Tyson Pond

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Skills

Languages: Python, R, MATLAB, SQL, HTML, CSS, JavaScript
Libraries: scikit-learn, TensorFlow/Keras, NetworkX, Flask, R Shiny, D3.js, Highcharts
Tools: Git, LaTeX
Analytical: social network analysis, NLP, recommender systems

Research & Projects

Ice cream data dashboard (App, Github) **Dec. 2020 – Jan. 2021**

- Assessed product performance and identified common complaints – potentially increasing customer retention – by analyzing customer reviews with NLP methods: n-grams, sentiment analysis, and topic modeling.
- Collected all customer reviews (20,000) from four company websites using Python and Selenium for web scraping.
- Developed interactive visualizations using Highcharts – allowing for product comparison and trend analysis – and built a web application using R Shiny.

Twitch tastes (App, Github) **Oct. 2020 – Nov. 2020**

- Built a collaborative filtering recommendation system to suggest live streamers to Twitch.tv users, potentially increasing daily hours watched.
- Collected data on 280,000 user-streamer follows via the Twitch API.
- Built a web application and RESTful API using Flask and deployed with Heroku.

Information flow in social networks (Journal article) **Sep. 2018 – Apr. 2020**

- Developed a novel measure and model of written information flow in online social networks.
- Estimated that a user's text can be predicted with up to 95% accuracy, using only their social ties' texts.
- Utilized a Linux cluster to perform large-scale simulations, generating 100GB of data, and collect 30 million tweets (8GB) to validate our proposed methodology.
- Led a team of five international researchers to publish our results.

Education

University of Vermont **Burlington, VT**
M.S. Mathematics (GPA: 4.0/4.0) *Aug. 2018 – May 2020*

- Recipient of John Kenney Award as the top mathematics graduate student
- Relevant coursework: Convex Optimization, Bayesian Statistics, Linear Models

B.S. Mathematics (GPA: 3.9/4.0; magna cum laude) *Aug. 2014 – May 2018*

- Minors in computer science and statistics
- Relevant coursework: Data Structures & Algorithms, Machine Learning, Evolutionary Robotics, Numerical Analysis, Statistical Methods (applied, theory), Probability (applied, theory).
- Undergraduate Teaching Assistant for Fall 2017 Numerical Analysis.

Experience

University of Vermont **Burlington, VT**
Graduate Teaching Assistant *Aug. 2018 – May 2020*

- Independently taught undergraduate math courses to 134 students over four semesters.
- Planned lessons, assisted students at office hours, and evaluated student work.