

IDMT-ISA ELECTRIC ENGINE

Version 1.0, 2017

An audio database for industrial sound analysis.



Contact

For any questions, please contact datasets@idmt.fraunhofer.de

Dataset Overview

The IDMT-ISA-ELECTRIC-ENGINE dataset contains sound files of three similar units of an electrical engine (2ACT Motor Brushless DC 42BLF01, 4000 RPM, 24VDC), which simulate different acoustic conditions. The operational states "good", "heavy load" and "broken" were provoked by a change of supply voltage and loading weight leading to a change of the operating sound. In March 2017 the IDMT_ISA_ELECTRIC_ENGINE dataset was recorded at Fraunhofer Institute for Digital Media Technology (IDMT). In each file, only one of the engines is active at the same time assuming an engine can only have one of the three operational states. The dataset consists of recordings of the electric engine plus the following background noise types:

- pure - recordings with no additional background noise
- talking - people talking around the casing
- white_noise - white noise played back using speakers outside of the casings
- atmo - atmospheric sounds from a factory environment at three loudness levels (low, medium, high) played back using speakers
- stress test - slightly changed input gains for simulating manipulations on the setup and people knocking on the casing

The recordings are additionally provided in a pre-cut version as 3 second long segments for easier data shuffling and evaluation over shorter time periods. All recordings are labeled with the selected classes in each task making them supervised classification problems.

- File duration: 42.32 minutes
- # Operational State "good": 774
- # Operational State "broken": 789
- # Operational State "heavyload": 815
- # Total WAV Files: 2378
- Sampling rate: 44.1KHz
- Resolution: 32-bit
- Mono audio

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Reference

Sascha Grollmisch, Jakob Abeßer, Judith Liebetrau, Hanna Lukashevich: *Sounding Industry: Challenges and Datasets for Industrial Sound Analysis*, Proceedings of the 27th European Signal Processing Conference (EUSIPCO), A Coruña, Spain, 2019.

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