Akhil Jalan

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SUMMARY

Active researcher in machine learning and optimization at UC Berkeley. Passionate about bringing stringency and mathematical rigor to data science. Motivated by social impact, with independent projects on transparency of local government data, political polarization, and counterterrorism.

EDUCATION

University of California, Berkeley (Class of 2019) **GPA: 3.98**
B.A. Applied Mathematics (Concentration: Machine Learning), B.A. Computer Science
Regents' and Chancellor's Scholar, Class of 2019 (Awarded to top 2% of undergraduates)
Selected Coursework: Machine Learning (A), Probability (A+), Linear Algebra (A+), Algorithms (A)

WORK EXPERIENCE

Undergraduate Researcher, UC Berkeley EECS Berkeley, CA
Multiple Research Teams February 2018-Present

- Using Recurrent, Bidirectional Long Short Term Memory (LSTM) neural networks to generalize demodulation in digital radio communications
- Performing optimization comparisons of facility locations, with applications to hospital placement in Alameda county

Software Engineering Intern Sunnyvale, CA
Hashcut May 2017-August 2017

- Proposed and implemented video contest automation, using Javascript jQuery and HTML Bootstrap
- Generalized video ingestion from multiple sources (YouTube, Vimeo, Twitch) using a custom-defined scheme in MongoDB database
- Utilized YouTube API to ingest user data automatically

PROJECTS

Machine Learning for Counterterrorism (Team of 3)

- Predicted success rates of terrorist attacks with 93% accuracy using random forest model
- Improved random forest, neural network prediction accuracies 1%, 5% via cross-validation
- Extracted salient features for successful attacks in random forest and regression models

Natural Language Processing for State of the Union Speeches (Team of 3)

- Predicted correct President to deliver an official address with 76% accuracy using K nearest-neighbors model
- Improved K nearest-neighbors accuracy 9% by cross-validating number of neighbors (K)
- Mapped similarity of Presidents via dimensionality reduction (MDS)
- Tokenized and stemmed corpus of over 200 speeches to create speech-vector representation

Political Partisanship: A Look at the Data (Individual)

- Found statistically significant (p-value < 0.001) growth in ideological separation between parties in U.S House and Senate, using Spearman non-parametric correlation coefficient
- Published in Towards Data Science with over 250 reads

TECHNICAL SKILLS

Languages: Python, Julia, R, SQL, Java, MATLAB, Bash, Javascript, HTML5, LaTeX
Python Libraries: Tensorflow**,** Numpy**,** Scikit-learn, Pandas, Scipy, Matplotlib, Plotly, Seaborn, Scrapy
Tools: Tableau, Jupyter Notebooks, Google Cloud Compute, Amazon Web Services