

# Navneedh Maudgalya

navneedh@gmail.com  
github.com/navneedh  
925-548-9736

## EDUCATION

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- **University of California, Berkeley** Berkeley, CA
  - B.S. Electrical Engineering and Computer Science; B.A. Cognitive Science; GPA: 3.77 Aug. 2016 – May. 2020
  - Regents' and Chancellor's Scholar
  - **Relevant Undergraduate Coursework:** Intro to Machine Learning, Probability & Random Processes, Optimization Models, Artificial Intelligence, Signals and Systems, Database Systems, Operating Systems
  - **Graduate Coursework:** Experimental Design for ML on Multimedia Data, Trustworthy Machine Learning

## EXPERIENCE

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- **The Boeing Company** Seattle, WA
  - Machine Learning Intern June 2019 - Aug 2019
    - Created part price prediction platform for Supply Chain intended to enable savings for 40% of part inventory
    - Extracted multiple views of parts from technical engineering drawings using image segmentation in OpenCV
    - Developed convolutional neural network to predict part price using parts' scale variant metadata and scale invariant visual features
- **Princeton Computational Cognitive Science Lab** Princeton, NJ
  - Research Assistant Nov 2017 - Present
    - Exploring correlations between representations learned by machine learning algorithms and those learned by humans with the goal of building efficient ML models and understanding human cognition
    - Analyzing the visual priors used by humans during facial reconstruction by using a human fitness function to perform a gradient-based search in a StyleGAN
    - Placed 5<sup>th</sup> in the Algonauts: Explaining the Human Visual Brain Challenge conducted by MIT CSAIL
    - Advised by Joshua Peterson, Ph.D and Prof. Tom Griffiths
- **Redwood Center for Theoretical Neuroscience** Berkeley, CA
  - Research Assistant Aug 2019 - Present
    - Applying vector symbolic algebra to constrain the latent representations learned by a variational autoencoder with the goal of capturing human-like representations of natural scenes and analogies
- **National Science Foundation REU** Miami, FL
  - Research Intern June 2018 - Aug 2018
    - Designed and simulated algorithm to perform homophily-based reconnaissance attack on targeted users in OSNs
    - Simulations on Facebook SNAP dataset showed our attack strategy was more likely to reach the target with fewer number of steps compared to other graph-based search algorithms
    - Research paper is currently under review by the ACM Digital Threats: Research and Practice Journal
- **Stroll Health** San Francisco, CA
  - Data Science Intern June 2017 - Aug 2017
    - Enhanced price estimation and network determination models for medical imaging centers
    - Designed submission for Robert Wood Johnson Care Challenge and won \$50,000 1<sup>st</sup> place prize
- **UC Berkeley School of Engineering** Berkeley, CA
  - Academic Intern Jan 2018 - May 2020
    - Graded and debugged homeworks/tests for CS 189: Machine Learning and EECS 127: Optimization Models

## PROJECTS

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- **Designing and Analyzing Autoencoders via Capacity Measurements**
  - Investigated optimal autoencoder architectures that maximized reconstruction accuracy and noise reduction for datasets with varying levels of complexity
  - Final class project for CS 294-082: Experimental Design for ML on Multimedia Data
- **Nets in the Sky**
  - Created web application to sample from deep generative models during experiments with humans using Flask, Heroku, and Amazon S3
- **Using Monte Carlo Methods for Music Generation**
  - Produced novel music by sampling pieces of published music according to the Metropolis-Hastings algorithm
  - Placed in Top 3 Markov Chain Applications for EECS 126: Probability & Random Processes final project

## SKILLS

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- **Languages:** Python, Java, C. SQL, HTML/CSS, Golang, Javascript
- **Technologies/Libraries:** PyTorch, Tensorflow, Pandas, OpenCV, Pyro, Git, Heroku, Docker, L<sup>A</sup>T<sub>E</sub>X