

HUMAN ACTIVITY RECOGNITION USING SMARTPHONE

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May 29, 2021

Problem Statement

Human activity recognition involves predicting the movement of a person based on sensor data and traditionally involves deep domain expertise and methods from signal processing to correctly engineer features from the raw data in order to fit a machine learning model.

Approach

- ▶ Pre-Requisites and Resources
- ▶ Data Collection and Problem Statement
- ▶ Exploratory data analysis with Pandas and NumPy
- ▶ Data Preparation using sklearn
- ▶ Selecting and training of few machine learning model
- ▶ Cross-validation and hyper parameter tuning using sklearn
- ▶ Deploying the final trained model on Heroku via a flask app

Dataset

Dataset concerns only Basic Activities performed by the users, three static postures (standing, sitting, lying) and three dynamic activities (walking, walking downstairs and walking upstairs).

- ▶ <https://www.kaggle.com/uciml/human-activity-recognition-with-smartphones>

Software Requirements

- ▶ Python 3
- ▶ NumPy
- ▶ Pandas
- ▶ Matplotlib
- ▶ scikit-learn
- ▶ LaTeX
- ▶ Google Colab

Challenges Faced

- ▶ Understanding the dataset
- ▶ Deciding the parameters for the model

References

- ▶ <https://ieeexplore.ieee.org/abstract/document/6975918>
- ▶ <https://www.kaggle.com/omermo/human-activity-recognition-95-acc>

Thank You