Sentiment Analysis and Recommender Systems with Python

Course overview:

This program will give students the foundational skills they need in order to
process, clean, and format text data for analysis, build predictive machine learning models as
well as build and evaluate recommender systems based on real data.

4 days/ 3 hours per day (2.5 hours of instruction/ .5 hours for Q and A)

Instructor: Dr. Veronica Red

Prerequisites:

Attendees must be comfortable using Python to manipulate data and must know how to create
advanced visualizations in Python. Additionally, students must have a foundation in
classification techniques.

Objectives:

- Program proficiently in Python
- Clean, process, and visualize text data
- Develop a framework for analyzing data to improve processes and accuracy
- Identify and define use cases for recommender systems
- Build and evaluate content-based recommender systems
- Build and evaluate item-based filtering algorithm

Topics covered:

1. Sentiment analysis
   a. Analyze the outcome of bag-of-words
   b. Apply logistic regression model to text data to determine positive and negative
      sentiment
   c. Evaluate performance

2. Introduction to recommender systems
   a. Summary of the usages and types of recommendation engines
   b. Description of the concept of a content-based recommender system

3. Building a recommender system

a. Building a content-based recommender system
b. Generating recommendations from the content-based recommender system and discuss the pitfalls
c. Description of the collaborative filtering recommender system and its types
d. Building an item-based collaborative filtering algorithm
e. Evaluating the model using performance metrics

Bio:

Dr. Veronica Red (they / them) received their Ph.D. in Bioinformatics with a Minor in statistics from North Carolina State University. Dr. Red teaches many Machine Learning courses for Data Society to professionals at the State Department, Abt Associates, Comcast, and many other organizations. Dr. Red also has many years of experience working as a data scientist for government projects (statistical analysis, data visualization, network analysis, machine learning) and private sector (machine learning, data visualization, network analysis, statistical analysis, predictive modeling). In their spare time, Dr. Red also runs a Meetup dedicated to increasing gender diversity in data science.