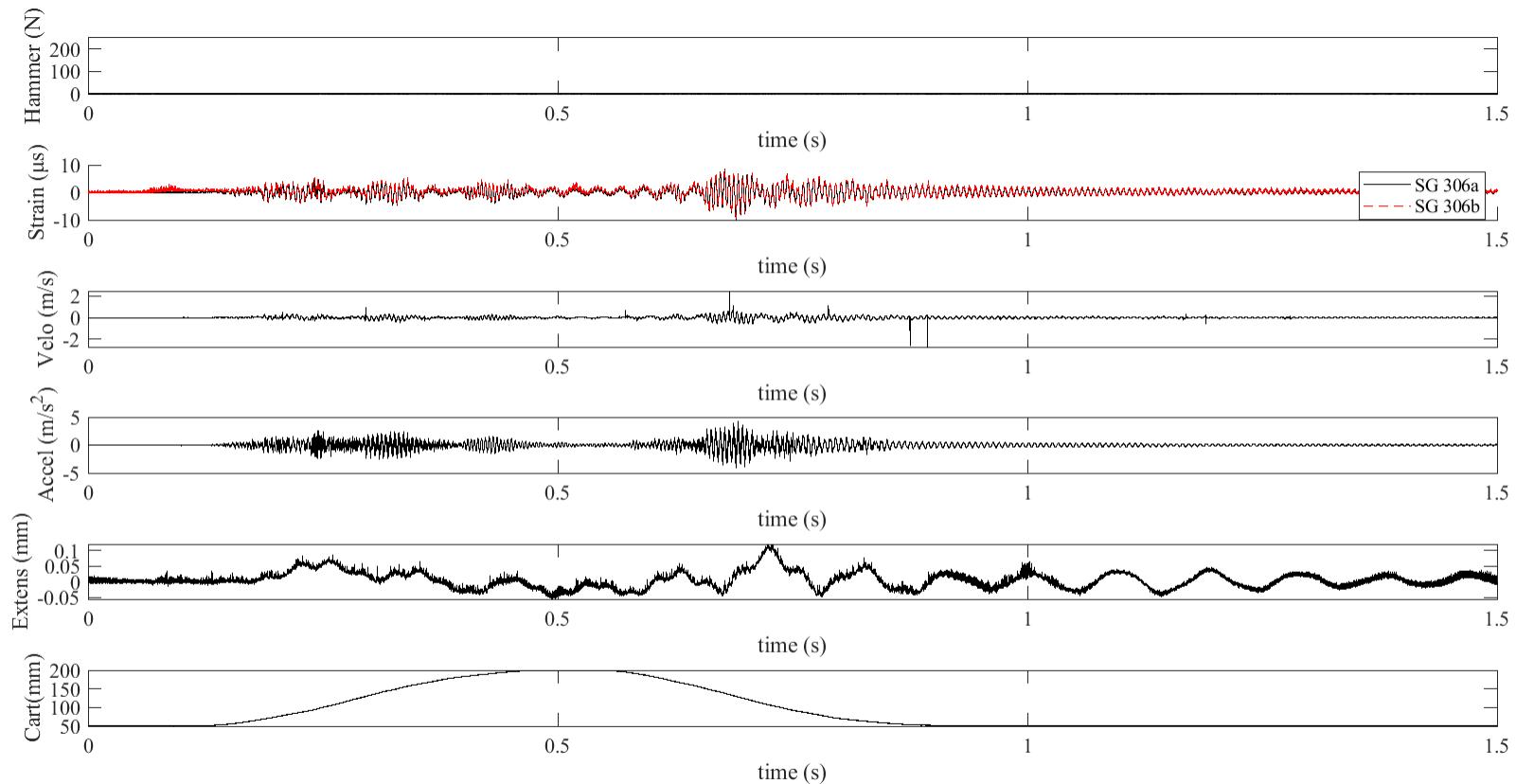
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 3



# Datasets

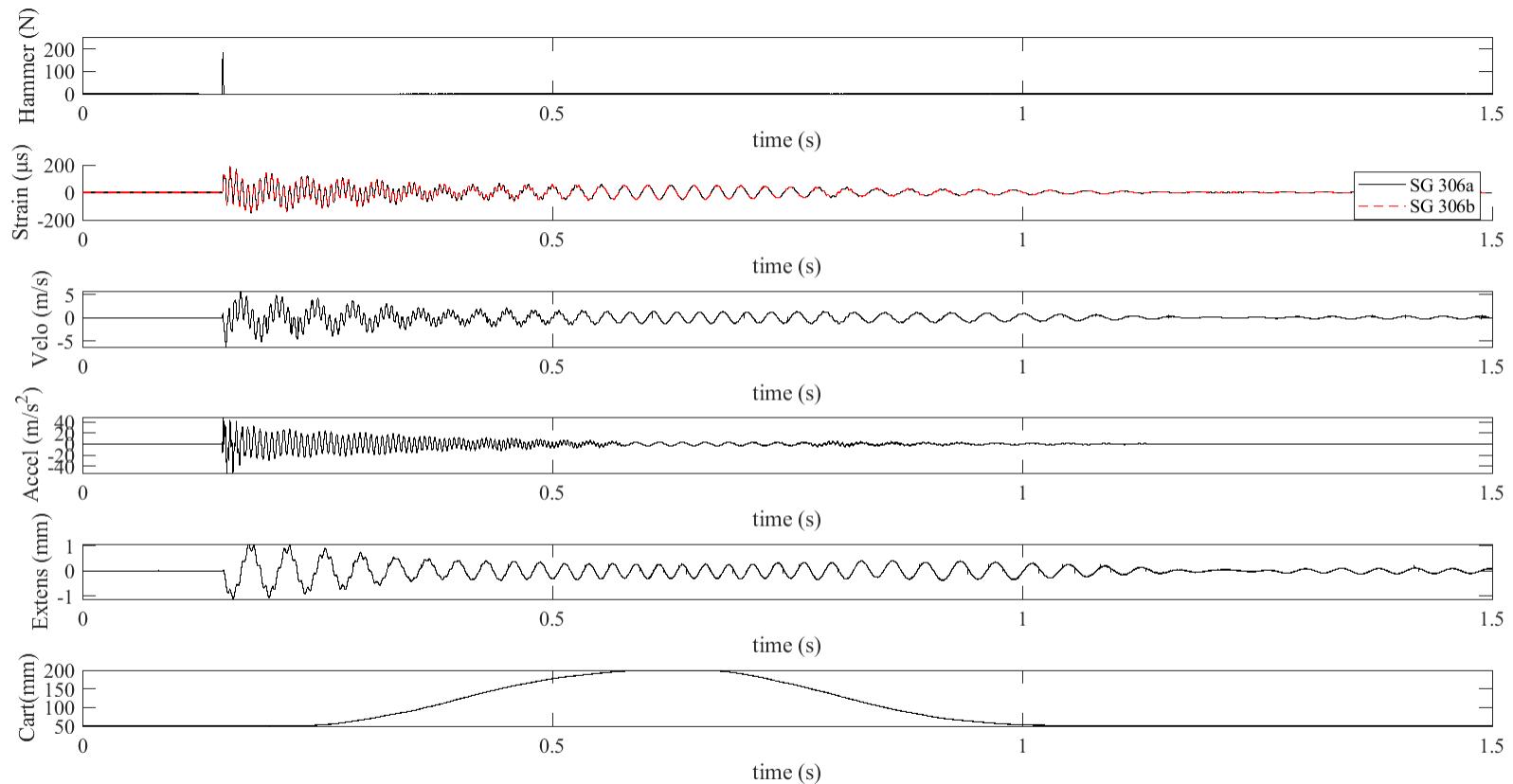
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 4



# Datasets

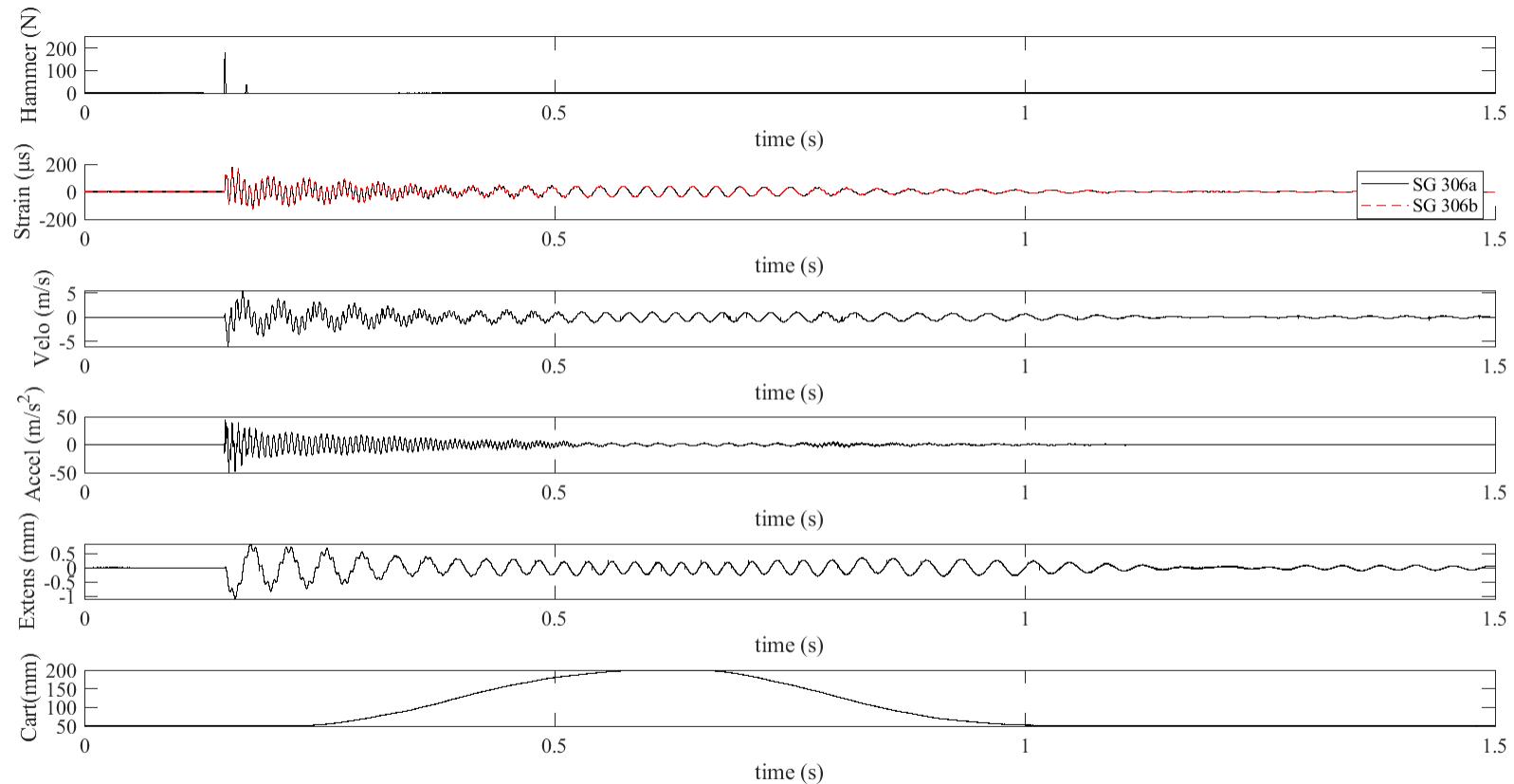
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 5



# Datasets

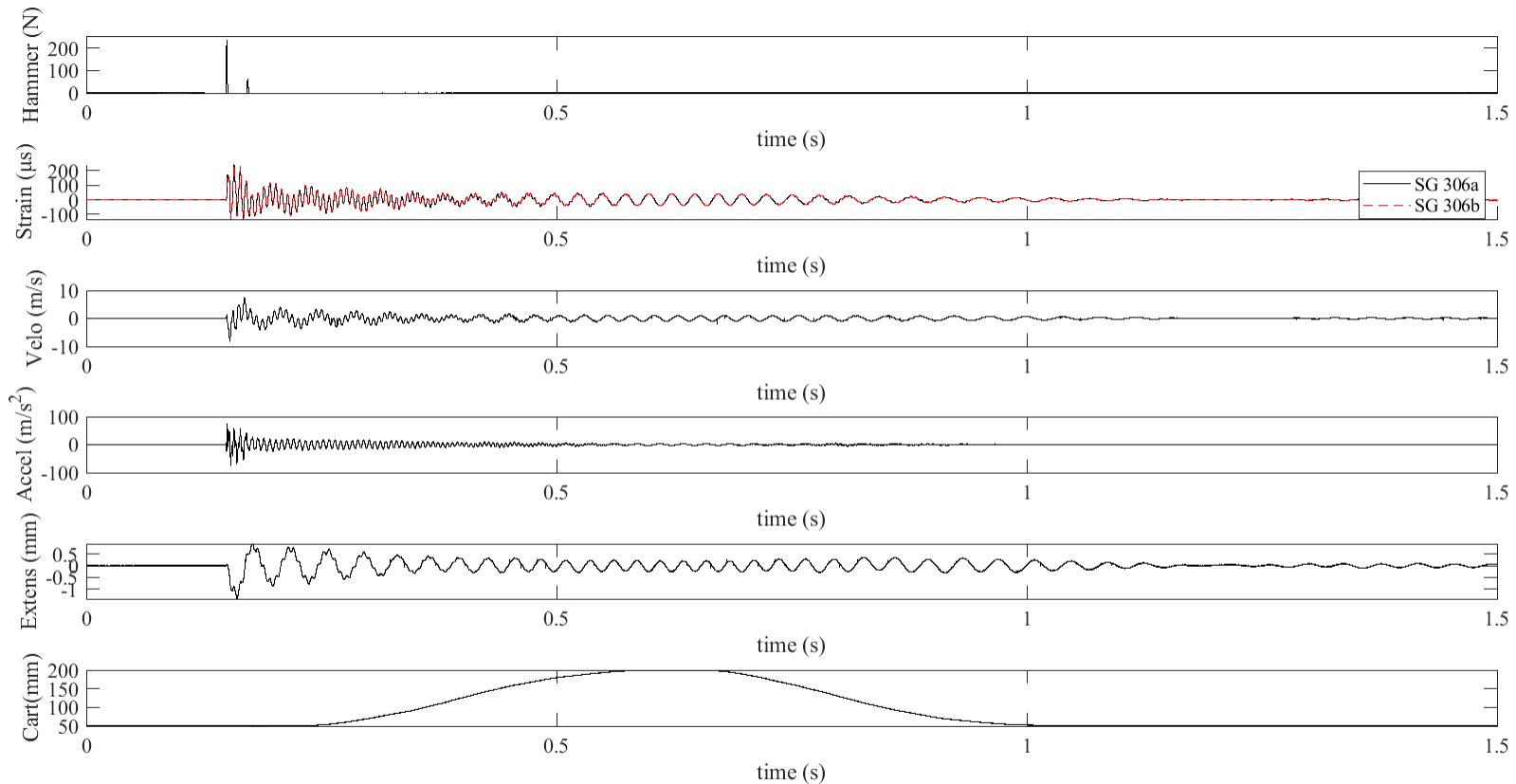
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 6



# Datasets

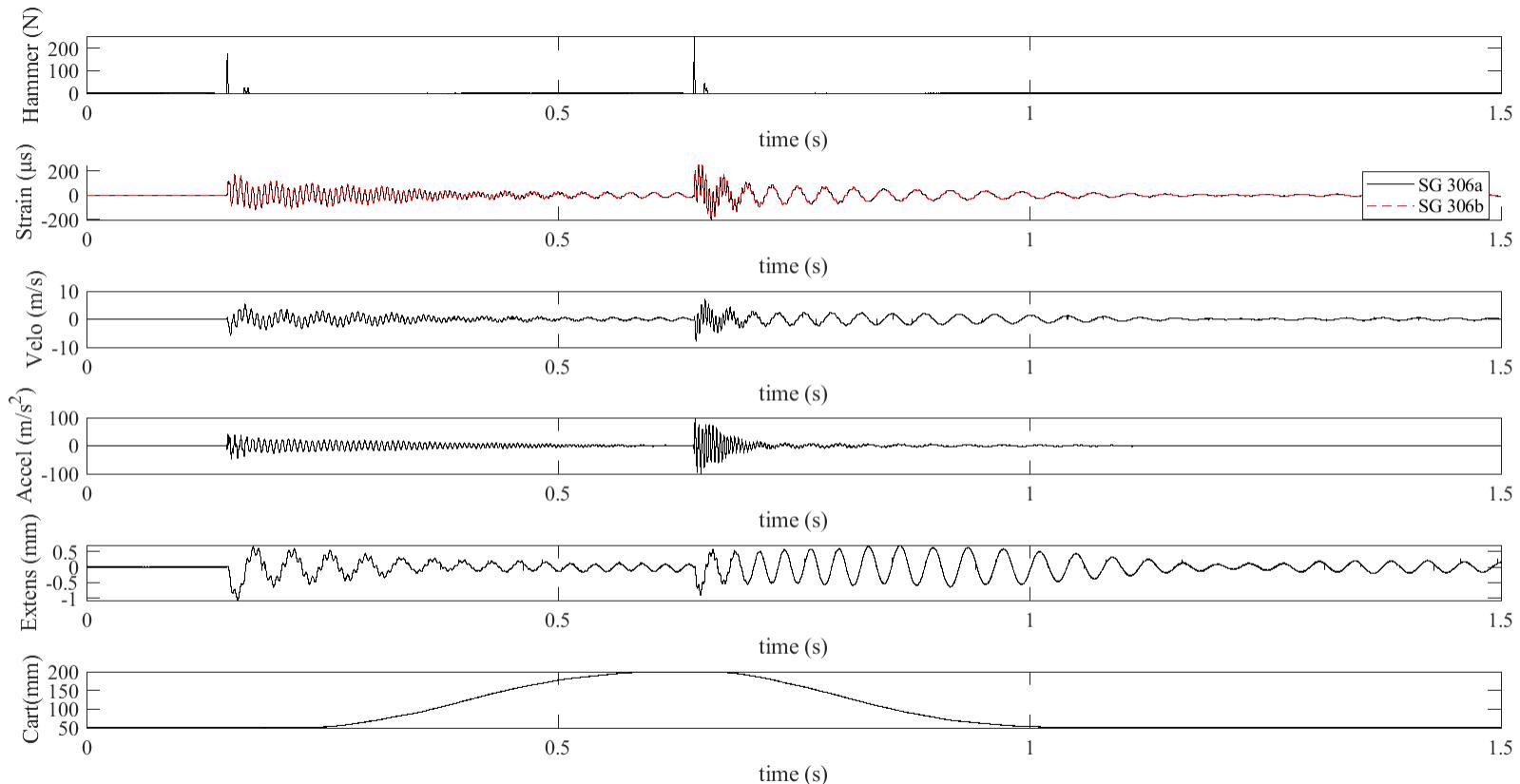
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 7



# Datasets

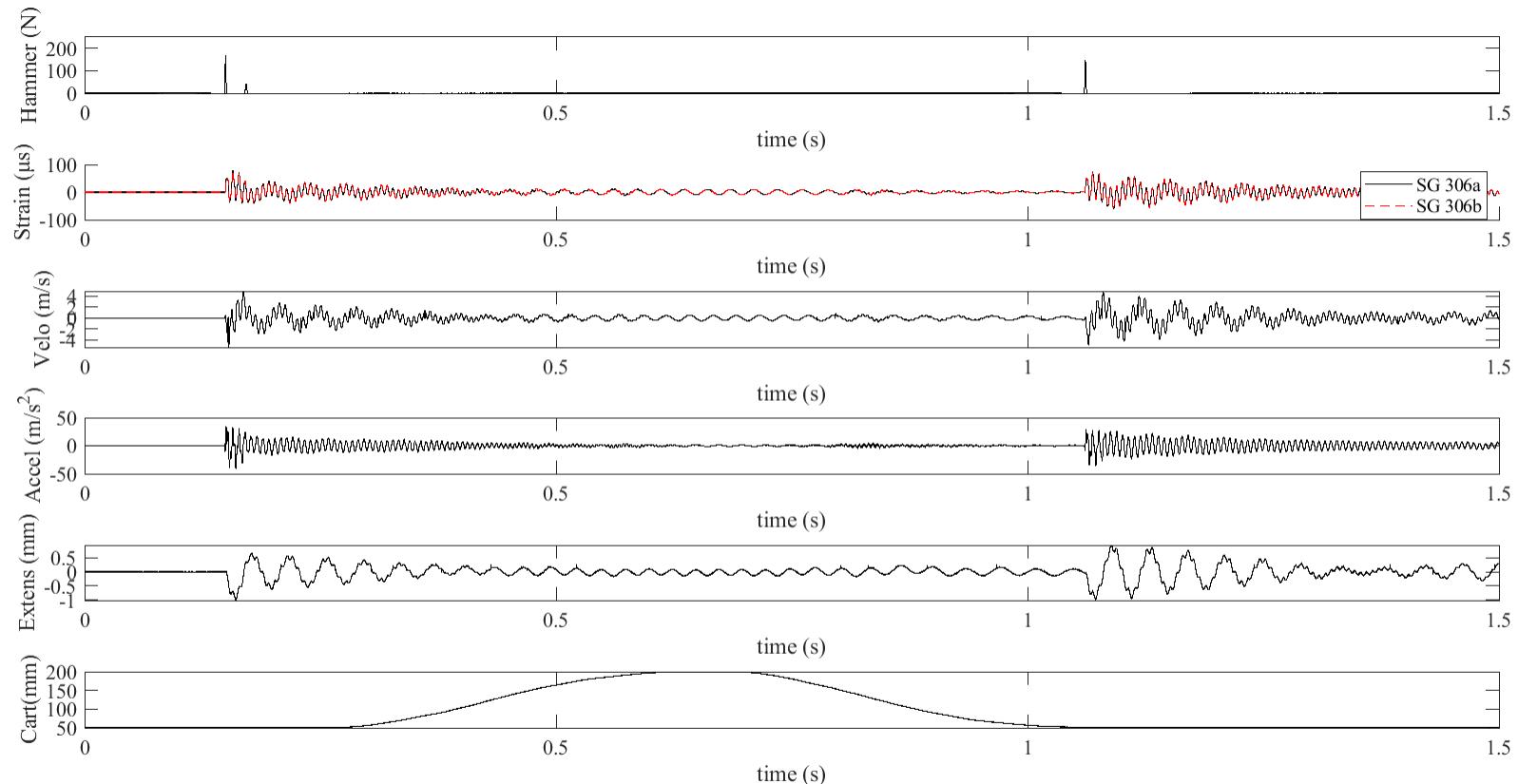
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 8



# Datasets

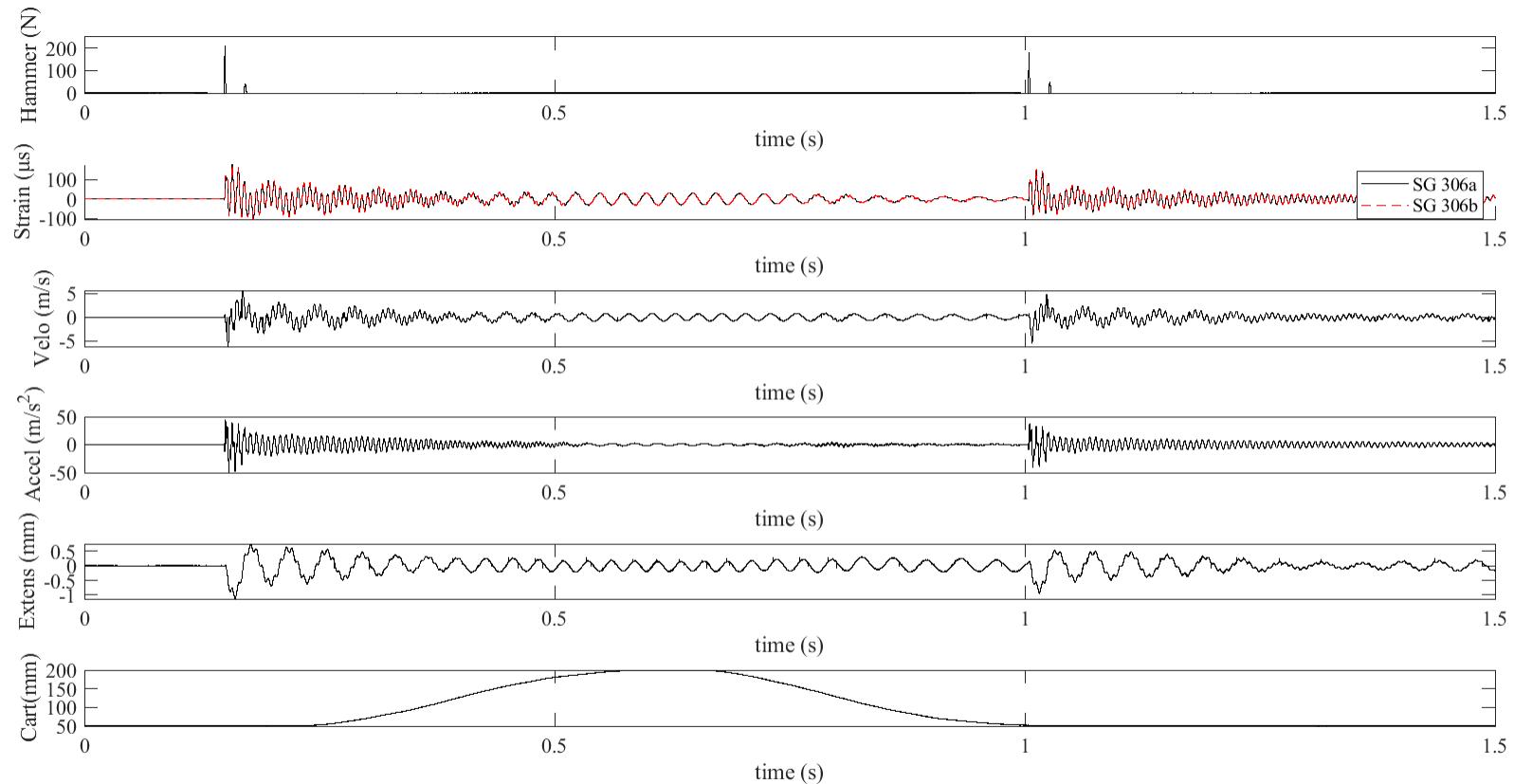
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 9



# Datasets

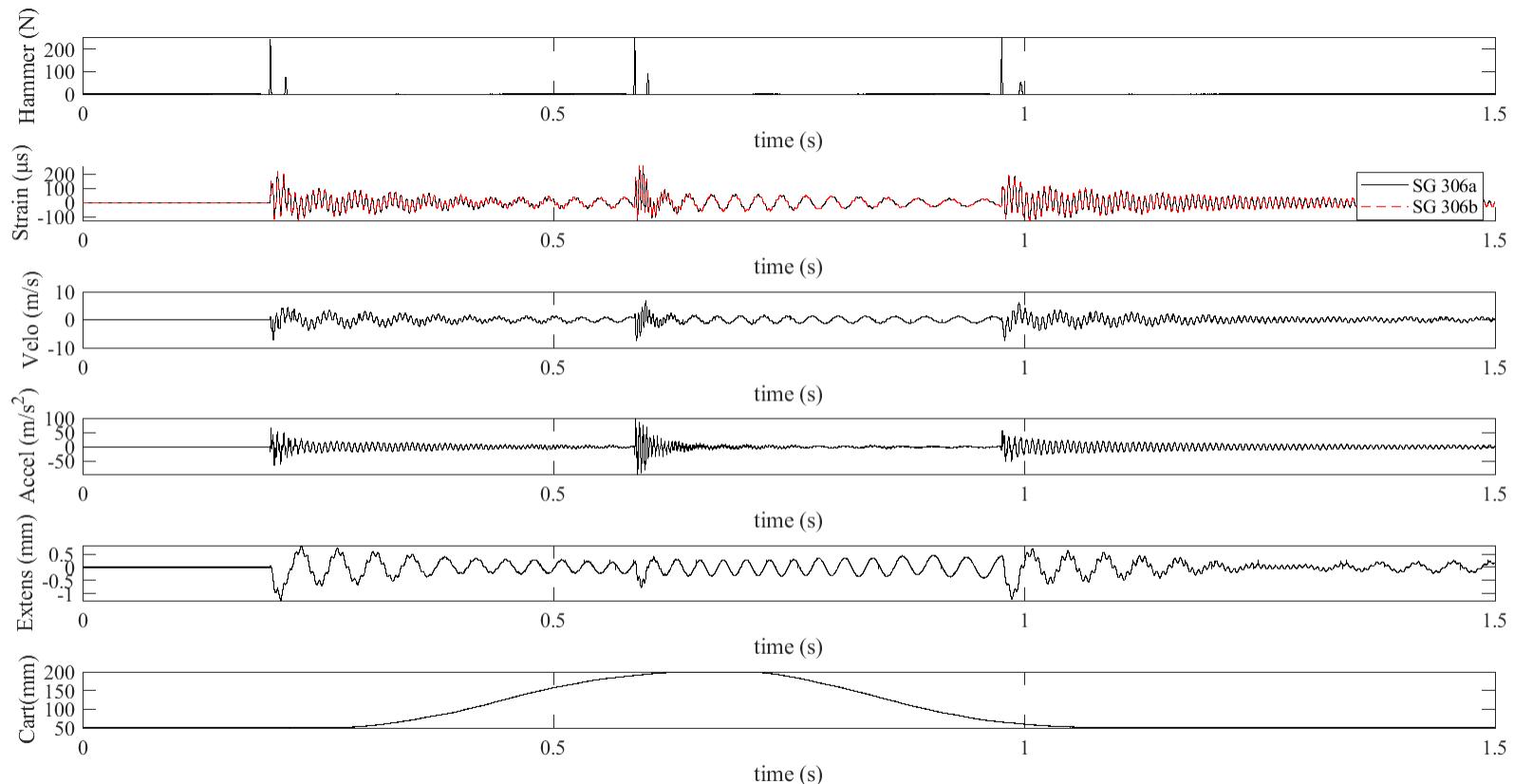
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 10



# Datasets

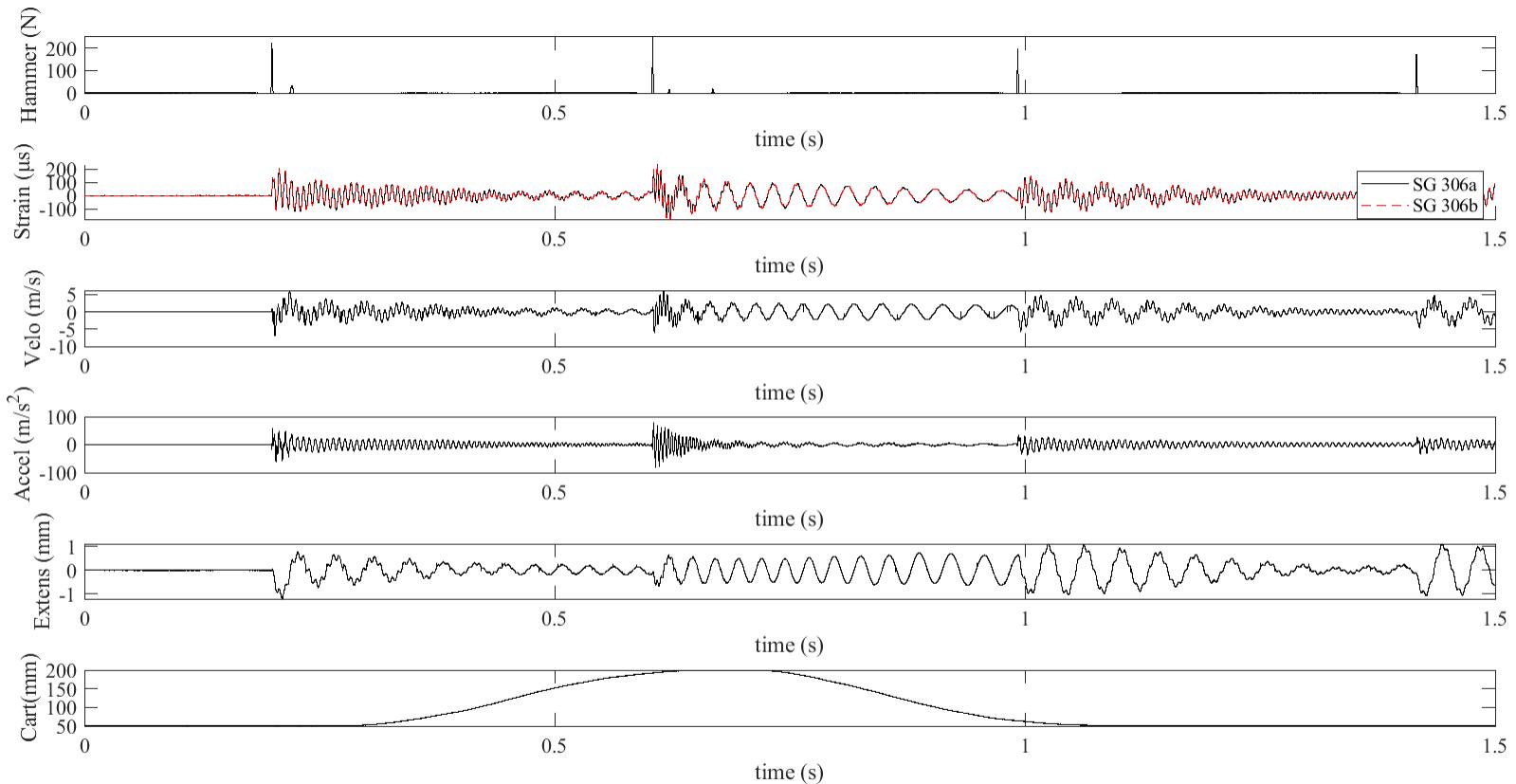
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 11



# Datasets

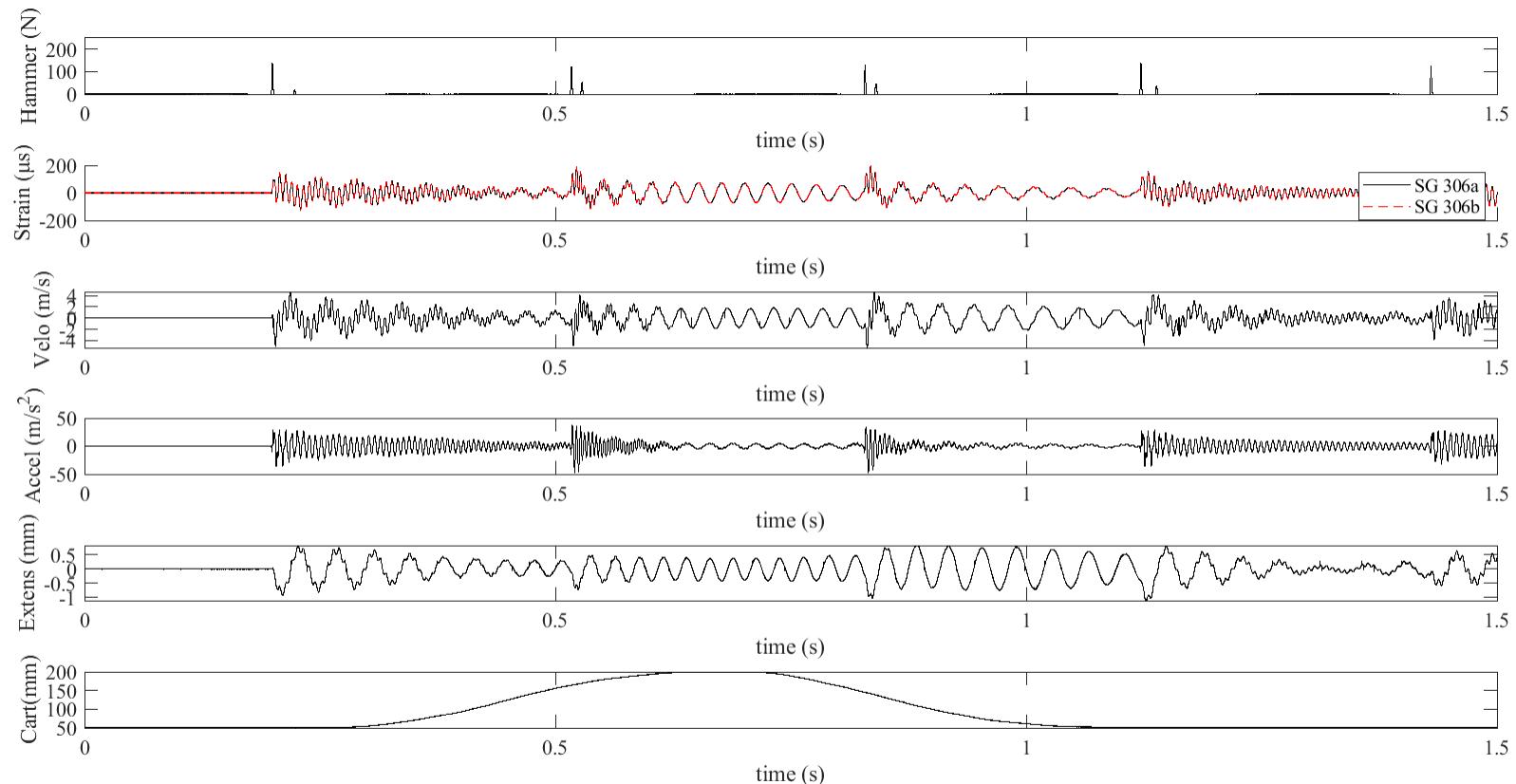
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 12



# Datasets

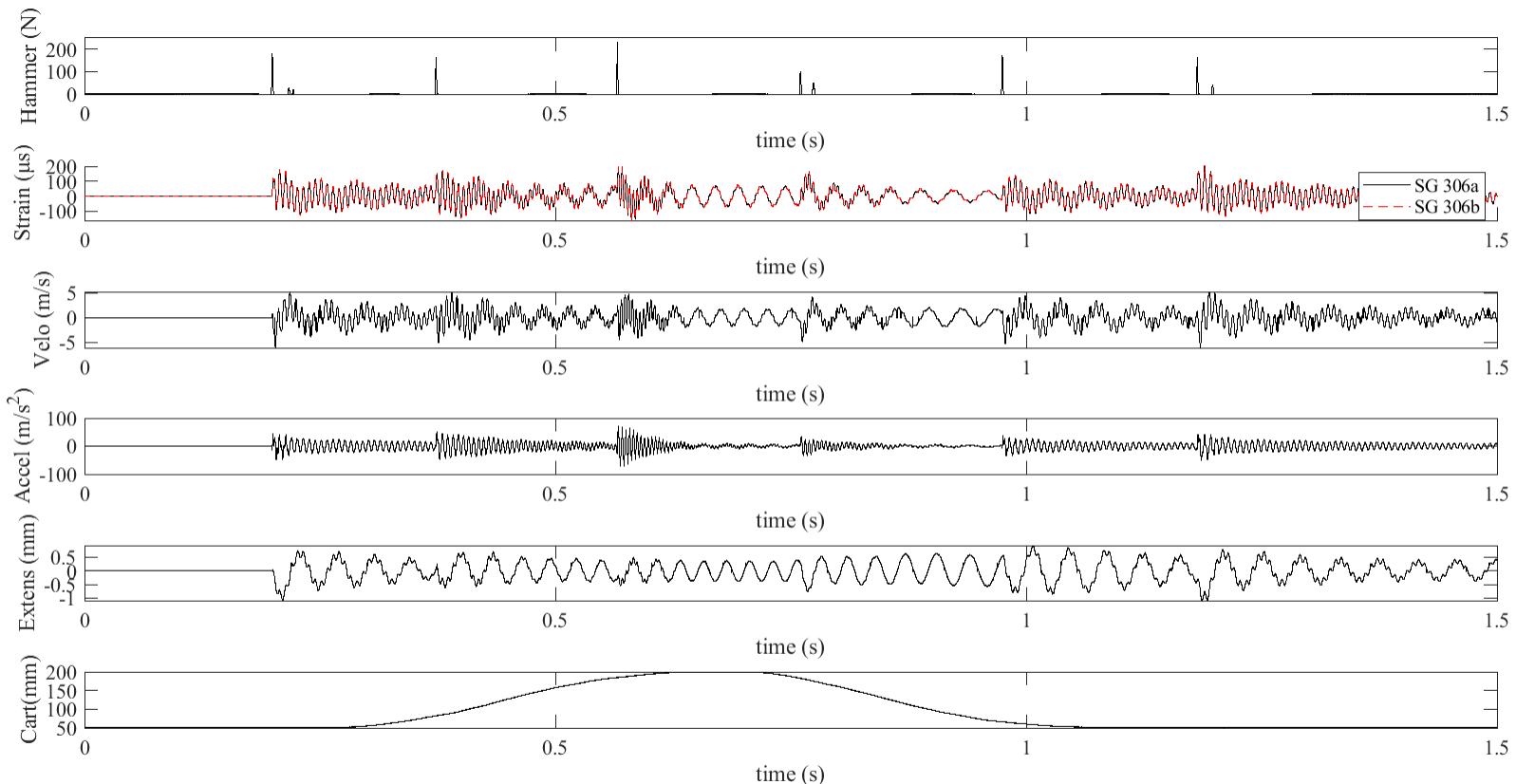
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 7 – TEST 13



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – SENSORS

### SENSORS:

2x Accelerometer (PCB 353B17)

1. SN 127691 – 300 mm
2. SN 139351 – 400 mm

9x Strain gauge

1. 25 mm
2. 75 mm
3. 125 mm
4. 175 mm
5. 225 mm
6. 275 mm
7. 325 mm
8. 375 mm
9. 425 mm

### Excitation notes

- No cart used for testing
- Mass remains for whole test duration
- Single hammer impact at 0.1 sec

Sampling frequency: 25,600 samples/s

# Datasets

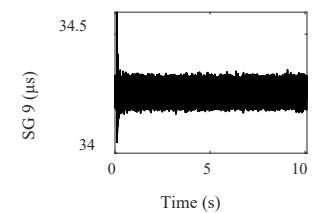
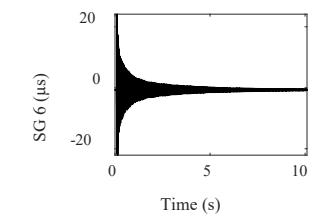
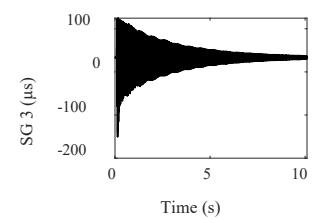
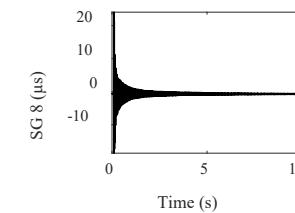
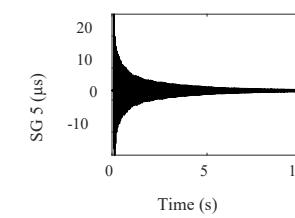
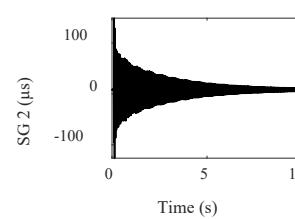
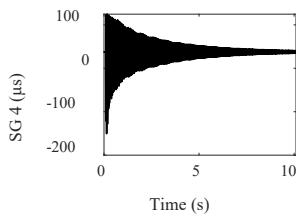
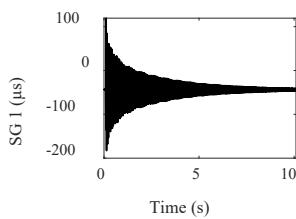
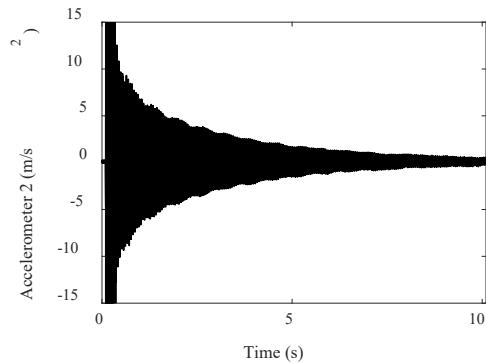
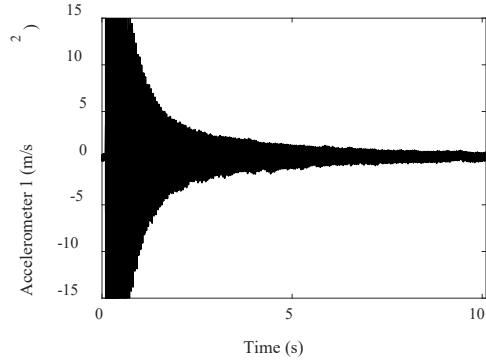
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 1



# Datasets

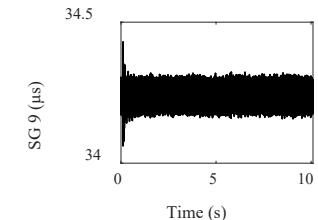
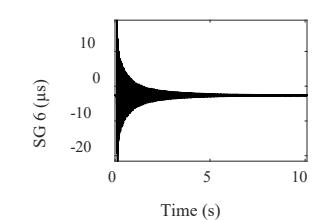
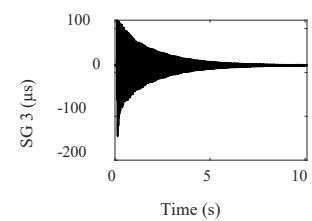
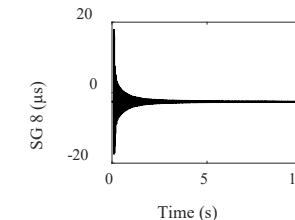
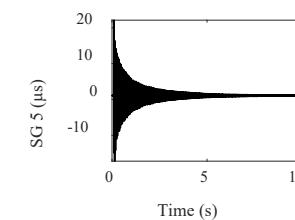
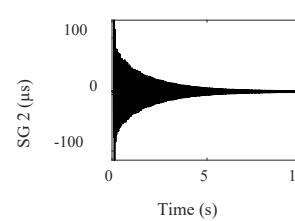
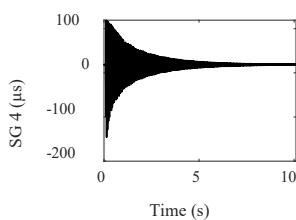
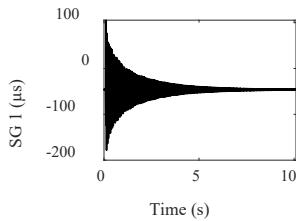
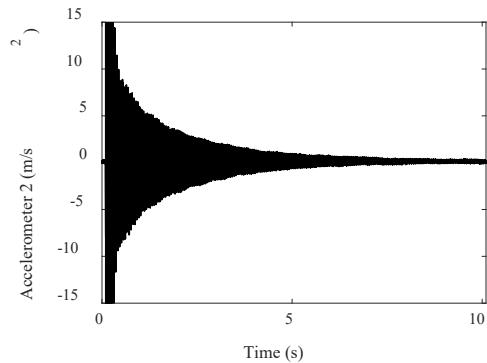
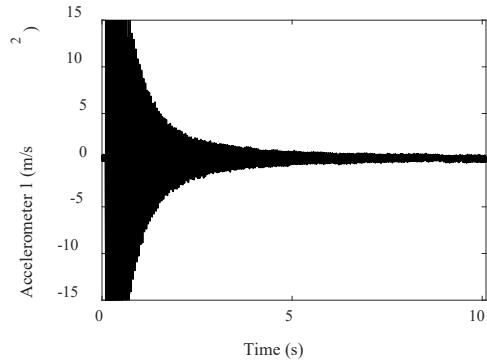
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 2



# Datasets

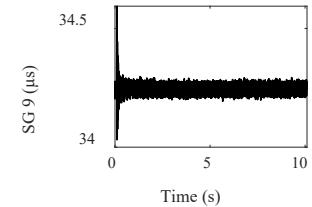
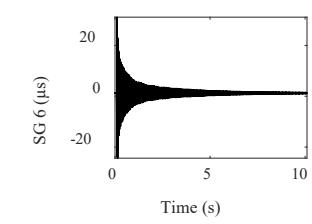
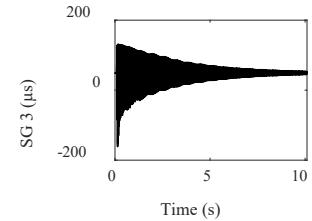
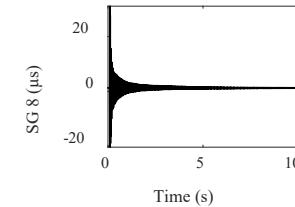
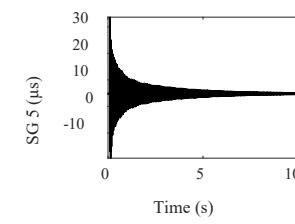
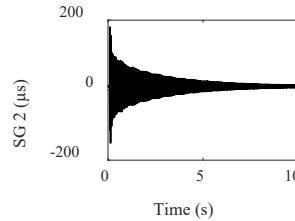
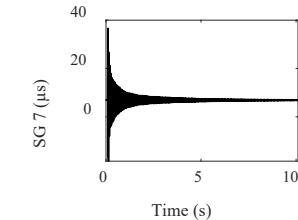
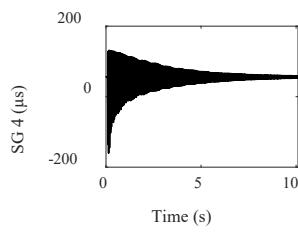
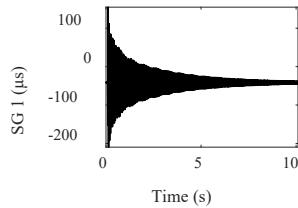
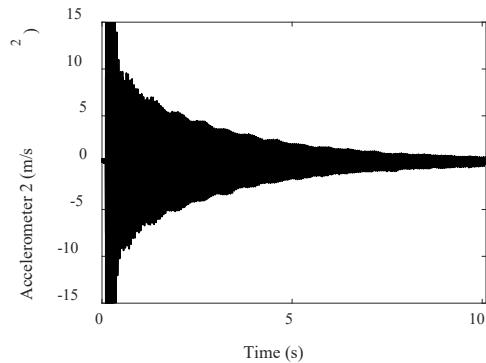
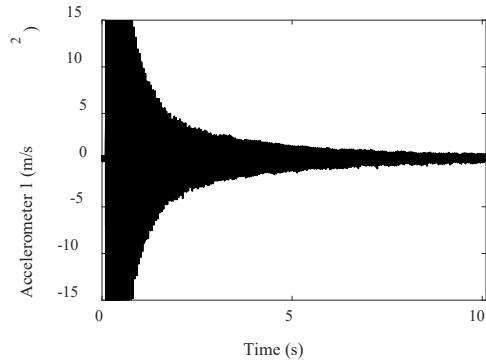
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 3



# Datasets

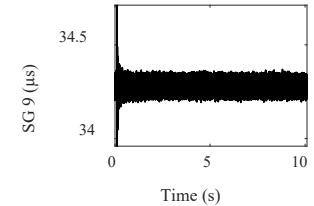
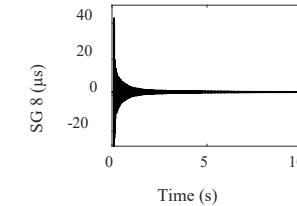
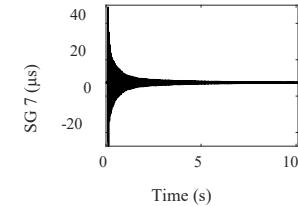
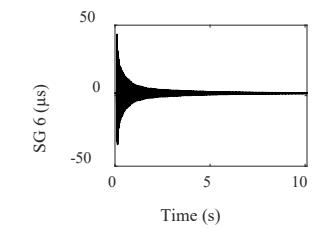
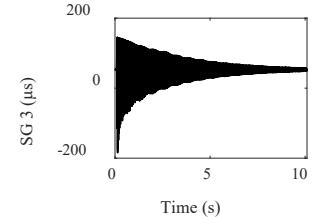
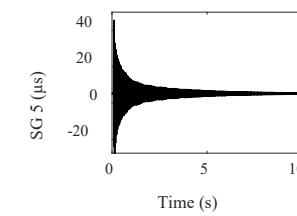
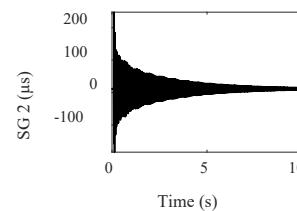
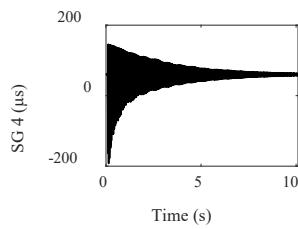
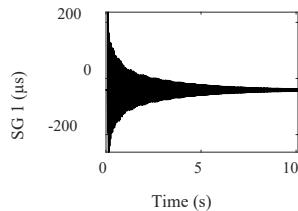
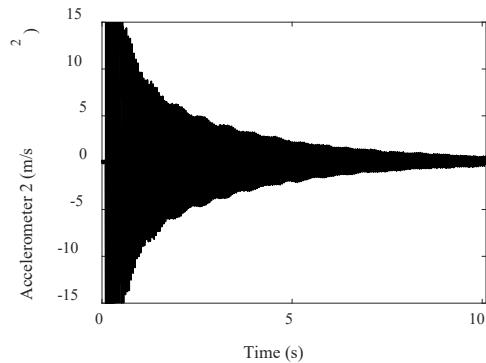
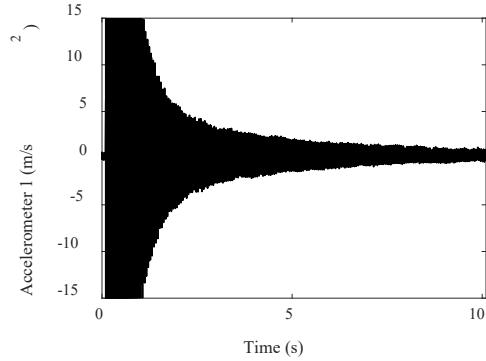
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 4



# Datasets

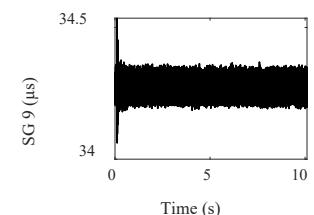
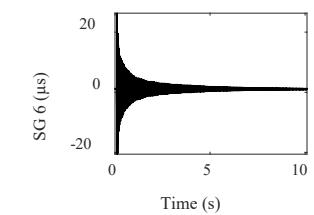
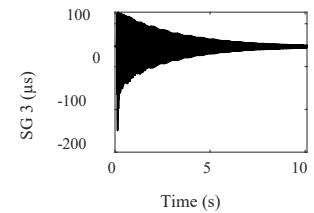
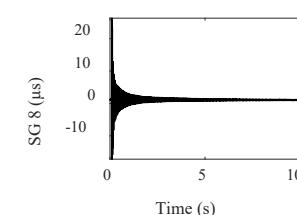
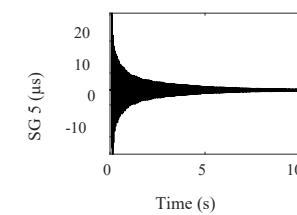
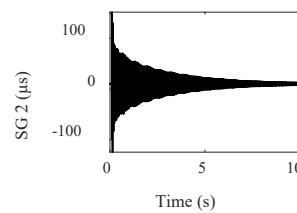
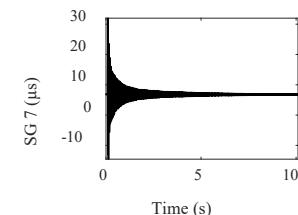
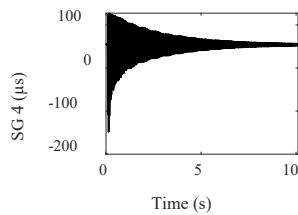
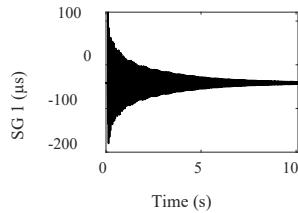
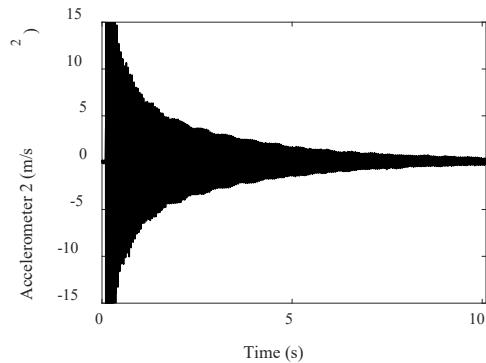
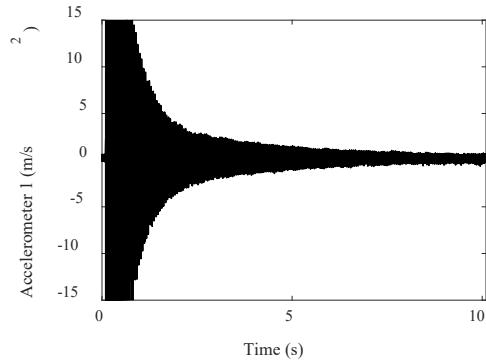
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 5



# Datasets

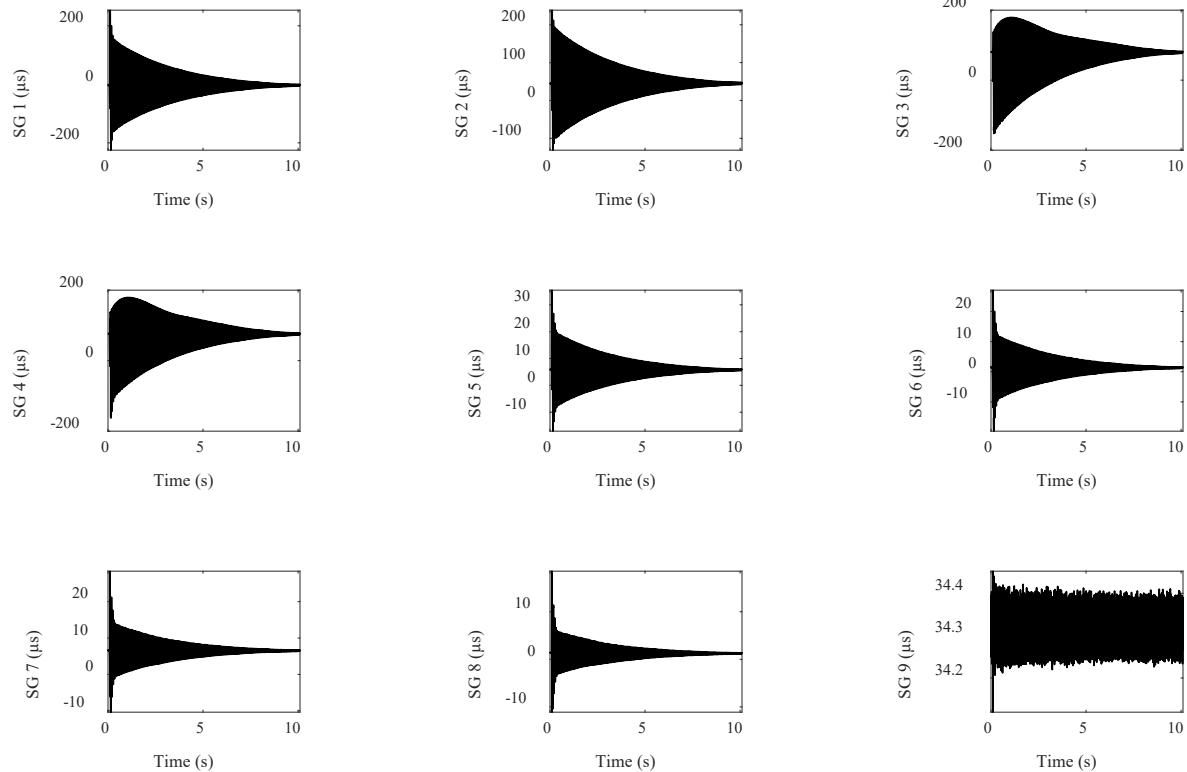
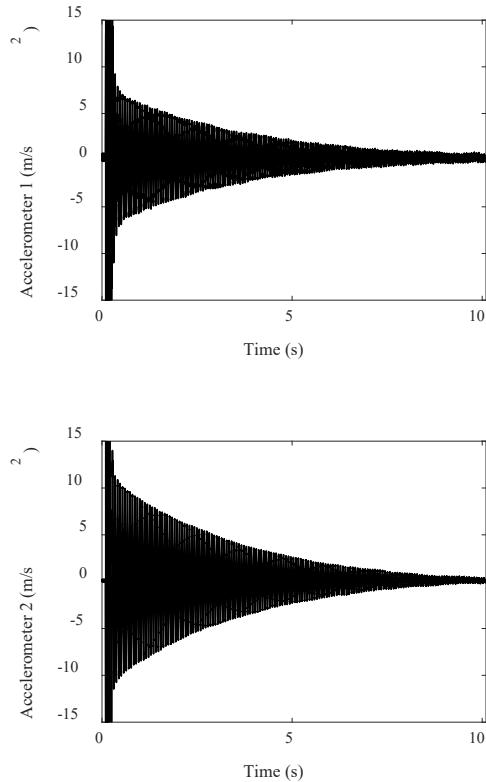
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 6



# Datasets

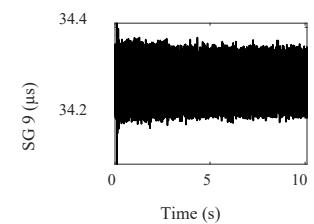
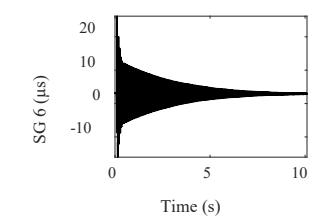
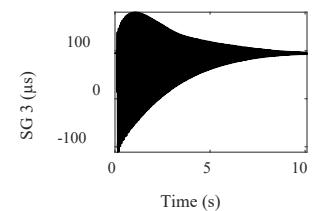
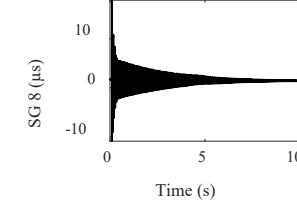
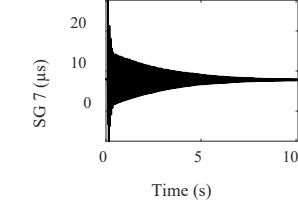
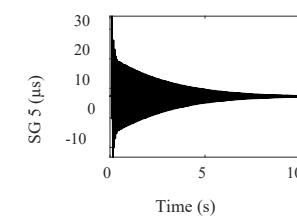
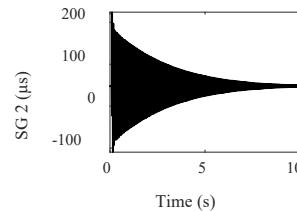
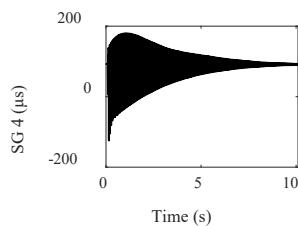
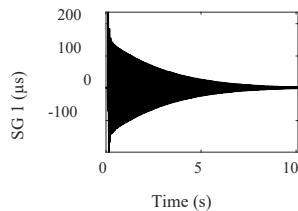
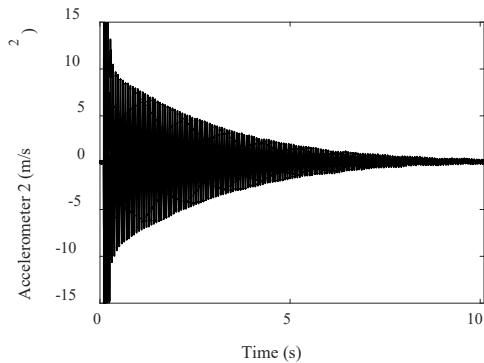
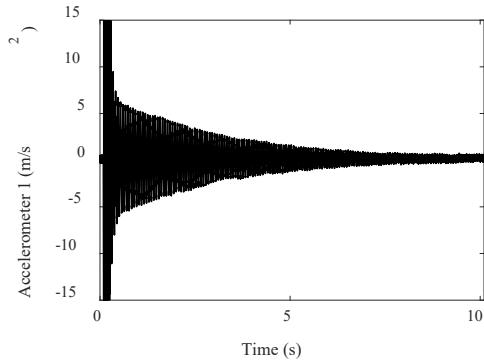
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 7



# Datasets

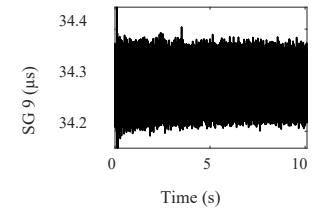
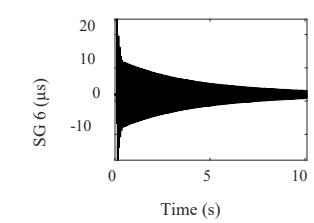
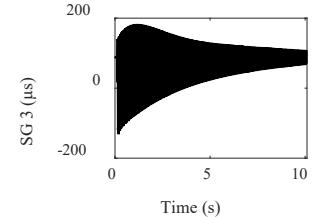
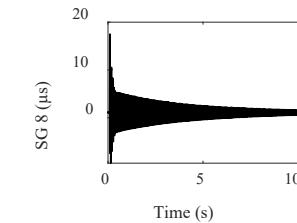
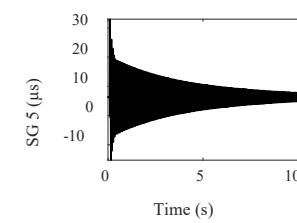
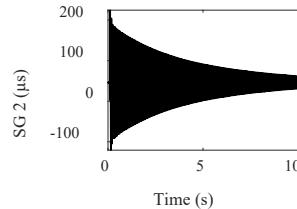
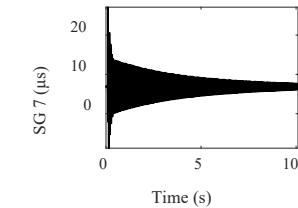
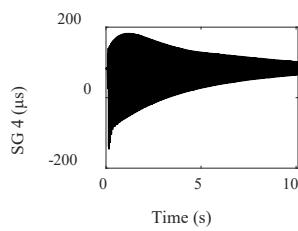
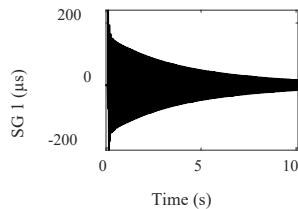
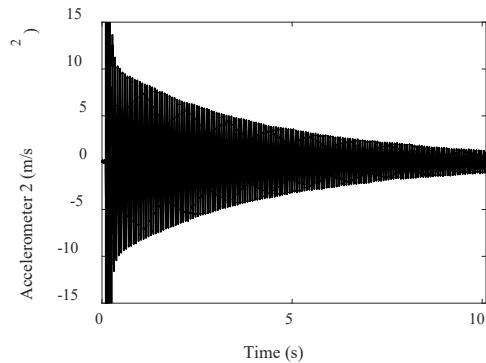
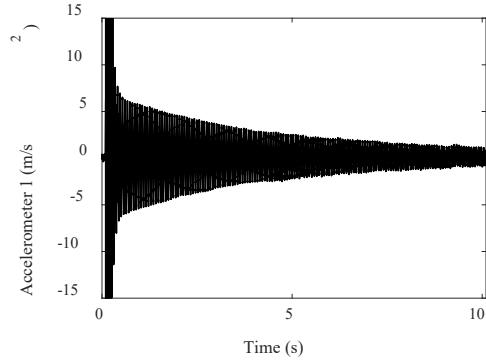
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 8



# Datasets

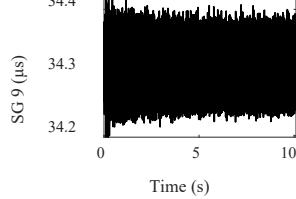
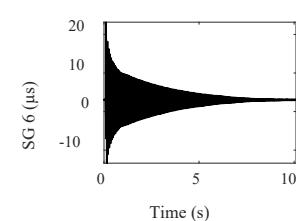
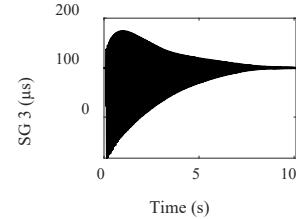
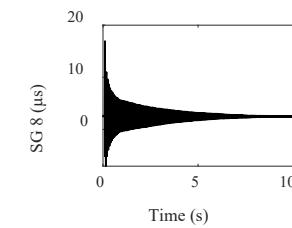
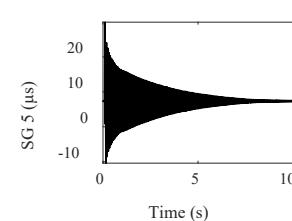
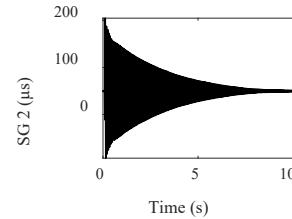
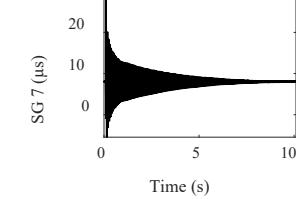
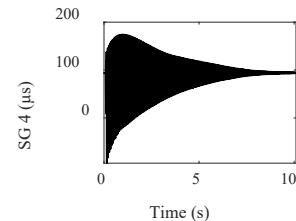
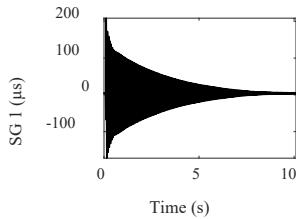
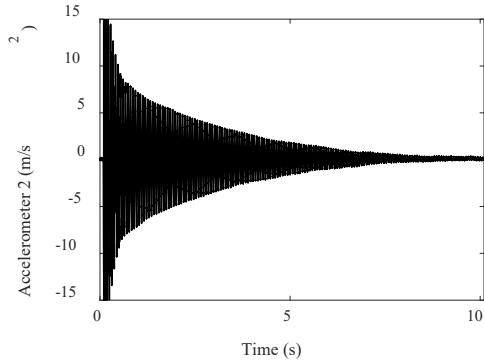
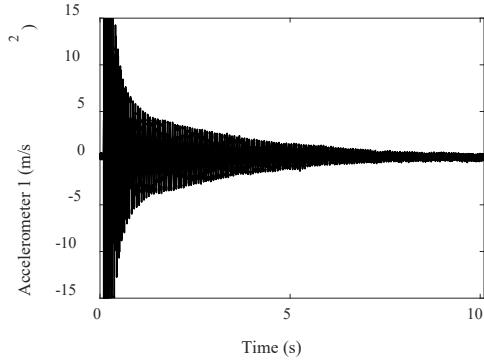
High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 9



# Datasets

High-Rate  
Overview

Benchmark

Applications

Datasets

## DATASET 8 – TEST 10

