Sumukh Shivakumar

sumukhshiv@berkeley.edu | 813-618-1708
GitHub: sumukhshiv | sumukhshiv.github.io

Education

University of California, Berkeley, Berkeley, CA **Aug 2015 – May 2019**
B.S. Electrical Engineering & Computer Science
Relevant Coursework:

- EE/CS: Machine Learning, Artificial Intelligence, Data Science, Neural Networks, Operating Systems, Security, Algorithms, Networking, Computer Architecture, Signals/Systems, Data Structures, Python/Scheme/SQL
- Math: Formal Methods, Probability Theory/Discrete Math, Multivariable Calculus, Linear Alg./Diff Equations

Skills

- **Proficient** in Python, Java, C, SQL; **Familiar** with Perl, JQuery, HTML/CSS/JavaScript
- **Technologies:** Keras, Tensorflow, Pandas, Jupyter, Git, Adobe CC, Android Studio, IntelliJ

Experience

UC Berkeley – EECS Department: Undergraduate Researcher **August 2017 – Present**

- Exploring data policies to provide security guarantees for distributed systems under Prof. Sanjit Seshia
- Implemented security framework through Apache Spark where data is represented as finite state machines
- Explored training optimizations and adversarial inputs for self-driving car applications
- Co-authored/Published *'Formal Specification for Deep Neural Networks'*

Data Science 100: Undergraduate Student Instructor **Fall 2018 - Present**

- Teaching Assistant for intermediate DS course of ~1000 students
- Teach data science topics including: Modeling/Estimation, Feature Engineering, Classification, Hypoth. Testing
- Conduct weekly discussion sections, lab sections, and office hours & manage tutors, readers, and lab assistants

Orbital Insight, Inc: Software Engineer Intern **Summer 2018**

- Redesigned several core microservices to handle asynchronous calls to REST Proxy/Client
- Created a new multilevel mocking framework for custom unit/functional testing of all microservices
- Developed an order validation test to ensure proper delivery of satellite images from Planet
- Redesigned the main orbital portal authentication/authorization to use OAuth 2 protocol

Verizon Communications Inc: Software Developer Intern in Network Systems **Summer 2017**

- Designed/Developed an internal framework using ELK Stack for the Dynamic Network Manager, providing Verizon employees real time usage analytics to better understand enterprise customer usage & resolve tickets
- Reduced ticket handling latency from 24 hours to ~60 mins.
- Created a Machine Learning Algorithm to optimize 5G Antenna placement

Mobile Developers of Berkeley: Director of Finances/Android Developer **Jan 2017 - Present**

- Manage all MDB finances on order of $50k. Implemented new financial structure outlining a comprehensive, semester budget and detailed financial policies for other sectors of the organization
- Led a team of 4 to design, develop, & publish Android App *Preserve*, a smart grocery management system
- Develop numerous Android applications at UC Berkeley's Premier Mobile Development Organization

Stanford University / Robot Perception and Action Lab (USF): Undergraduate Researcher **May 2016 - Dec 2016**

- Automated robot cooking tasks using a Functional Object Oriented Network under Dr. Yu Sun.
- Enhanced cooking event understanding with YouTube videos, emphasis on obj. detection for network training
- Optimized robot task awareness through NLP and WordNet

Projects

- ***Preserve*** (Java/Android): Grocery tracker that notifies users when food items expire using OCR technology with Google Mobile Vision API, Firebase database, and intuitive UI/UX
- ***Verizon 5G Antenna Placement*** **(**Python/ML**):** Automated 5G antenna placement using machine learning to optimize for geographical location, 5 different antenna types, cost, and coverage.
- ***MDB Socials*** **(**Java/Android**):** Helps students plan/host social events & see who's interested in attending. Made use of Firebase Database/Storage/Authentication, and maintained user friendly UI.
- ***Spark Compression*****:** Implemented discrete cosine transform for video compression with Apache Spark & OpenCV

Honors

UC Berkeley – College of Engineering – Dean's Honor's List
1st Place - Verizon Company Wide Intern Hackathon 2017
Mu Alpha Theta – National Math Honor Society – National Scholarship Recipient