Forecasting Preliminary Design Review Presentation

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Overview

Understand Data

- Pre/Post-Processing Data
- Visualize Data
- Build Model Interpretation Skills
- Identify Data Trends

Study Machine Learning Algorithms

- Tools for Learning
- Online and Offline Algorithms

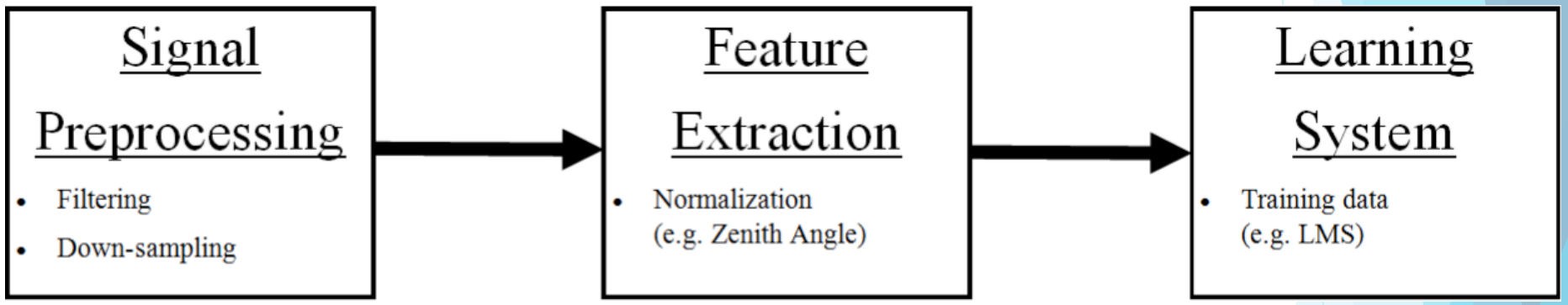
Produce Code

- Well-Documented, Readable Code
- Conceptual (and Math-Related) Notes

Progress Update

- **Pre/Post-Processing Data**
  - Starting Zenith-Angle Normalization
- **Visualize Data**
  - 3D Plots
  - First overview of Principal Component Analysis (PCA)
- **Online and Offline Algorithms**
  - Conceptual Least-Squares Linear Regression review
  - Implemented Recursive Least-Squares
- **Produce Code**
  - Learning more of `numpy`, etc.
  - Date, time formatting

Block Diagram



Problems Encountered

- Scheduling
  - IEEE Meetings, Midterms, etc.
    - ⇒ Rescheduling hours is working...
- Manipulation of Data
  - Date ⇒ Number formatting
  - DataFrame manipulation, matrix
    - ⇒ Just need more continuing experience with `numpy`
- Struggled on 3D Data Visualization
  - Unfamiliar with interface to functions
    - ⇒ 3D Plotting Issues

Upcoming Plans

- Understanding Mechanics of Solar Energy
- Finish 3D Graphs
- Machine Learning Algorithms
  - Learning Least Mean Squares (LMS)
  - Testing Recursive Least Squares with data
  - Implementing Tap filters
- Work on Code & Documentation

Potential Problems

- Formalizing documentation
- Transitioning concepts into robust code
- Scheduling for rest of semester
- Limitations of solar irradiance features

Any Questions?