Introduction

South-African Council for Automation and Control

Exploratory Data Analysis workshop

May 2025

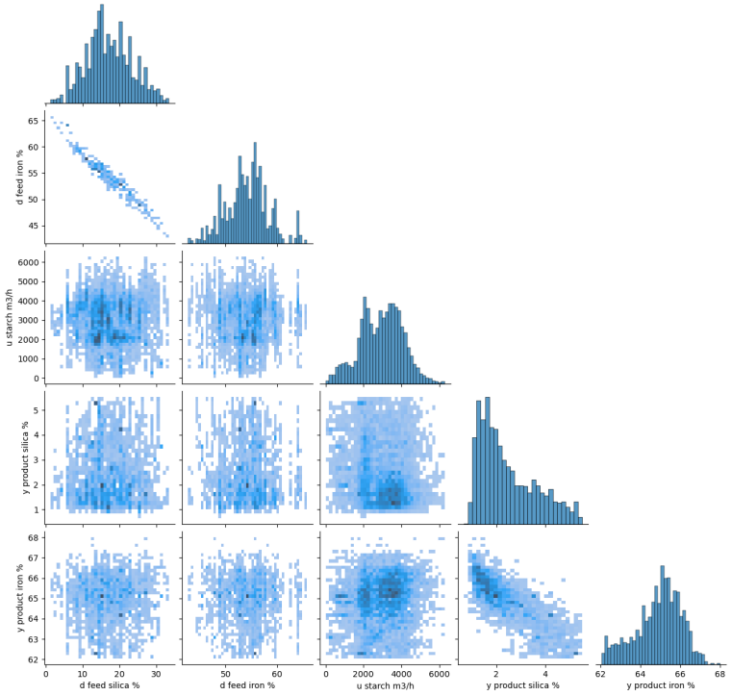
Exploratory Data Analysis (EDA)

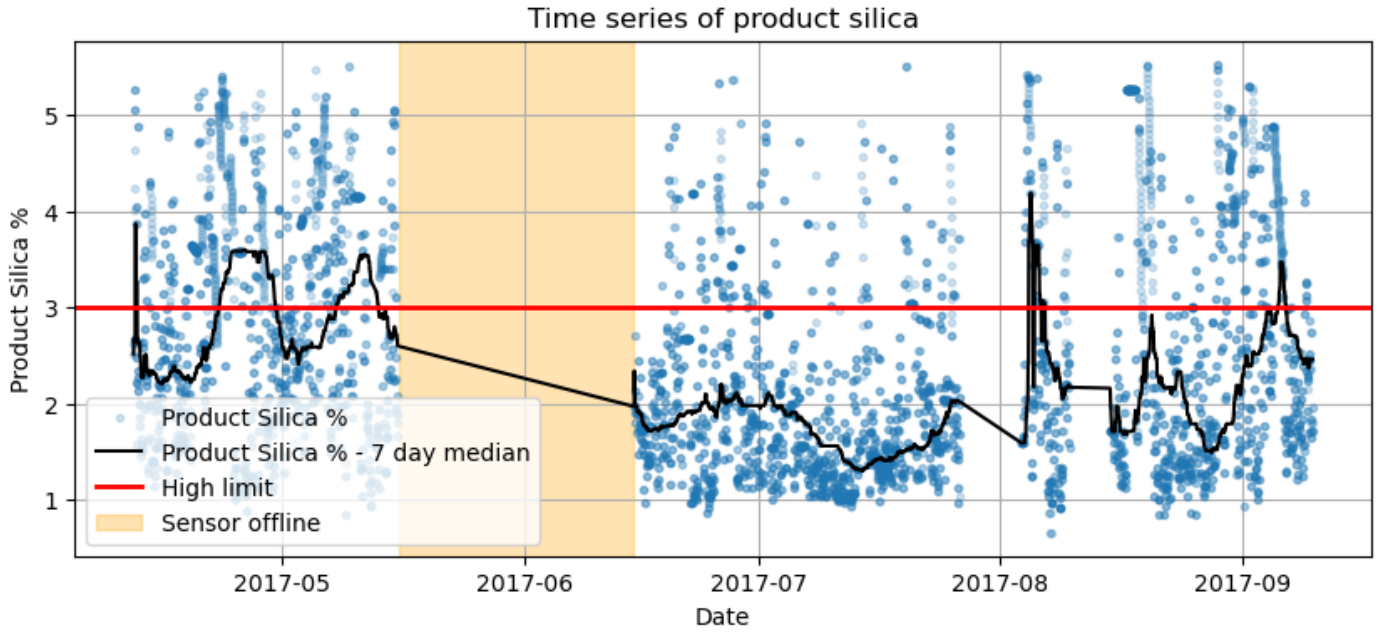
- Useful to analyse process conditions, identify faults, optimise operations

- Focus on:
  - Data ingestion, visualisation and cleaning
  - Unsupervised learning
  - Model interpretation

Exploratory Data Analysis (EDA)

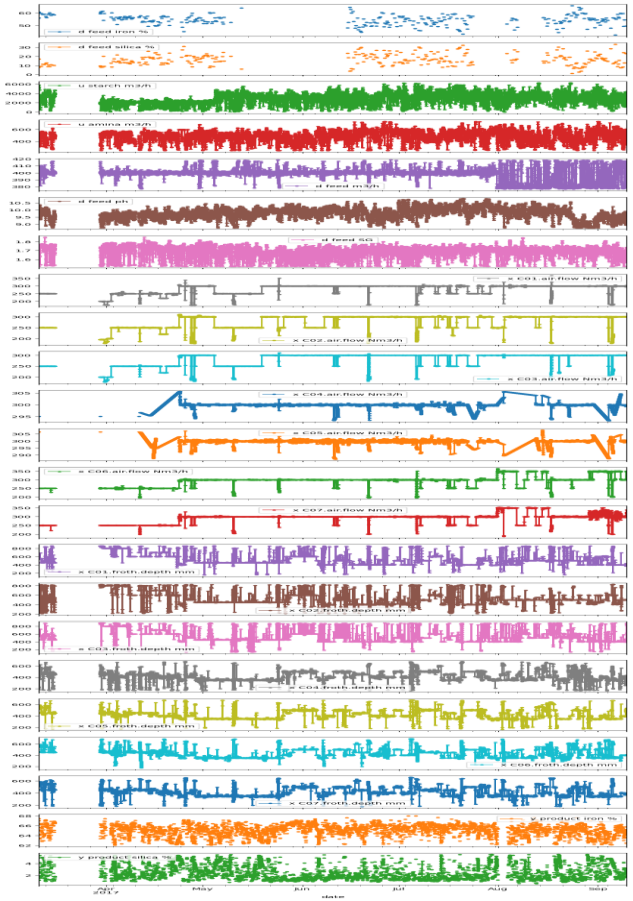
- Data ingestion, visualisation and cleaning

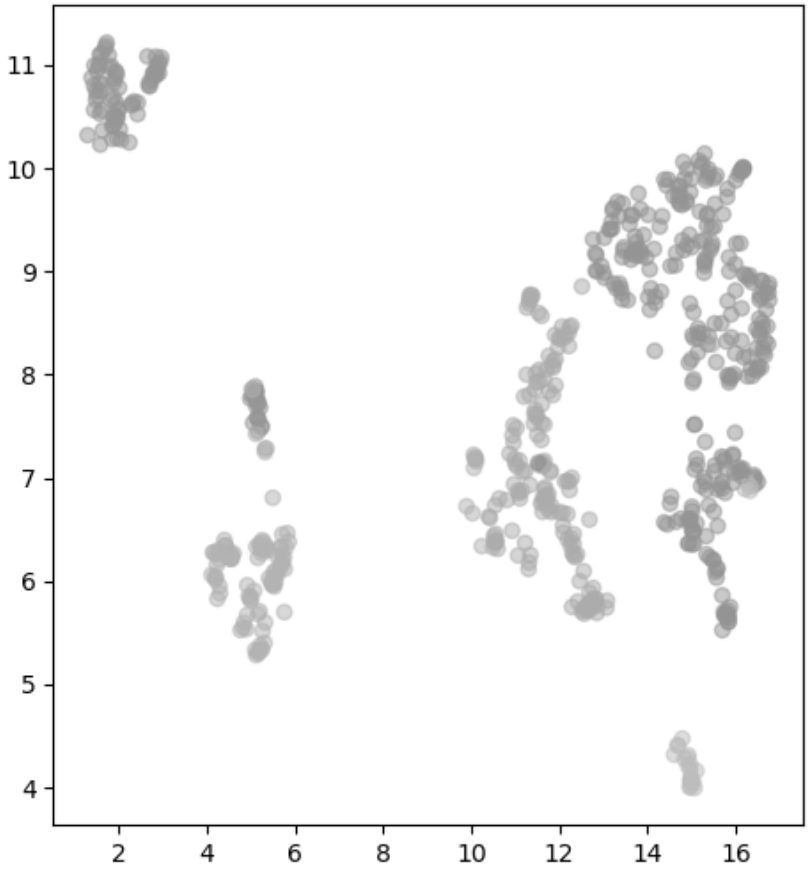




Exploratory Data Analysis (EDA)

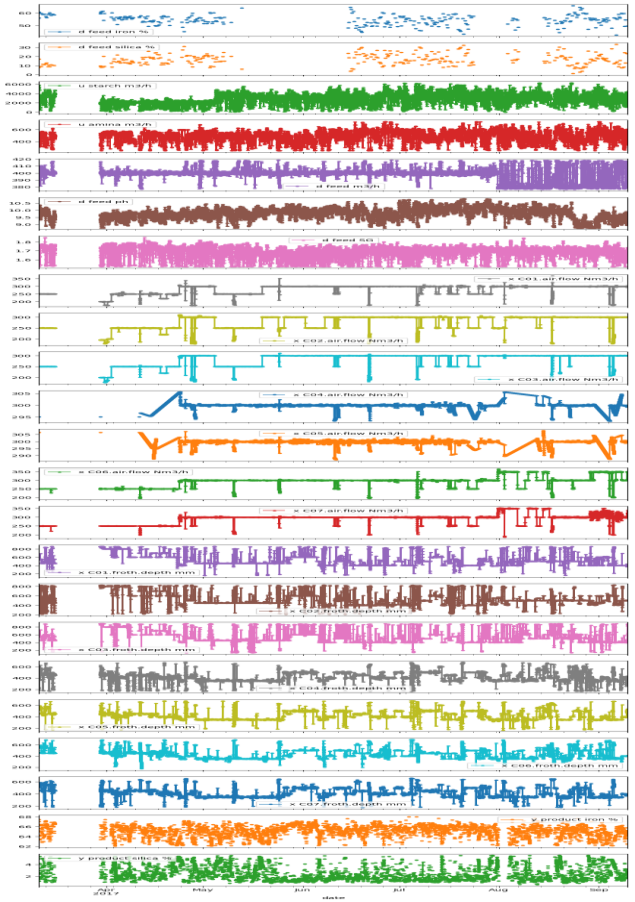
- Dimensionality reduction

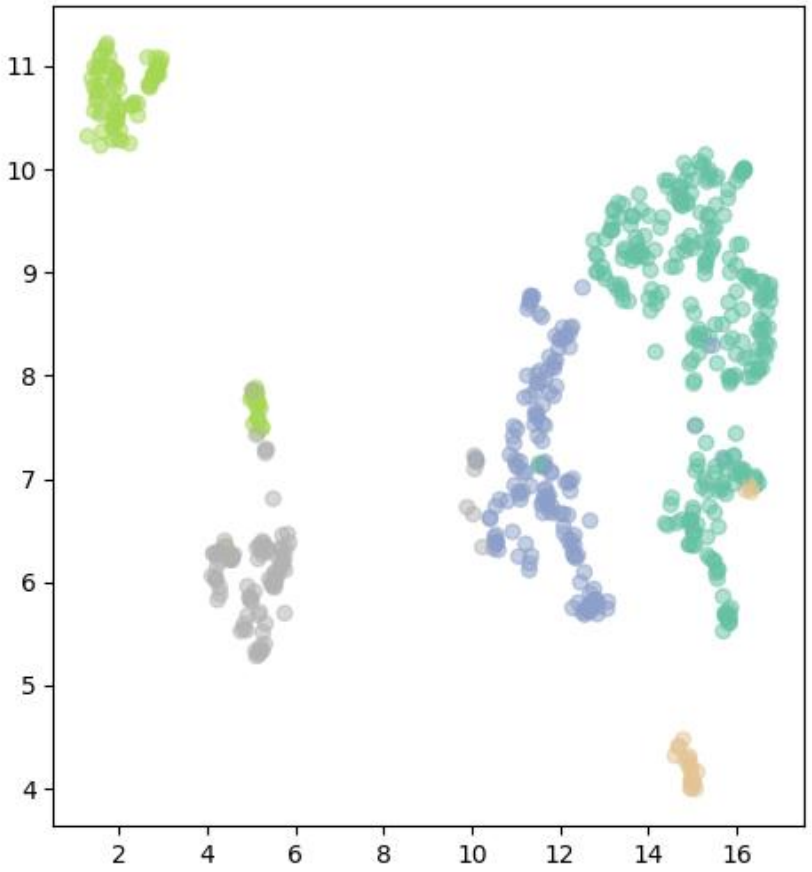


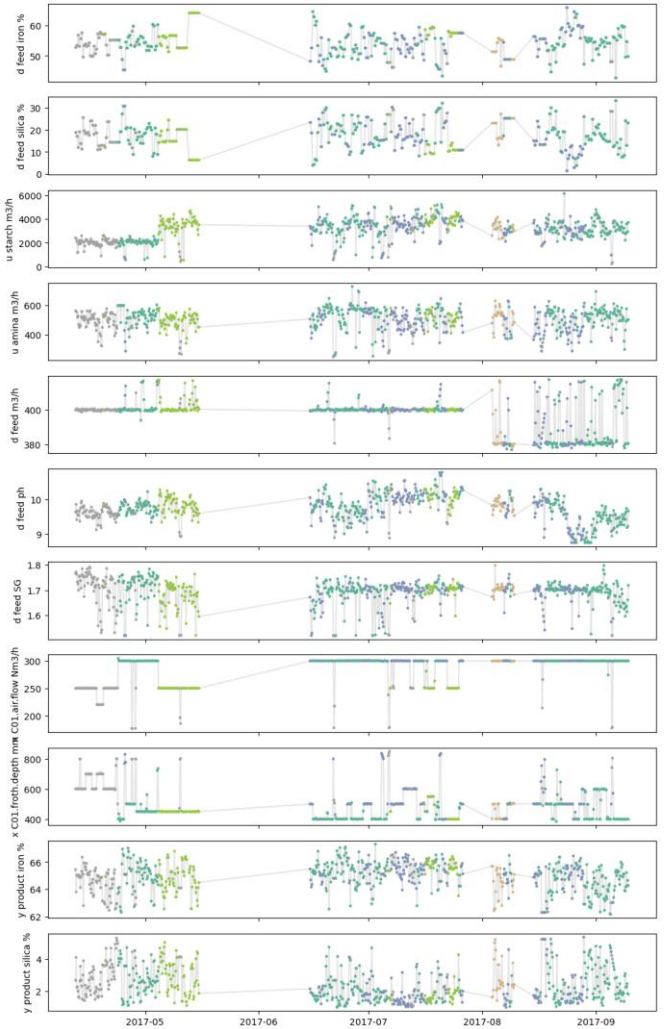


Exploratory Data Analysis (EDA)

- Clustering

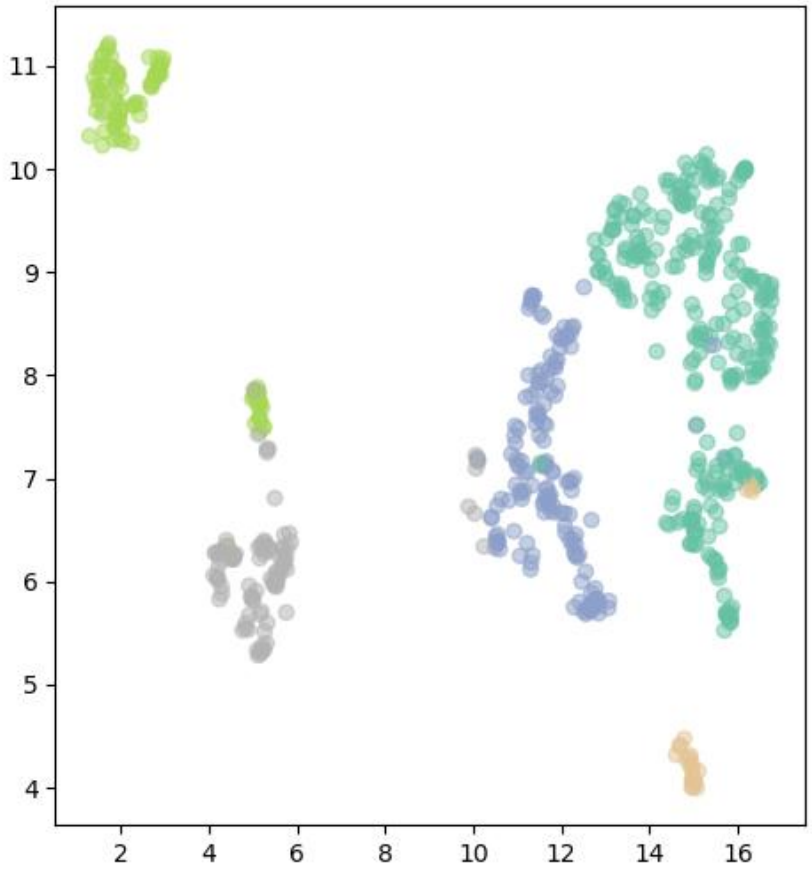


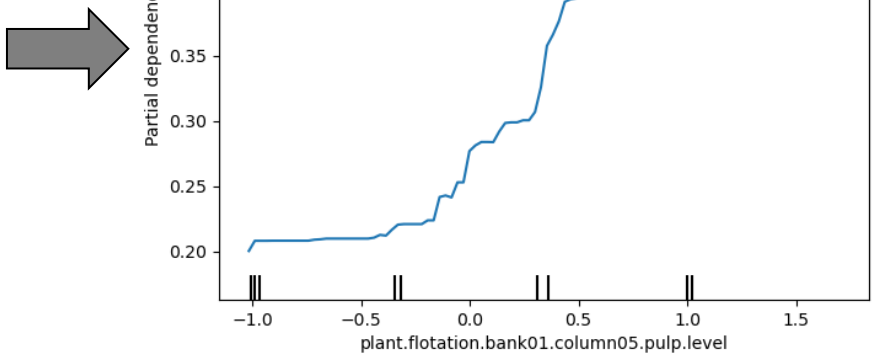


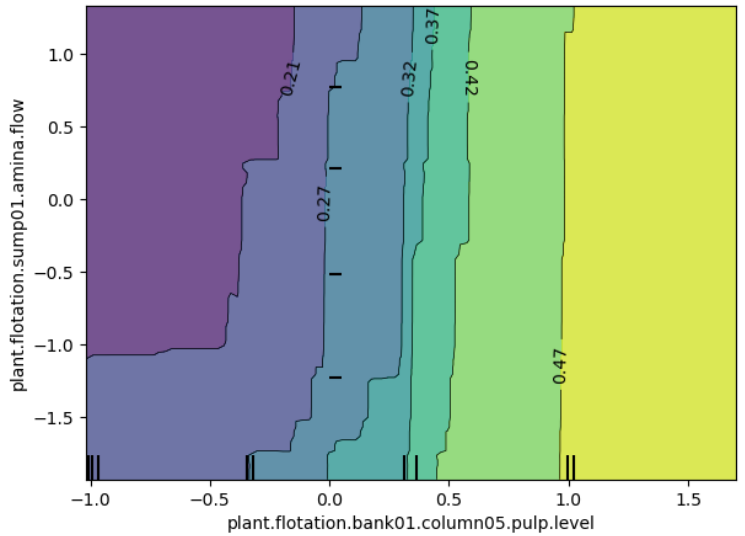


Exploratory Data Analysis (EDA)

- Model interpretation

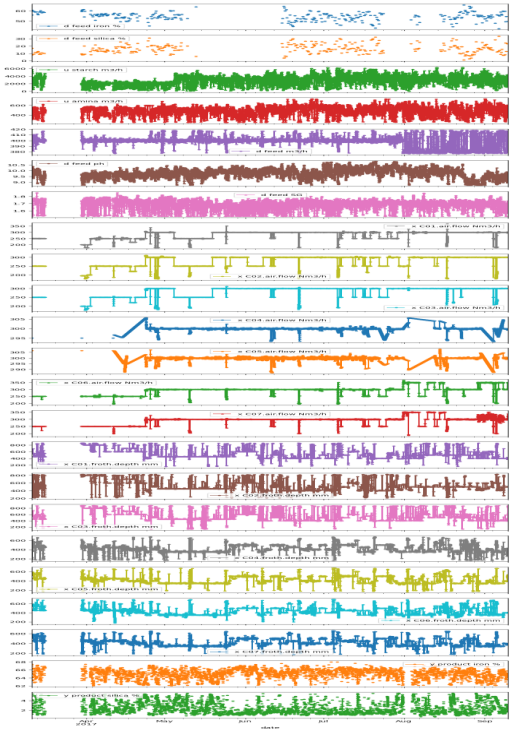




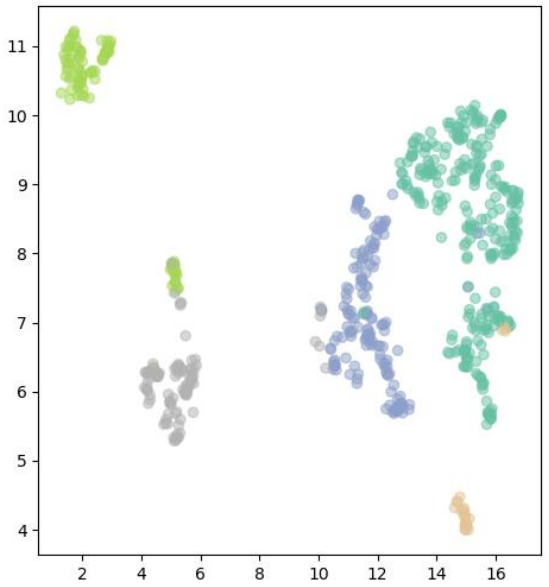


Exploratory Data Analysis (EDA)

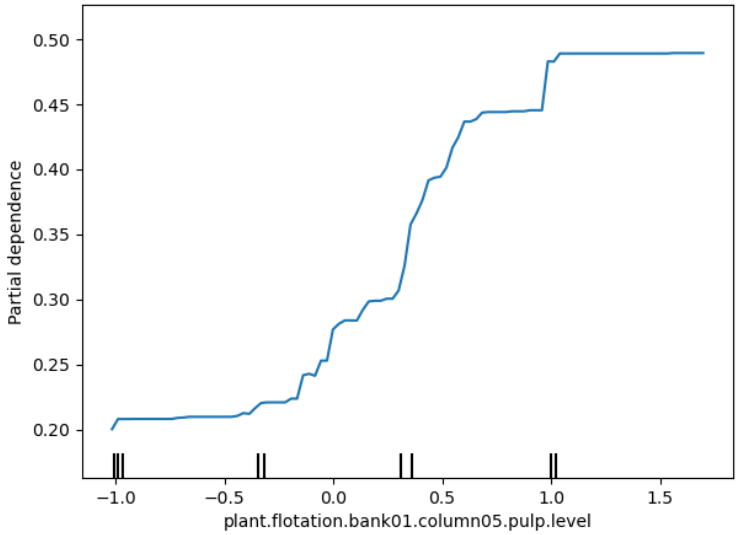
- Proposed EDA workflow



Data ingestion, visualisation and cleaning



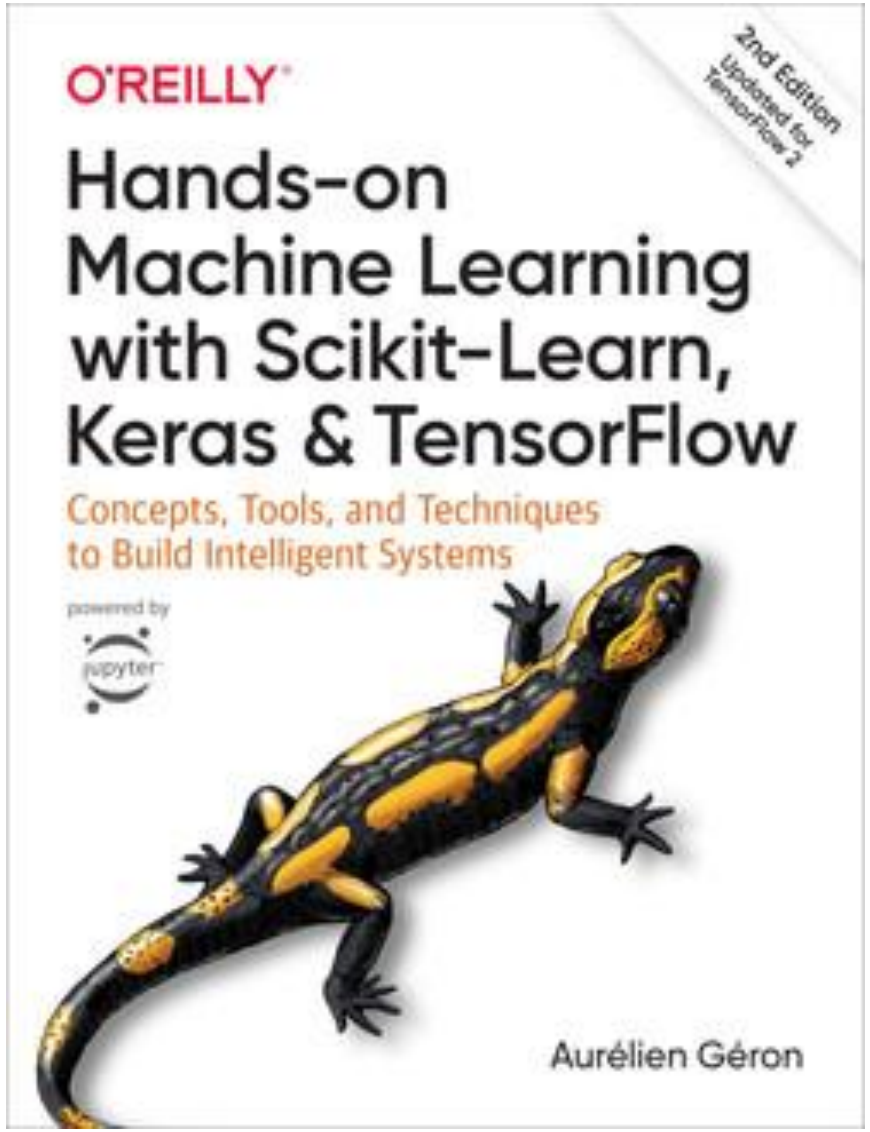
Dimensionality reduction and clustering



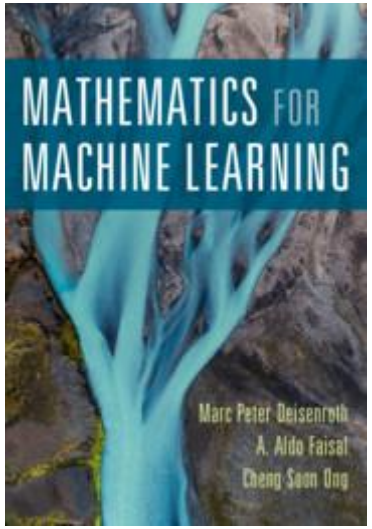
Model interpretation

Resources

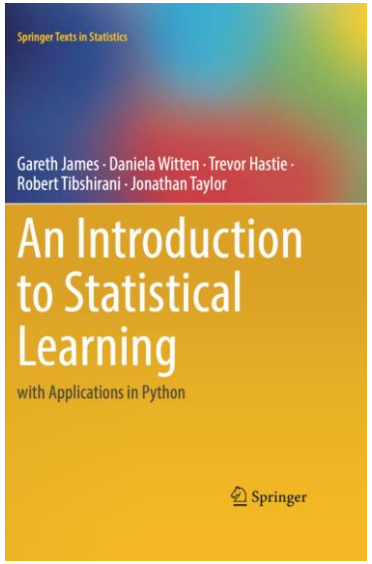
https://scikit-learn.org/stable/unsupervised_learning.html



https://www.oreilly.com/library/view/hands-on-machine-learning/9781492032632/



https://mml-book.github.io/



https://www.statlearning.com/