# Akhil Jalan

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## EDUCATION

**University of California, Berkeley (Class of 2019)**                                              **GPA: 3.98/4.00**

*B.A. Applied Mathematics (Concentration: Machine Learning), B.A. Computer Science*
*Selected Coursework:* Machine Learning, Deep Neural Networks, Algorithms, Stochastic Processes, Real Analysis

## HONORS AND AWARDS

**2nd Place Team,** Citadel West Coast Summer Invitational Datathon (50+ teams)
**Finalist Team**, Data for Good Competition, UC Berkeley Center for Technology, Society, and Policy
**Regent's and Chancellor's Scholar**, UC Berkeley Class of 2019 (Awarded to top 2% of undergraduates)

## WORK EXPERIENCE

**Data Science Intern**                                                                              Foster City, CA
*Agari*                                                                                        June 2018-August 2018
- Analyzed 10 million+ emails in Spark for nickname impostor detection
- Created 100-dimensional word embedding of email subject line to predict email phishing attacks
- Cross-validated machine learning models (logistic regression, random forest) to achieve 72% test accuracy on subject line intent classifier

**Undergraduate Researcher, DARPA Spectrum Collaboration Challenge**                                 Berkeley, CA
*Professor A. Sahai*                                                                          February 2018-Present
- Implemented Recurrent, Bidirectional Long Short Term Memory (LSTM) neural networks to learn 100% accurate radio demodulation schemes for DARPA research challenge
- Identified theoretical limits of radio message recovery across 10 Signal-to-Noise Ratios (SNR) and 4 unique modulation schemes
- Studied 300+ hyper-parameter configurations (learning rate, layer depth, activation functions, etc) for neural networks to solve Witsenhausen problem in paired radio communication

**Undergraduate Researcher, Facility Location Optimization**                                         Berkeley, CA
*Professor G. Ranade*                                                                         February 2018-Present
- Compared fairness of 100+ unique hospital placement schemes in Alameda county
- Solved 11 unique fairness metrics in hospital allocation via linear/quadratic programming optimizers
- Quantified relative impact of hospital opening on 7 unique racial groups, 4 health insurance statuses, and 4 income levels using US Census Data

**Software Engineering Intern**                                                                      Sunnyvale, CA
*Hashcut*                                                                                      May 2017-August 2017
- Proposed and created video contest automation algorithm using Javascript jQuery and HTML Bootstrap

## PROJECTS

**Machine Learning for Counterterrorism (Collaborative)**
- 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
- Isolated top-20 salient features for successful attacks in random forest and regression models

**Deep Neural Style Transfer via Cyclic Generative Adversarial Networks (Collaborative)**
- Built 100% test-accuracy discriminator neural network for cyclic neural style transfer
- Trained 16 million+ parameters via state-of-the-art Cyclic GANs research

## TECHNICAL SKILLS

**Specialties:** Deep Learning, Computer Vision, Natural Language Processing, Optimization
**Languages**: Python (most proficient), Julia, R, SQL, Java, MATLAB, Bash, Javascript, HTML5, LaTeX
**Python Libraries:** Tensorflow**,** Numpy**,** Scikit-learn, Pandas, Scipy, Matplotlib, Scrapy
**Tools:** Spark, Amazon Web Services (AWS) S3, AWS EC2, Google Cloud Compute, Jupyter Notebooks, Cron