

CareerCon 2019 Kaggle Competition

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A Hybrid Classifier to Help Robots Navigate



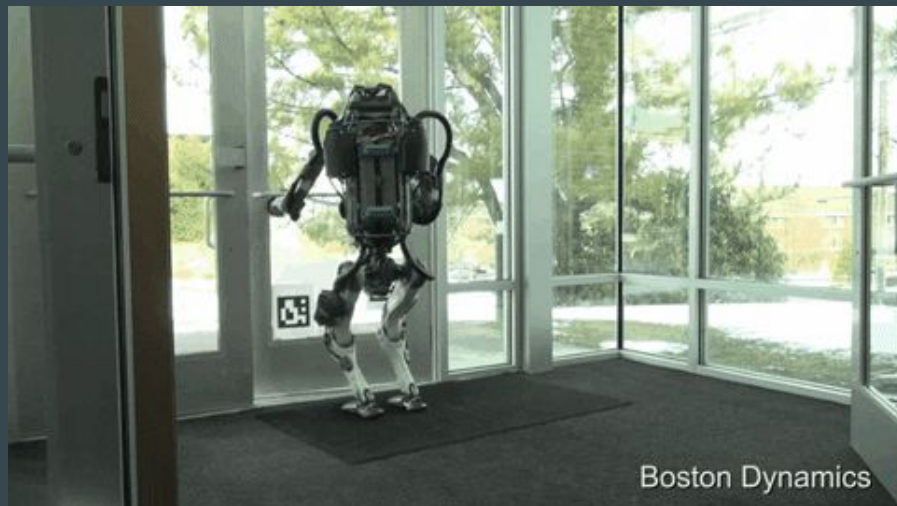
Hello!

I am Pedro Jofre Lora

1

Helping Robots Navigate

- Surface Matters
- “Instantaneous” detection



2

Data

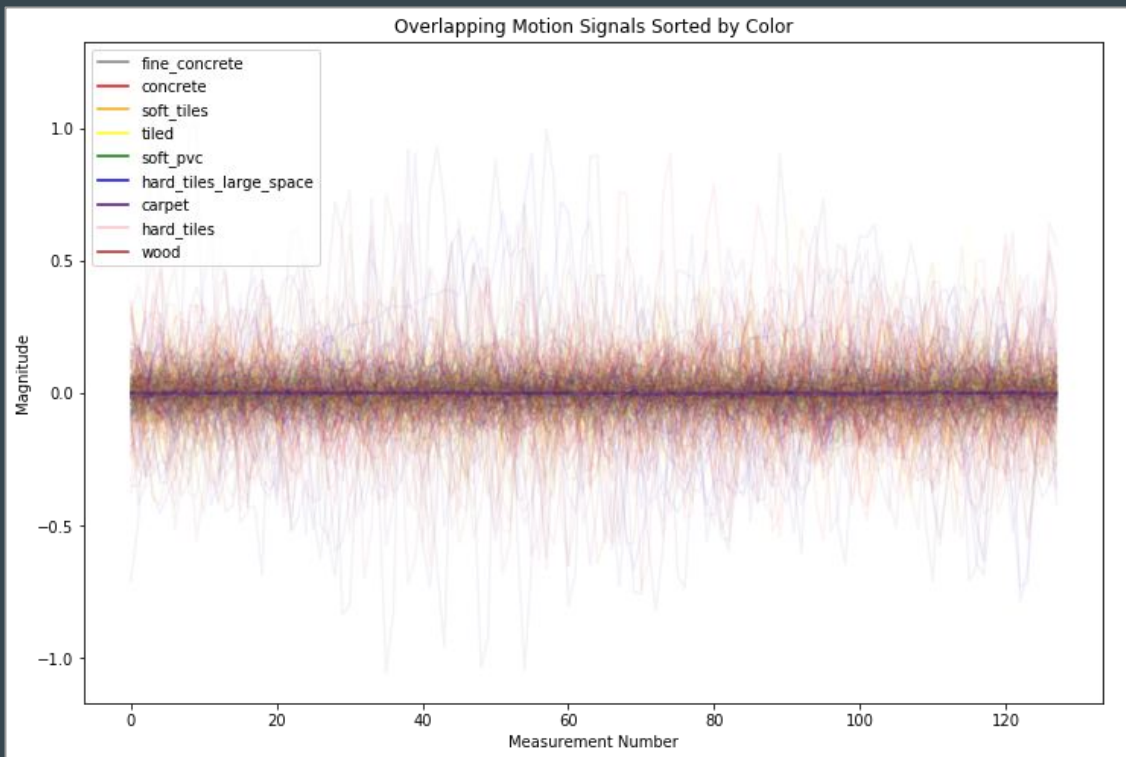
- IMU Time Series
 - Gyroscopic
 - Accelerometer
 - Position
- Data on Kaggle



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Initial Exploration

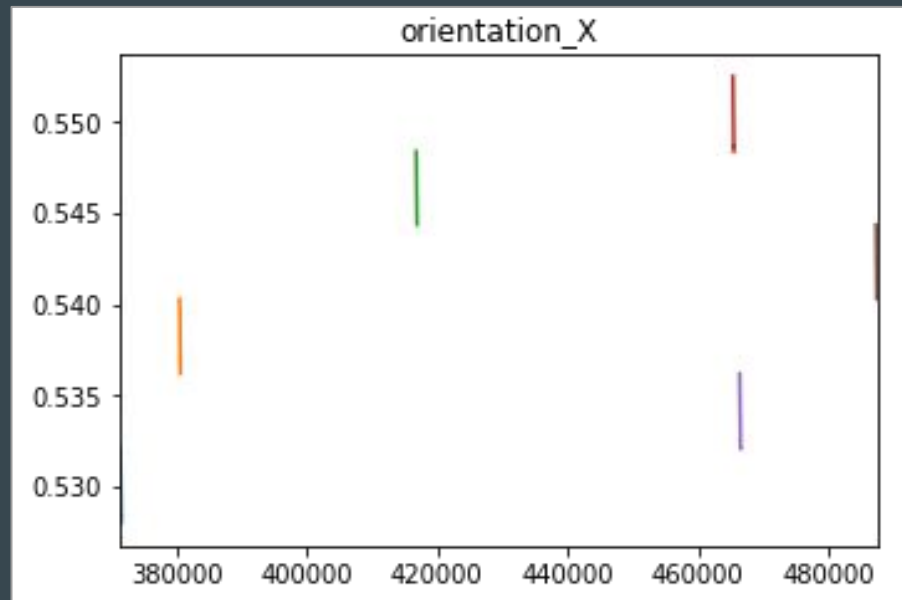
- Noisy Signals
- Poorly differentiable
- Inconsistent



4

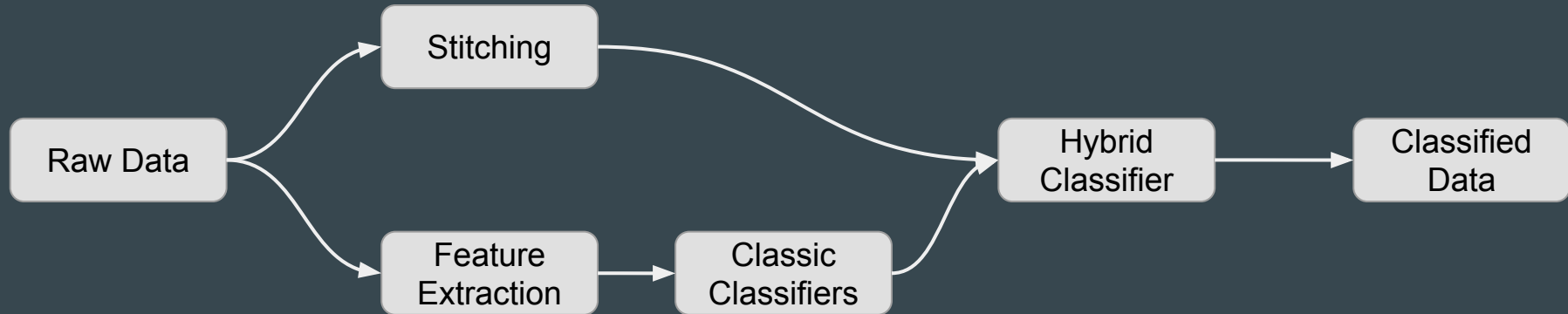
Data Wrangling

- Series Stitching
- Feature Extraction
 - TSFRESH
- Hypothesis Filter



5












Hybrid Classification



6

Results

- Stitching: 74%
- Ensemble: 62%
- Hybrid: 93%
- Top 1% (11th/1449)

#	△pub	Team Name	Notebook	Team Members	Score 🏆
1	▲ 2	Thomas Rohwer			1.0000
2	▲ 35	markyff			0.9928
3	▲ 18	prith189			0.9914
4	▼ 2	Reza			0.9857
5	▼ 1	Vincent L.			0.9753
6	▲ 4	Error 404: Surface Not Found			0.9213
7	▲ 45	jiiteecce			0.9019
8	▲ 14	openmark			0.8986
9	▲ 23	ericricky			0.8702
10	▲ 1013	Ivan Batalov			0.8441
11	▲ 3	Pedro Jofre Lora			0.8403