

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

Doctor of Philosophy: Biomedical Engineering

Graduation: TBD

GPA: 3.8/4.0

UNIVERSITY OF CALIFORNIA, SAN DIEGO

Bachelor of Science: Bioengineering

Bachelor of Science: Mathematics-Applied Science

March 2015

Major GPA: 3.75/4.0

Major GPA: 3.74/4.0

YALE SCHOOL OF MANAGEMENT

Global Pre-MBA Leadership Program: Selective Leadership Program

Placed 3rd in Audubon Business Concept Pitch Plan, and 2nd in Audience Choice Award

2014

PUBLICATIONS:

1. **Li A.**, Sarma S., Jirsa V. "Using Whole-Brain Computational Modeling to Augment Training of Deep Neural Networks for Personalized Seizure Annotation". *In Preparation Conference*. 2019.
2. **Li A.**, et al., Sarma S. "Clinically Validated Algorithmic Approaches To Epileptogenic Zone Localization in Intracranial EEG". *In Preparation Journal*. 2019.
3. **Li A.**, et al., "Evaluating Invasive EEG Implantations in Medically Refractory Epilepsy with Functional Scalp EEG Recordings and Structural Imaging Data". *IEEE EMBC* (2019).
4. **Li A.**, et al., "Virtual Cortical Stimulation Mapping of Epilepsy Networks to Localize the Epileptogenic Zone". *IEEE EMBC* (2019).
5. **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).
6. **Li A.**, Sarma S., Jirsa V. "Integrating Large Brain Networks and Network Analysis to Understand The Epileptogenic Zone." *Organization for Computational Neurosciences CNS* (2018).
7. **Li A**, Inati S, Zaghloul K, Sarma S. "Fragility in Epileptic Networks: The Epileptogenic Zone". *The American Control Conference* (2017).
8. **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).
9. Haagenzen 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).
10. 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.
3. Identifying the Epileptogenic Zone using Virtual Cortical Stimulation. Inventors: Adam Li, Sridevi Sarma. 2/20/19.

HONORS AND AWARDS:

- | | |
|--|------|
| Whitaker Conclusion Grant – 1 of 5 teams awarded \$100K to further the Whitaker mission | 2019 |
| 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 than 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 1 st place at Johns Hopkins hackathon for use of medical data	2016
MedHacks 1st Place – Won 1 st place in the first medical hackathon at Johns Hopkins	2015
NIH NETI – (nthakor@bme.jhu.edu) NeuroEngineering grant for 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 2 nd 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 datasets for deep learning.” Li A, Jirsa V., Sarma S. Janelia Scientist Workshop on Machine Learning and Computer Vision, Janelia HHMI, USA, April 2nd 2019.
2. “Integrating Large Brain Networks and Network Analysis to Understand The Epileptogenic Zone.” **Li A.**, Sarma S., Jirsa V. *Organization for Computational Neurosciences CNS 18*, Seattle WA, USA, July 23rd 2018 and ACDL, Tuscany, Italy, July 28th 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. “*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.
6. “*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.
7. “*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.
8. “*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
9. “*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.

10. "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 – Aug 2018

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

Marseille, France

- Analyzed and processed > 5TB of multi-modality 3D brain imaging in a data pipeline (**Freesurfer, Bash, Python, C++, Snakemake**) to perform electrode localization, brain MRI analysis and 3D brain visualization
- Designed a successful analytics framework using nonlinear biophysical modeling and linear systems analysis to be able to systematically predict the seizure onset zone in epileptic patients
- Engineered a semi-supervised deep learning pipeline using nonlinear computational modeling and a Recurrent-CNN model to perform patient-specific seizure detection (**Python/Keras/Pytorch**)
- Developed international relationships between Johns Hopkins and the University of Marseille to establish a 3-year data sharing agreement resulting in shared data and results
- 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

- Aggregate and organize electrophysiological and clinical data of epilepsy patients from 5 hospital centers in coordination with neurosurgeons and epileptologists in setting up a HIPPA-compliant sFTP server
- Perform precise seizure localization and automatic online seizure detection from intracranial EEG recordings that involves TB's of multivariate time series and images (**MRI/CT/DTI**)
- Apply machine learning algorithms, statistical modeling, digital signal processing and graph theory in a high-performance computing pipeline to time series data (**Python/MATLAB on Linux Systems**)

FUNCTIONAL AND RESTORATIVE NEUROSURGERY UNIT

Jan 2016 – Aug 2016

Graduate Student Researcher under Dr. Kareem Zaghloul

Baltimore, MD

- 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

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:

NEUROLOGIC SOLUTIONS CORPORATION

Sept 2018 – Present

Chief Technology Officer & Co-Founder

Baltimore, MD

- Lead product development of FDA-compliant EZTrack product for helping clinicians localize epileptogenic zone in epileptic patients
- Lead 510k FDA approval process involving unit & continuous integration testing, software documentation, risk analysis, and software requirements and design specifications

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.

JOHNS HOPKINS SYSTEMS BIOENGINEERING II – HEAD TA

Jan 2019 – May 2019

Head teaching assistant for a course with over 150 students and 9 professors. Organize homework, lectures, grading, exams, discussion sections and office hours among 6 TAs.

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

Adam Li,5

- 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

May 2015

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

References:

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Marseille, France

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Baltimore, MD

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Undergraduate Researcher under Dr. Coleman

La Jolla, CA

CARTILAGE TISSUE ENGINEERING LABORATORY / QUALCOMM INSTITUTE

Sept 2011 – Jun 2013

Undergraduate Researcher under Dr. Robert L Sah (rsah@ucsd.edu)

La Jolla, CA

BIOMETRICS ANALYTICS

Sept 2013 – Sept 2015

Chief Executive Officer & Co-Founder (neilrg11@gmail.com)

San Diego, CA

UCSD COMPUTER SCIENCE

Sept 2014 – Mar 2015

Computer Science Tutor under Gary Gillespie(gillespie@eng.ucsd.edu)

San Diego, CA

WEST HEALTH INSTITUTE 501©

Jun 2014 – Jun 2015

Data Processing Intern under Asim Mittal (asim.mittal@gmail.com)

San Diego, CA

FUNCTIONAL AND RESTORATIVE NEUROSURGERY UNIT

Jan 2016 – Aug 2016

Graduate Student Researcher under Dr. Kareem Zaghloul (kareem.zaghloul@nih.gov)

Baltimore, MD