Adam Li

ali39@jhu.edu
www.linkedin.com/in/adamli2392/
Personal Website: https://adam2392.github.io/
Adam2392@gmail.com
+1 (805) 807-5898
Github Account: Adam2392

EDUCATION:

JOHNS HOPKINS UNIVERSITY **Graduation: TBD**
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 (Summer Program) **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. **Li A**., Sarma S., Jirsa V. "Using Whole-Brain Computational Modeling to Transfer Knowledge of Seizure Dynamics to Machine Learning Algorithms". *In Preparation. International Conference in Machine Learning* (2019).
2. **A. Li**, et al., 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).
3. **Li A.,** Sarma S., Jirsa V. "Integrating Large Brain Networks and Network Analysis to Understand The Epileptogenic Zone." *Organization for Computational Neurosciences CNS* (2018).
4. **Li A**, Inati S, Zaghloul K, Sarma S. "Fragility in Epileptic Networks: The Epileptogenic Zone". *The American Control Conference* (2017).
5. **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).
6. Haagensen J, Chen S, Hopp J L, **Li A**, Sarma S. "T101. Use of a quantitative algorithm to help predict seizure lateralization in a patient with bitemporal epilepsy and responsive nerve stimulation." *Clinical Neurophysiology* (2018).
7. 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. *"Using Personalized Brain Models to Augment Deep Neural Networks for Seizure Detection",* **Li A.,** Sarma S., Jirsa V. ACDL 18, Tuscany, Italy, July 22nd, 2018.
2. "*Integrating Large Brain Networks and Network Analysis to Understand The Epileptogenic Zone*", **Li A.,** Sarma S., Jirsa V. CNS 18, Seattle, USA, July 17th, 2018.
3. *"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.
4. "*Fragility in Epileptic Networks: The Epileptogenic Zone",* **Li A**, Inati S, Zaghloul K, Sarma S, ACC 17, Seattle WA, USA, May 24th, 2017.
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. *"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.
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, Calit2 Summer Scholars Presentation, La Jolla CA, September 21st, 2012.
8. *"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.
9. *"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

RESEARCH EXPERIENCE:

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

Visiting Scientist under Dr. Viktor Jirsa (*viktor.jirsa@univ-amu.fr)* Marseille, France

- Use Freesurfer, MATLAB, Python and C++ to analyze and preprocess > 5TB of multi-modality brain imaging data for localizing electrode contacts, analyzing region activity and visualizing data-embedded brains

- Engineer a transfer learning machine learning pipeline using whole-brain network modeling, linear system analysis and artificial neural networks (FNN, CNN, RNNs) to perform seizure detection and localization
- Develop nonlinear-coupled neural mass models to validate and optimize algorithm parameters that have shown significant results (>95% accuracy) in identifying the seizure onset zone using iEEG signals
- Contribute open-source code to The Virtual Brain (https://github.com/the-virtual-brain/tvb-library/) for generating observational noise, analysis of simulated source signals and scientific demo notebooks

NEUROMEDICAL CONTROL SYSTEMS LABORATORY Aug 2015 – Present

Graduate Student Researcher under Dr. Sri Sarma (sree@jhu.edu) Baltimore, MD

- Develop and maintain a SQL database for handling patient specific data from multiple clinical centers, along with aggregation of TB's of multivariate EEG time series, neuroimages (from MRI, CT and dMRI)
- Coordinate with neurosurgeons, epileptologists, fellows and engineers in setting up a HIPPA compliant sFTP server for exchanging data
- Perform precise seizure localization and automatic online seizure detection from intracranial EEG recordings that integrates TB's of multivariate time series, categorical, & data
- Utilize HPC clusters to run parallelized machine learning algorithms, statistical modeling, spectral decomposition and network analysis to analyze neural time series (Python, MATLAB on Linux Systems)

NEURAL INTERACTION LABORATORY Sept 2013 – Sept 2015

Undergraduate Researcher under Dr. Coleman La Jolla, CA

- 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.
- Developed data analytics software using C++ and Matlab for signal processing of coordinate time series data for the purpose of tracking biometrics of Parkinson's disease patients
- Wrote a successful grant and IRB to carry out pilot clinical studies in collaboration with 3 professors; awarded the Gordon Fellowship Award for outstanding engineering leadership
- Carried out validation and clinical experiments on 21 PD and 21 control subjects, while coordinating scheduling with clinicians and patients
- 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

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

- 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

- Created standard operating procedures for inventory processing, laboratory operations, tissue preparation, hydrogel polymerization, data collection methods and data analysis of CT images
- 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:

BIOMETRICS ANALYTICS Sept 2013 – Sept 2015

Chief Executive Officer & Co-Founder San Diego, CA

- Researched & developed novel ways to evaluate Parkinson's Disease using biometric sensors and robust data analysis; 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++, MATLAB and Python to create data acquisition, movement analytics and data visualization tools for clinicians to use
- 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

- Was sole bioengineer in cohort, and assisted 100+ students in learning basic data structures in 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

- 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 NoSQL MongoDB queries in Python running on an event scheduler that provide periodic metrics and analytics for the clinical team to analyze behavior during behavioral experiments
- 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. schimizzi.domenic@gene.com Jul 2013 – Jun 2014

Process Engineering Intern and College Ambassador under Domenic Schmizz San Francisco, CA

- Collaborated with Genentech College Programs to improve online engagement by ~60%, while coordinating events with directors and human resources that drew in over 200 attendees

- 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:

AAMPLIFY INC. Jan 2017 – Present

Director of Leadership and Founding Member – Planned and implement a summer leadership and advocacy program for AAPI youth. Also involved in raising over $5000 as a non profit organization.

HOPKINS ENGINEERING & MEDICINE EXCHANGE @ JHU Sept 2016 - Present

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

JOHNS HOPKINS BME COUNCIL @ JHU Sept 2016 – Sept 2017

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

GRADUATE REPRESENTATIVE ORGANIZATION @ JHU 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:

BOSCH CONNECTED WORLD (Cloudera Data Challenge) Feb 2018

- Improved a data pipeline to predict truck ETAs by ~25% accuracy using Impala database with Python

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