Alex Kashi

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EDUCATION

UNIVERSITY OF CALIFORNIA BERKELEY | BS in Electical Enginering and Computer Sciences

Graduated May 2017 | Berekely, CA
Graduated with High Honors (Top 10%) • Cum. GPA: 3.85 / 4.0 • Major GPA: 3.84 / 4.0

PUBLICATIONS | Stanford

Healthcare • Nano-electronics Biosensor • Machine Learning • Artificial Intelligence

- Esfandyarpour, R., **Kashi, A.,** Nemat-Gorgani, M., Wilhelmy, J., & Davis, R. W. (2019). A nanoelectronics-blood-based diagnostic biomarker for myalgic encephalomyelitis/ chronic fatigue syndrome (ME/CFS). *Proceedings of the National Academy of Sciences*

Bioinformatics • Biology • Systems Biology

- **Kashi,** A. A., Davis, R. W., & Phair, R. D. (2019). The IDO Metabolic Trap Hypothesis for the Etiology of ME/CFS. *Diagnostics*

WORK EXPERIENCE

STANFORD GENOME TECHNOLOGY CENTER | Researcher

September 2017 – Present | Stanford, CA | Python

- Devised the first classifier for myalgic encephalomyelitis (ME/CFS) based on data collected by our sensor and my feature extraction algorithm, published in PNAS
- Developed hardware and software for a low-cost impedance measurement device up to 100khz
- Optimized the above technologies from inception to a commercially viable product
- Designed an image segmentation algorithm to extract individual cells from SEM images
- Used CNNs to determine the distribution of blood cells for clinical diagnostics
- Manuscript published in MDPI Diagnostics for the metabolic and genetic origin of ME/CFS

INTEL | Software Engineer

Jun 2017 – Sep 2017 | Santa Clara, CA
C • ASL

- Improved drivers for I2C and UART interfaces, including touch screens and cameras
- Debugged BIOS ASL code adding features and configuring new peripherals
- Programmed firmware for x86 based R&D devices

ZSPACE | Software Engineering Research Intern

May 2016 – Aug 2016 | Sunnyvale, CA | Python • C++ • C#

- Utilized deep convolutional neural networks to design a gaze tracking system compatible with polarized 3D glasses
- GPU accelerated using the Theano machine learning framework
- Trained on over 10GB of data collected from 36 participants on a proprietary data collection application
- Processed and classified images from infrared cameras in real-time

INTEL | Undergraduate Technical Intern - Client R&D

May 2015 – Aug 2015 | Santa Clara, CA
Java • C++ • C

- Architected a MapReduce framework for local big data processing on Android devices
- Parallelized the framework using pthreads in native C/C++ using the Android NDK
- Created an application for my framework by implementing k-means clustering to preprocess location data locally before sending the result to the server
- Effectively reduced server storage requirements and average query time

PROJECT EXPERIENCE

Full Stack Android Development

Java • GraphQL • Python • ElasticSearch • NodeJS

- Created a production ready fully featured Android social media application
- Integrated Android Jetpack libraries for robust presentation and navigation of content
- Designed back-end based in AWS using: Amplify, DynamoDB, S3, Lambda, ElasticSearch, Pinpoint, IAM, Rekognition
- Fully automated deployments using the Serverless Framework
- Caching and loading data from the back-end followed best practices using android architecture components

Low Cost Reliable Localization of Drone
Python
- Created a low-cost alternative to a Vicon Motion capture system to enable indoor aerial delivery via drone
- Reduced the cost by only requiring a standard HD webcam and an array of AR tags
- Connected multiple AR tags rigidly to the origin, allowing for rigid body transforms to locate the drone in global coordinates
- Acquired a single pose estimation with the ROS package ar_track_alvar and used MAVROS to communicate with the Pixhawk PX4 2.4.8 flight controller

Artificial Intelligence | Various Techniques for a Pacman AI
Python
- Implemented Q-learning, value iteration, policy iteration, and policy extraction to determine which action an agent should take at a given state
- Enacted Bayes Nets for predicting the behavior of adversaries conditioned on observations of their actions
- Applied Hidden Markov models and particle filtering to determine location of agents when observations are noisy
- Used Minimax with alpha-beta pruning, and A* path finding with consistent heuristics

Analog Circut Design 90nm Process| SoC for IoT
Cadence
- Designed a 1.2V bandgap voltage reference that is independent of temperature over the industrial range and voltage from 1.6V to 3.2V up to a tolerance of 2mV
- Engineered a 8 bit 10khz SAR ADC with no LSB errors over the full temperature and voltage range
- Developed LDO for voltage regulator for analog and digital circuitry
- Constructed a Folded-Cascode based 4 bit PGA with an open-loop gain of 110DB and unity gain frequency of 6Mhz
- Stabilized the PGA with a phase margin of 10° using miller capacitance

PRESENTATIONS
- **Kashi, A.** (2019, September). Morphological Classification of RBCs: A Machine Learning Approach. Presented at the Third Annual Working Group Meeting and Community Symposium on the Molecular Basis of ME/CFS, Stanford CA
- **Kashi, A.** and Phair, R. (2018, November). A Search for Common Damaging Mutations in ME/CFS using the SIPS Cohort. Presented at the anual Stanford Genome Technolgy Center Retreat, Los Altos Hills, CA
- Esfandyarpour, R., **Kashi A.** , Wilhelmy J., & Davis R. W. A Low-cost, Blood-based Diagnostic for ME/CFS. Poster session presented at: Inflammation, Aging and Chronic Disease; 2017 November 27-28; Stanford, CA.

COURSEWORK

UNDERGRADUATE CS
Introduction to Machine Learning
Operating Systems
Artificial Intelligence
Internet Architecture and Protocols
Computer Security
Efficient Algorithms

UNDERGRADUATE EE
Feedback Control Systems
Analog Integrated Circuits
Introduction to Robotics
Introduction to Embedded Systems
Signals and Systems
Microelectronic Devices and Circuits

PROGRAMMING
Professional Proficiency
• Python • Java • Android • C++

High Proficiency
• C • GraphQL • AWS • LaTeX
• Matlab • Tensorflow • OpenCV

Working Proficiency
• Qt • ROS • C#

CONTINUING EDUCATION
UC Berkeley
• CS 285 Deep Reinforcement Learning

Coursera
• Visual Perseption for Self-Driving Cars

LINKS
Website://**AlexKashi**
Github://**AlexKashi**
LinkedIn://**AlexKashi**

AFFILIATIONS
2016 Camp Kesem
2015 Eta Kappa Nu Electrical Engineering Honor Society (Top 25%)
2013 Academic All American (Water Polo)

AWARDS
Regional High School Valedictorian
National Intel Scholarship
Regional Silicon Valley Eng. Council
Regional Silicon Valley AARP
Regional Top Senior Thesis - Fremont HS