Brent Sienko

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Education

University of California, Berkeley — Berkeley, CA
Bachelor of Science in Electrical Engineering and Computer Science; GPA: 3.52/4.0 — *Expected May 2020*
Relevant Coursework: Intro to Machine Learning, Intro to Artificial Intelligence, Efficient Algorithms & Intractable Problems, Optimization Models in Engineering, Data Structures, Computer Security, Computer Architecture, Probability Theory & Discrete Math, Linear Algebra

Skills

- **Languages**: Python, Java, Go, C, SQLite, HTML, MATLAB **Technologies**: GitHub, BitBucket, GitBash, Sublime, IntelliJ
- **Libraries**: Scikit-Learn, TensorFlow, Numpy, Pandas, Matplotlib, Spark, Jupyter, OpenMP

Experience

Aerojet Rocketdyne — Canoga Park, CA
Avionics Engineering Intern (Special Test Equipment) — *May 2018 - August 2018*
- **AEPS**: Developed front and back-end test software and wrote a number of self-test scripts for Advanced Electric Propulsion System, allowing acceptance level testing of the system's overall functionality and real-time data acquisition during critical system routines
- **RS-25**: Updated combustion engine Special Test Equipment software with IVI Oscilloscope Drivers to reduce system test runtime, increase software/hardware versatility, and bolster overall reliability

CS61C — Berkeley, CA
Academic Intern (Computer Architecture Course Staff) — *January 2019 - Present*
- **Lab Assisting**: Helped run, organize, and execute weekly lab check-offs for classrooms of 30+ students
- **Course Help**: Provided assistance to students with course material in lab, office hours, and at homework parties

Projects

- **Wine Classification**: A discriminative learning model used to classify wines as red or white
  - Implemented Logistic Regression with Batch Gradient Descent, Stochastic Gradient Descent, and Newton's Method on UC Wine Data Set
  - Used Pandas to pre-process data, Numpy and Scikit-Learn for main algorithmic implementation, and Matplotlib to visualize results and attain a peak accuracy of 97%
- **Predictive Ratings in Spark**: A distributed computing program that estimates Yelp ratings
  - Used the MapReduce programming paradigm to parallelize a Naive Bayes classifier to predict Yelp review ratings
  - Implemented a Bag of Words model with Laplace smoothing in Apache Spark to achieve an accuracy of 71% on Yelp dataset
- **Digits & Pics**: A generative learning model used to classify digits and images
  - Trained a Gaussian Discriminant Analysis classification model to classify images and digits from the CIFAR10 & MNIST data sets
  - Fit Gaussian distributions to data classes using Maximum Likelihood Estimation and implemented QDA and LDA in a Jupyter Notebook to achieve 97% and 95% accuracy, respectively
- **MyDropbox**: An end-to-end encrypted file sharing system
  - Designed and implemented a file sharing service similar to Dropbox that protects user privacy in the Go programming language
  - Used RSA for public key encryption and digital signature verification, and CTR Block Cipher mode with SHA-512 HMAC for data encryption to provide secure data sharing between users
- **Project SIXT33N**: A three-wheel, intelligent, mobile robot that responds to voice input
  - Designed a PCA classification algorithm in Python to process and recognize specific audible commands that move the robot accordingly
  - Implemented a proportional closed-loop feedback control system to regulate speed and direction for its two motorized wheels
- **PACMAN**: Reinforcement Learning and Value Iteration Pacman agent that optimally traverses various unique maze layouts
  - Incorporated Q-learning to optimize the Pacman agent's actions for different environment MDPs
  - Programmed a modified value iteration Pacman agent that computes the optimal MDP policy and its values using prioritized sweeping
- **BEAR MAPS**: A web mapping application inspired by Google Maps and the OpenStreetMap project
  - Developed the back end web server that powers the API which supports user scrolling, zooming, and routing
  - Constructed graphical map of 17,000+ POI's and implemented A* search algorithm to optimize asymptotic runtime for user route finding

Additional Experience & Achievements

- Back-end software developer for **Neurotech@Berkeley** software team that competed in **NeuroTechX 2019** open challenge
  - developed EEG application for Truck Drivers that notifies the user when they are dangerously sleepy or drowsy while driving
- Student volunteer at **Camp Kesem**, a camp for kids ages 4-17 whose parents/guardians have been affected by cancer that collectively raised $180,000 so that campers can attend for free
- Member of **UC Berkeley Men's Club Soccer 2016**, placed 3rd in Bay Area Collegiate Club B-League
- **3x Outstanding Musician Award** at yearly Reno Jazz Festival and Trumpet player in **SCSBOA Honor Jazz Band 2016**