Forecasting:
Proposal Presentation

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Overview

- Project Overview
- Goals for the Semester
- Plan of Attack
- Potential Problems
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Project Overview

- The forecasting team focuses on analyzing data and using machine learning and other prediction techniques to track trends.
- Beginning with raw data, we pre-process it so that the code is able to be passed through various predictive algorithms.
- The idea behind weather prediction is that we will one day be able to predict changes in the solar energy produced, and can modify the amount of power the grid draws to maintain a balance of power.

Goals for the Semester

- Study and Learn New Machine Learning Algorithms
- Produce Code & Documentation for Future Generations
  - Finalize & Modularize Code
  - Document Algorithms & Code with LaTeX
- Improve iPython Skills

Plan of Attack

- Meet weekly with Seyyed to learn new concepts & techniques
- Create documentation for algorithms and concepts to leave for future forecasting teams
- Implement concepts in Python
- Create robust functions that can be easily understood and utilized

Potential Problems

- Bringing new forecasting members up to speed with topics & Python
- Irregularities in the data due to the intermittent nature of solar irradiance
- Errors in collected data
- Transitioning conceptual algorithms into robust code

Learning Goals

Machine Learning Algorithms:

- Least Mean Squares
- Recursive Least Squares
- Feature Extraction
- Clustering
- Offline/Online
- Supervised/Unsupervised
- Linear/Nonlinear

Code & Documentation:

- Increase familiarity with Python
- Document Functions & Code
- Document Concepts
- Create Robust Working Code

Progress

- Python Introduction
- Tap Filters
- Introduction to Least Squares
- Basic Normalization Techniques
  - Standard Normalization
  - Zenith Angle Normalization
- Practiced Least Squares Example

Questions?