Adam Li

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EDUCATION:

JOHNS HOPKINS UNIVERSITY **Graduation Expected (2020)**
Doctor of Philosophy: Biomedical Engineering *GPA: 3.8/4.0*

UNIVERSITY OF CALIFORNIA, SAN DIEGO **March 2015**
Bachelor of Science: Bioengineering *Major GPA: 3.75/4.0*
Bachelor of Science: Mathematics-Applied Science *Major GPA: 3.74/4.0*

YALE SCHOOL OF MANAGEMENT **2014**
Global Pre-MBA Leadership Program: Selective Leadership Program
Placed 3rd in Audubon Business Concept Pitch Plan, and 2nd in Audience Choice Award

PUBLICATIONS:

1. **A. Li**, B. Chennuri, S. Subramanian, R. Yaffe, S. Gliske, W. Stacey, R. Norton, A. Jordan, K. Zaghloul, S. Inati, S. Agrawal, J. Haagensen, J. Hopp, C. Atallah, E. Johnson, N. Crone, W.S. Anderson, Z. Fitzgerald, J. Bulacio, J. Gale, S.V. Sarma, J. Gonzalez-Martinez. "Using Network Analysis to Localize the Epileptogenic Zone from Invasive EEG Recordings in Intractable Focal Epilepsy." *Network Neuroscience* (2018).
2. **Li A**, Inati S, Zaghloul K, Sarma S. "Fragility in Epileptic Networks: The Epileptogenic Zone". *The American Control Conference* (2017).
3. **Li A**, Gunnarsdottir K, Inati S, Zaghloul K, Gale J, Bulacio J, Martinez-Gonzalez J, Sarma S. "Linear Time-Varying Model Characterizes Invasive EEG Signals Generated from Complex Epileptic Networks." *Engineering in Medicine and Biology Conference* (2017).
4. Gunnarsdottir K, **Li A**, Bulacio J, Martinez-Gonzalez J, Sarma S. "Estimating Unmeasured Invasive EEG Signals Using a Reduced Order Observer." *Engineering in Medicine and Biology Conference* (2017).

PATENTS:

1. GEAR (Game Enhancing Augmented Reality) - A lower limb alternative control interface for computers. Inventors: Adam Li, Gyorgy Levay, Nate Tran. 5/23/16.
2. Identifying the Epileptogenic Zone using Network Fragility Theory. Inventors: Sridevi Sarma, Adam Li, Jorge Gonzalez. 9/22/16.

HONORS AND AWARDS:

Chateaubriand STEM Fellowship – international research fellowship from French Embassy 2017

Whitaker Fellowship – prestigious international research fellowship to go to Marseille, France 2017

NSF-GRFP – Awarded out of more then 13,000 applicants 2017

NSF-GFRP (Honorable Mention) – Honorable mention out of 17,000 applicants 2016

Intel Cornell Cup 1st Place – Featured on Popular Science, Youtube, JHU News and Intel 2016

HopHacks Biomedical Data 1st Place – Won 1st place at Johns Hopkins hackathon for use of medical data 2016

MedHacks 1st Place – Won 1st place in the first medical hackathon at Johns Hopkins 2015

NIH NETI – (nthakor@bme.jhu.edu) NeuroEngineering grantfor 11 students that apply to program 2015

Frontiers of Innovation Scholars – (fisp@ucsd.edu) Interdisciplinary fellowship out of 350 applicants 2015

California Space Grant / IDEA Center Scholarship – Recipient of competitive scholarship 2014

NCIIA E-Team Program – National selective program (~15% acceptance rate) for funding 2014

UCSD Sixth College Leadership Award – Finalist For Outstanding Leadership 2014

ASAIO – Student Design Competition Top 27 In Nation 2014

Tau Beta Pi – Engineering honor society 2014

Gordon Fellow – Engineering leadership excellence award 2014

Health and Life Sciences Grant – Interdisciplinary grant for pilot studies in translational medicine 2013

Von Liebig NSF I-Corps Fellow – Competitive startup program for NSF seed funding 2013

Chapter of the Year Award – National award from ISPE for best student chapter in the country 2012, 2013

National EWH Design 2nd Place – Placed 2nd for global healthcare engineering design 2013

Gordon Leadership Scholar – Competitive leadership program 2013

Amgen Scholar UCSD – Competitive summer research program (awarded but had to decline) 2013

California Institute for Telecommunications and IT – Competitive Summer Research Grant 2012

PRESENTATIONS AND CONFERENCES:

1. *"Linear Time-Varying Model Characterizes Invasive EEG Signals Generated from Complex Epileptic Networks"*, **Li A**, Gunnarsdottir K, Inati S, Zaghloul K, Gale J, Bulacio J, Martinez-Gonzalez J, Sarma S, EMBC 17, Jeju, South Korea, July 14th, 2017.
2. "*Fragility in Epileptic Networks: The Epileptogenic Zone",* **Li A**, Inati S, Zaghloul K, Sarma S, ACC 17, Seattle WA, USA, May 24th, 2017.
3. *"Analysis of Gait Applied to Parkinson's Disease",* **A. Li**, N. Gandhi, I. Litvan and T. Coleman, Thiel Summit Conference for Entrepreneurship, Las Vegas NV, November 11th, 2014.
4. *"GreenHaven 501© Non-Profit Business Pitch",* **A. Li**, A. Ruby, N. Rivat, R. Saha, A Foster and A. Terra, Yale School of Management Audubon Pitch, New Haven NH, June 29th, 2014.
5. *"The Gait Analysis of Parkinson's Disease"*, **A.Li**, N. Gandhi, L. Li, J. Chu, C. Yang, I. Litvan and T. Coleman, UCSD Bioengineering Day Poster Conference, San Diego CA, April 10th, 2014.
6. *"BioMetrics Analytics",* **A.Li**, N. Gandhi, L. Li, J. Chu, C. Yang, Von Liebig NSF I-Corps Phase 1 Pitch, La Jolla CA, March 10th, 2014
7. *"Feasibility of 3D Deformation and Strain Analyses by Micro-Computed Tomography",* **A. Li**, E. Cory, J. Caffrey, V. Wong, Q. Nguyen and R. Sah, ISPE Poster Competition, La Jolla CA, May 29th, 2013.
8. *"Feasibility of 3D Deformation and Strain Analyses by Micro-Computed Tomography"*, **A. Li**, E. Cory, J. Caffrey, V. Wong, Q. Nguyen and R. Sah, Calit2 Summer Scholars Presentation, La Jolla CA, September 21st, 2012.

RESEARCH EXPERIENCE:

THEORETICAL NEUROSCIENCES GROUP @ AIX-MARSEILLE UNIVERSITY Sept 2017 – Sept 2018

Visiting Scientist under Dr. Viktor Jirsa Marseille, France

Contact: viktor.jirsa@univ-amu.fr

- Use Freesurfer, MATLAB and Python to analyze and preprocess > 5TB of multi-modality brain imaging data for localizing electrode contacts, analyzing region activity and visualizing data-embedded brains
- Engineer an unsupervised deep learning pipeline using nonlinear generative modeling, linear stability analysis and artificial neural networks (CNNs, RNNs) to perform seizure detection and localization
- Develop nonlinear dynamical models to optimize algorithm parameters that have shown significant results (>95% accuracy) in identifying the seizure onset zone using iEEG signals

NEUROMEDICAL CONTROL SYSTEMS LABORATORY Aug 2015 – Present

Graduate Student Researcher under Dr. Sri Sarma Baltimore, MD

Contact: (410) 516-4381; sree@jhu.edu

- Perform precise seizure localization and automatic online seizure detection from intracranial EEG recordings that involves TB's of multivariate time series, categorical, binary, & description data
- Utilize machine learning algorithms, statistical modeling, network theory, high performance computing and spectral analysis to analyze high-dimensional brain data (Python, MATLAB on Linux Systems)
- Aggregate and organize electrophysiological data of epileptic patients from 4 different hospital centers by coordinating with neurosurgeons, epileptologists, and fellows in setting up a HIPPA-compliant sFTP server
- Implement Bayesian hierarchical inference model for seizure localization from heatmap data

FUNCTIONAL AND RESTORATIVE NEUROSURGERY UNIT Jan 2016 – Aug 2016

Graduate Student Researcher under Dr. Kareem Zaghloul Baltimore, MD

Contact: kareem.zaghloul@nih.gov

- Researched memory reinstatement of a word pair remap associate task using Morlet wavelet, multitaper FFT and time series analysis
- Modified task extraction code to collect useful metadata about experimental events

NEURAL INTERACTION LABORATORY Sept 2013 – Sept 2015

Senior Design Engineer and Undergraduate Researcher under Dr. Coleman and Dr. Litvan La Jolla, CA

Contact: tpcoleman@ucsd.edu

- Researched and developed novel ways to evaluate Parkinson's disease using gait and 3D spatiotemporal data from the Microsoft Kinect in collaboration with Computer Vision Lab and School of Medicine.
- Started a project from scratch to develop a Parkinson's disease tracking software product using C++ and Matlab to create a data acquisition platform and signal analysis algorithms
- Mentored a senior Bioengineering design group within the design course sequence to engineer a cost-effective mobile eye tracking system in collaboration with a movement disorders specialist
- Carried out validation and clinical experiments on 21 PD and 21 control subjects, while coordinating scheduling with clinicians and patients
- Secured startup company funding from the National Science Foundation and the VentureWell E-Team Program and also applied to present at the Clinton Global Initiative University
- Wrote successful Health and Life Sciences grant and IRB to carry out pilot clinical studies in collaboration with 3 professors; awarded the Gordon Fellowship Award for outstanding engineering leadership

ENGINEERING WORLD HEALTH Sept 2012 – Sept 2014

Project Team Leader for PCR under Dr. David M Smith La Jolla, CA

- Collaborated with UCSD School of Medicine and a clinic in Mozambique to develop a rapid, cost-effective medical device for diagnosing HIV, which culminated in 2nd place for the EWH National Design Competition
- Led team of 10 in product development, while managing a budget of over $10,000. Developed firmware on microcontroller using C++ and C (utilized PID algorithm, SolidWorks and circuit design)
- Mentored and helped carry out "build days" with K-12 students to get them excited about science

QUALCOMM INSTITUTE Jun 2012 – Sept 2012

Summer Research Scholar under Calit2 La Jolla, CA

Contact: rsah@ucsd.edu

- Awarded $3000 to be a part of a 30 person cohort in order to conduct ~40+ hrs/week of independent research for the purpose of improving quality of life using emerging technologies and analytics
- Conducted initial feasibility experiments using a LabView programmed mechanical actuator to compress agarose hydrogels with embedded radiopaque particles, while imaging with 3D microCT
- Developed a computational method with 90% accuracy to measure strain and strain variance using quantitative statistical analysis

CARTILAGE TISSUE ENGINEERING LABORATORY Sept 2011 – Jun 2013

Undergraduate Researcher under Dr. Robert L Sah La Jolla, CA

Contact: rsah@ucsd.edu

- Scanned and analyzed bone and tissue images using microCT, Excel, Matlab and CT image analysis software and then documented experimental results through scientific reports
- Contributed to a large human cartilage research project by scanning ~20 samples over the course of an entire weekend for ~72 hrs straight; in collaboration with orthopedic surgeons and post-docs of lab

INDUSTRY EXPERIENCE:

AAMPLIFY 501© Jan 2017 – Present

Co-founder and Director of Leadership San Francisco, CA

- Planned and implement a summer leadership, advocacy and college preparation program for AAPI youth. Also involved in raising over $10,000 as a non profit organization.

BIOMETRICS ANALYTICS Sept 2013 – Sept 2015

Chief Executive Officer & Co-Founder San Diego, CA

Contact: neilrg11@gmail.com

- Led team in data acquisition of human data, data analysis and statistical analysis using MATLAB and Python
- Developed Parkinson's disease tracking software using Microsoft Kinect with C++, C#, MATLAB and Python to create data acquisition and machine learning algorithms and movement analytics
- Raised over $20,000 and filed an IRB for carrying out pilot clinical human study; received the Gordon Fellowship Award for outstanding engineering leadership (awarded to 3 students/year at UCSD)
- Accepted into the Von Liebig National Science Foundation I-Corps Program as well as the NCIIA Entrepreneurship Program (~15% acceptance rate)

UCSD COMPUTER SCIENCE Sept 2014 – Mar 2015

Computer Science Tutor under Gary Gillespie San Diego, CA

Contact: gillespie@eng.ucsd.edu

- Sole bioengineer in cohort, assisted 100+ students in learning basic data structures in Java, C and C++
- Graded exams and assisted professor in communicating fundamental concepts in computer science

WEST HEALTH INSTITUTE 501© Jun 2014 – Jun 2015

Data Processing Intern under Asim Mittal San Diego, CA

Contact: asim.mittal@gmail.com

- Researched and recommended technological improvements to data collection that could be incorporated into the analytics group at the institute for the treatment of Autism Spectrum Disorder
- Wrote pymongo queries running on an event scheduler (python, MongoDB) that provide metrics and analytics for the clinical team to analyze behavior during gameplay on the Microsoft Kinect

- Developed clinical web forms using HTML, CSS, Highcharts.JS, JavaScript (with JQuery), which are then linked to a DB with Node.js; tested on an AWS instance using git and bitbucket VCS
- Built an Android application that created a custom launch screen for the clinical team with Java and XML

GENENTECH INC. Jul 2013 – Jun 2014

Process Engineering Intern under Domenic Schmizzi San Francisco, CA

- Implemented a new batch control process using Rockwell Automation and PLCs to automate chromatography purification process (used Structured Text, Sequential Flow Charting, SQL and Python)

LEADERSHIP AND OTHER EXPERIENCE:

HOPKINS ENGINEERING & MEDICINE EXCHANGE Sept 2016 - Present

Co-Founder/President – Plan events for collaborations between engineering, medicine and public health

JOHNS HOPKINS BME COUNCIL Sept 2016 – Sept 2017

Social Chair – Coordinate and plan events for increasing collaboration within department

GRADUATE REPRESENTATIVE ORGANIZATION Sept 2015 – Sept 2016

BME Department Representative

ALPHA KAPPA PSI @ UCSD Apr 2012 – Jun 2014

Class President and Director of Consulting

INTERNATIONAL SOCIETY FOR PHARMACEUTICAL ENGINEERING @ UCSD Sept 2011 – June 2014

Vice President External

COMPETITIONS:

INTEL CORNELL CUP (1st place Nationwide) Apr 2016

- Created an augmented reality device using Intel hardware and software to help disabled individuals.

HOPHACKS (1st place in Biomedical Data Challenge) Feb 2016

- Created web app for web scraping, data visualization and search functionality of clinical trials in the USA

MEDHACKS @ JHU 2015 (1st place) Oct 2015

- Developed apparatus using ultrasound transducers, raspberry PI and web server to detect blood clots

MICROMOUSE @ UCSD 2015 May2015

- Developed micromouse with Teensy microcontroller, custom PCB, flood-fill alg, PID alg using C++/C