

# Akhil Jalan

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## SUMMARY

Aspiring data scientist with a passion for communicating and sharing ideas. Experienced in applied machine learning and statistical programming through several projects using real-world data. Adept in all aspects of the data science process, including data collection, cleaning, visualization, analysis, and communication.

## EDUCATION

### University of California, Berkeley (Class of 2019)

GPA: 3.98

*B.A. Applied Mathematics (Concentration: Data Science), 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

Berkeley, CA

*Dr. G. Ranade, Simons Institute for the Theory of Computing*

February 2018-Present

- Studying applications of controls theory to non-convex optimization in machine learning
- Developing theoretical framework for machine learning systems via information theory

### 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, R, SQL, Java, MATLAB, Bash, Javascript, HTML5, LaTeX

**Python Libraries:** Scikit-learn, Keras, Tensorflow, Pandas, Numpy, Scipy, Matplotlib, Plotly, Seaborn, Scrapy, Natural Language Toolkit (NLTK)

**Tools:** Tableau, Jupyter Notebooks, Amazon Elastic Compute Cloud (EC2)

**Interests:** Cooking, Podcasts, Chess, Hiking, Coffee