

Adam Li

NEURAL DATA SCIENTIST AND RESEARCHER · APPLIED CAUSAL MACHINE LEARNING · STATISTICS AND MATHEMATICS · ENGINEERING LEADERSHIP AND PROJECT MANAGEMENT

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Summary

My research is broadly focused on computational approaches to medicine. The work is inherently interdisciplinary, collaborating with neurologists, theoreticians and biologists.

We have developed theory and algorithms for analyzing high-dimensional data. Random forests are extremely popular when it comes to tabular data, but lose to deep neural networks when it comes to time-series and image classification and prediction. We extend random forests in various ways that allow robust and efficient manifold learning in high-dimensions such that we beat deep neural networks on images and time-series stemming from biomedical applications. Besides prediction, we also demonstrate that random forests are theoretically consistent estimators for any arbitrary posterior quantity, and thus can serve as robust information-theoretic estimators. We leverage this property to perform nonparametric multivariate high-dimensional hypothesis testing in liquid biopsies from cancer patients to determine the best early predictors of cancer.

Beyond independently sampled data, we are also interested in dynamical systems, which arise commonly in biomedical time-series, such as EEG data. We leveraged dynamical systems theory to model the multivariate time-series of EEG data to develop a novel biomarker for the seizure onset zone in drug-resistant epilepsy patients. By utilizing this robust biomarker along with methods we have developed for high-dimensional manifold learning, we demonstrated that we can predict seizure outcomes across a multiple hospitals and a diverse patient population.

Finally, a broad goal of medicine is to determine the causes of various diseases and the mechanisms by which pathologies arise. A critical ingredient is the discovery of cause-and-effect relationships in biomedical systems. Biomedical systems generate data that can arise from multiple environments, which complicate the causal story. For example, sequencing data coming from different laboratories are commonly affected by what is known as "batch effects". We have developed theory that demonstrates what is learnable when given observational and experimental data that arise from multiple environments. This leads to an algorithm that discovers causal relationships.

Positions

Postdoctoral Research Scientist in the Causal AI Lab

New York City, NY

COLUMBIA UNIVERSITY | COMPUTER SCIENCE DEPARTMENT | ADVISOR: ELIAS BAREINBOIM

Jan. 2022 - Jan. 2024 (tentatively)

- NSF Computing Innovation Fellow

Education

PhD in Biomedical Engineering

Baltimore, MD

JOHNS HOPKINS UNIVERSITY | GPA: 3.8 | ADVISOR: DR. SRIDEVI SARMA

Aug. 2015 — Dec 2021

- Thesis: *Localization of the Epileptogenic Zone: A Dynamical Systems Perspective*
- NIH NETI Fellow, NSF-GRFP Fellow, Whitaker Fellow, Chateaubriand Fellow, ARCS Chapter Scholar

MS in Applied Mathematics and Statistics

Baltimore, MD

JOHNS HOPKINS UNIVERSITY | GPA: 3.8 | ADVISOR: CAREY PRIEBE

Aug. 2019 — May 2021

- Coursework in: Statistical Learning Theory, Optimization, Matrix Analysis, Real Analysis

B.S. Bioengineering, B.S. Mathematics - Applied Sciences

La Jolla, CA

UNIVERSITY OF CALIFORNIA SAN DIEGO | MAJOR GPA: 3.75

Sep. 2010 — Mar. 2015

- Tau Beta Pi, Gordon Scholar & Fellow, Provost's Honors

Publications

JOURNAL ARTICLES

Neural fragility as an EEG marker of the seizure onset zone (Mar, 10.1038/s41593-021-00901-w, 2022)

Li, A., Huynh, C., Fitzgerald, Z., Cajigas, I., et al.

NATURE NEUROSCIENCE 25.4 (2022) PP. 530–530

Quantitative approaches to guide epilepsy surgery from intracranial EEG

Li, A., Bernabei, J. M., Revell, A. Y., Smith, R. J., et al.

Brain 146.6 (2023) PP. 2248–2258

Manifold Oblique Random Forests: Towards Closing the Gap on Convolutional Deep Networks

Li, A., Perry, R., Huynh, C., Tomita, T. M., et al.
SIAM Journal on Mathematics of Data Science 5.1 (2023) PP. 77–96

Source-sink connectivity: A novel interictal EEG marker for seizure localization

Gunnarsdottir, K. M., **Li, A.**, Smith, R. J., Kang, J.-Y., et al.
Brain 145.11 (2022) PP. 3901–3915

Classification of stereo-EEG contacts in white matter vs. gray matter using recorded activity

Greene, P., **Li, A.**, González-Martínez, J., et al.
Frontiers in neurology 11 (2021) P. 605696

Using network analysis to localize the epileptogenic zone from invasive EEG recordings in intractable focal epilepsy

Li, A., Chennuri, B., Subramanian, S., Yaffe, R., et al.
Network Neuroscience 2.02 (2018) PP. 218–240

MNE-ICALabel: Automatically annotating ICA components with ICLabel in Python

Li, A., Feitelberg, J., Saini, A. P., Höchenberger, R., et al.
Journal of Open Source Software 7.76 (2022) P. 4484

Neural Fragility of the Intracranial EEG Network Decreases after Surgical Resection of the Epileptogenic Zone

Li, A., Myers, P., Warsi, N., Gunnarsdottir, K. M., et al.
medRxiv (2021) PP. 2021–07

Learning sources of variability from high-dimensional observational studies

Bridgeford, E. W., Chung, J., Gilbert, B., Panda, S., **et al.**
arXiv preprint arXiv:2307.13868 (2023)

Diagnosing Epilepsy with Normal Interictal EEG Using Dynamic Network Models

Myers, P., Gunnarsdottir, K., **Li, A.**, Razskazovskiy, V., et al.
medRxiv (2023) PP. 2023–08

The Past, Present, and Future of the Brain Imaging Data Structure (BIDS)

Poldrack, R. A., Markiewicz, C. J., Appelhoff, S., Ashar, Y. K., et al.
arXiv preprint arXiv:2309.05768 (2023)

CONFERENCE PROCEEDINGS

Causal discovery from observational and interventional data across multiple environments

Li, A., Jaber, A., et al.
2023 *Neural Information Processing Systems (NeurIPS)*, *CausalAI Laboratory Technical Report*, <https://causalai.net/r98.pdf>

Temporal and morphological characteristics of high-frequency oscillations in an acute in vivo model of epilepsy

Zhai, S. R., Ehrens, D., **Li, A.**, Assaf, F., et al.
2022 *44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*

Network fragility for seizure genesis in an acute in vivo model of epilepsy

Li, A., Ehrens, D., Aeed, F., Schiller, Y., et al.
2020 *42nd annual international conference of the IEEE engineering in medicine & biology society (EMBC)*

Evaluating Invasive EEG Implantations with Structural Imaging Data and Functional Scalp EEG Recordings from Epilepsy Patients

Palepu, A., **Li, A.**, Fitzgerald, Z., Hu, K., et al.
2019 *41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*

Virtual cortical stimulation mapping of epilepsy networks to localize the epileptogenic zone

Li, A., Fitzgerald, Z., Hopp, J., Johnson, E., et al.
2019 *41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*

Linear time-varying model characterizes invasive EEG signals generated from complex epileptic networks

Li, A., Gunnarsdottir, K. M., Inati, S., Zaghloul, K., et al.
2017 *39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*

Fragility in epileptic networks: the epileptogenic zone

Li, A., Inati, S., Zaghloul, K., et al.
2017 *American Control Conference (ACC)*

Estimating unmeasured invasive EEG signals using a reduced-order observer
Gunnarsdottir, K. M., Li, A., Bulacio, J., Gonzalez-Martinez, J., et al.
2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

In-progress Papers and Preprints

Optimal design of experiments and adjustment sets for estimating causal effects 2023

ADAM LI, A. RIBEIRO, E. BAREINBOIM

In progress

Multistage causal discovery in time-series 2023

ADAM LI, JAKOB RUNGE, A. RIBEIRO, E. BAREINBOIM

In progress

Random Forests for Adaptive Nearest Neighbor Estimation of Information-Theoretic Quantities *Arxiv - to submit to TMLR*

ADAM LI, SAMBIT PANDA, YUXIN BAI, A. RIBEIRO, R. PERRY, R. MEHTA, R. GUO, E. YEZERETS, J. ARROYO, MIKE POWELL, H. HELM, C. SHEN, J. VOGELSTEIN

2023

Information Theoretic Hypothesis testing for high-dimensional data and its application to liquid biopsies *to submit to Science*

SAM CURTIS, ..., ADAM LI, ..., JOSHUA VOGELSTEIN, BERT VOGELSTEIN

2023

Patents

Quantitative epilepsy diagnosis from scalp EEG *Provisional Patent*

Identifying the Epileptogenic Zone using Network Fragility Theory *Patent Application No. 16/348,766*

Method and device for localizing epileptogenic zones *Patent Application No. 17/597,211*

GEAR (Game Enhancing Augmented Reality) - A lower limb alternative control interface for computers. *Patent Application No. 16/309,183*

Citeable Scientific Software

mne-python [<https://github.com/mne-tools/mne-python>] 2022

10.5281/ZENODO.592483 (SEE ONLINE FOR FULL AUTHOR LIST)

pybv - A lightweight I/O utility for the BrainVision data format. 2022

[<https://github.com/bids-standard/pybv>]

APPELHOFF, S., BRUNNER, C., STENNER, T., HOLDGRAF, C. R., HÖCHENBERGER, R., LI, ADAM, ALDAY, P., & PRADHAN, A.

mne-connectivity (Version 0.2.0) [<https://github.com/mne-tools/mne-connectivity>] 2022

LI, A., MCCLOY, D., LARSON, E., WESTNER, B., KRONER, A., & GRAMFORT, A.

mne-bids (Version 0.10.0) [<https://github.com/mne-tools/mne-bids>] 2022

APPELHOFF, STEFAN, ET AL., LI, ADAM, GRAMFORT, ALEXANDRE, & JAS, MAINAK.

Open Source Software (over 7500 stars as a core-developer)

Scikit-Tree | <https://github.com/neurodata/scikit-tree> (38 stars)

MAINTAINER - EFFICIENT DECISION TREE MODELS BEYOND SKLEARN IN PYTHON

2022 — Present

PyWhy | <https://github.com/py-why> (over 5000 stars collectively)

MAINTAINER - CAUSAL DISCOVERY, IDENTIFICATION, ESTIMATION AND REFUTATION IN PYTHON: PYWHY-STATS, PYWHY-GRAPHS,

DODISCOVER, DOWHY

2022 — Present

PyData/Sparse | <https://github.com/pydata/sparse> (513 stars)

CONTRIBUTOR - SPARSE NDARRAYS IN C++ AND PYTHON

Google Summer of Code 2023

2023 — Present

scikit-learn | <https://github.com/scikit-learn/scikit-learn> (55k stars)

CONTRIBUTOR - MACHINE LEARNING IN PYTHON, CYTHON, C++

2021 — Present

MNE-Python | <https://github.com/mne-tools/mne-python> (2400 stars)

CORE DEVELOPER - ELECTROPHYSIOLOGICAL DIGITAL SIGNAL PROCESSING AND VISUALIZATION IN PYTHON

2019 — Present

MNE-ICALabel | <https://github.com/mne-tools/mne-icalabel> (70 stars)

MAINTAINER - AUTOMATIC ICA LABELING WITH PYTHON

2022 — Present

MNE-Connectivity | <https://github.com/mne-tools/mne-connectivity> (50 stars)

MAINTAINER - PYTHON CONNECTIVITY ANALYSIS FOR NEURAL DATA

Google Summer of Code 2021

2021 — Present

BIDS | <https://github.com/bids-standard/bids-specification> (228 stars)

ELECTROPHYSIOLOGY TEAM MEMBER - OPEN-ACCESS SCIENTIFIC DATA ORGANIZATION AND API DESIGN

2019 — Present

Grants - Total=\$644,000

Schmidt Futures' Virtual Institute for Scientific Software - Institute Collaboration for Open-source Software Development

6-9 months of engineering

December 1, 2023 — June 1, 2024 | Scikit-tree: modern decision tree models for statistical and causal estimation

NSF Computing Innovation Fellowship Grant (2127309) - Postdoctoral Fellowship

\$150k

January 1, 2022 — January 1, 2024 | Causal Reinforcement Learning with Unknown Causal Structure: An Application to Treatment of Drug-Resistant Epilepsy Patients. Awarded 69 out of 238 (28% Rate).

NSF SBIR Phase-I Grant (2112011) - Co PI

\$256k

May 15, 2021 — April 30, 2022 | Improving Diagnosis of Epilepsy by Applying Network Analytics to Non-Seizure Scalp EEG Data

Whitaker Phase I Conclusion Grant - Co PI

\$100k

Jan. 2019 — Jan. 2023 | Outreach for Biomedical Science story-telling around the world. 1 of 5 awardee groups.

NSF Graduate Research Fellowship Program (DGE 1746891)

\$138k

2016 — 2021 | Improving Diagnosis of Epilepsy by Applying Network Analytics to Non-Seizure Scalp EEG Data

Honors & Awards

RESEARCH AND ACADEMIC

2022	Schmidt Science Fellowship Finalist , Post-doctoral Fellowship	Washington, DC
2020	ARCS Chapter Fellowship , 1 of 3 awardees - Pre-doctoral Fellowship	Washington, DC
2019	Whitaker Conclusion Grant , 1 of 5 teams awarded \$100k - Outreach Fellowship	USA
2017	Chateaubriand STEM Research Fellowship , Pre-doctoral international fellowship	France
2017	Whitaker Research Fellowship , Pre-doctoral international fellowship	France
2017	NSF , Graduate Research Fellowship	USA
2016	NSF , Graduate Research Fellowship - Honorable Mention	USA
2016	Intel Cornell Cup , 1st place	USA
2015	NIH NETI , Graduate training fellowship	Baltimore
2015	Frontiers of Innovation Scholars , undergraduate research fellowship	UCSD
2014	IDEA Center Scholar , undergraduate research fellowship	UCSD
2014	Gordon Fellow , undergraduate leadership award	UCSD
2014	ASAIO Student Design Competition , top 27 in USA	USA
2013	Amgen Scholar , undergraduate research fellowship	UCSD
2013	Gordon Leadership Scholar , undergraduate leadership	UCSD
2012	CallT Scholar , undergraduate research fellowship	UCSD

ENTREPRENEURIAL AWARDS

2022	KPCB (Kleiner Perkins VC) Engineering Fellow ,
2021	NSF SBIR Phase I Grant ,
2019	Maryland Innovative Initiative (MII) Grant ,
2018	NSF SBIR Phase I Grant ,
2014	NCIIA E-Team Grant ,
2013	Health and Life Sciences Grant ,
2013	Von Liebig NSF I-Corps Fellow ,

Experience

RESEARCH EXPERIENCE

Graduate Research Assistant, Neuromedical Control Systems Lab, Johns Hopkins University

Aug. 2015 – Dec. 2021

Advisor: Dr. Sridevi Sarma

- Coordinated with clinicians from 5 hospitals nationwide to collect and analyze electrophysiological and clinical data of epilepsy patients, resulting in **Nature Neuroscience publication**.
- Identified and developed signal processing and statistical analysis of multi-modal clinical data that resulted in over 400 software improvements to open-source packages used by >1000's of developers (**Git, CI, unit-testing, software design & development**)
- Developed statistical and machine learning models on multivariate time series EEG, clinical and neuroimaging MRI and CT data to analyze different seizure localization models (model building & validation with **scikit-learn/keras/pytorch**, data wrangling with **pandas, numpy**).
- Coordinated open-source discussions about EEG and iEEG data formatting among a team of 79 international researchers (**technical communication of the Brain Imaging Data Structure - BIDS**)
- Spearheaded development of a structure-aware Random Forest algorithm for manifold learning in Python and Cython (implemented in **scikit-tree** and is compatible with **scikit-learn**).

Visiting Research Scientist, Theoretical Neurosciences Group, Aix-Marseille University

Sep. 2017 — Sep. 2018

Advisors: Dr. Viktor Jirsa, Dr. Sridevi Sarma

- Developed a high-throughput parallelized data pipeline for multi-modal 3D brain imaging using **Bash and Snakemake (Python DAG engine)** resulting in robust 3D brain visualizations.
- Designed **nonlinear biophysical simulation models** with **linear dynamical systems analysis** to predict the surgical outcome in epileptic patients resulting in a paper to be submitted to Brain
- Developed a supervised deep learning pipeline using nonlinear computational modeling and a Recurrent-CNN model to perform patient-specific seizure detection (**Python/Keras/Pytorch**)
- Implemented open-source code to generate observational noise, analysis of simulated source signals and scientific demos on *The Virtual Brain* (a **Human Brain Project**)

INDUSTRY EXPERIENCE

PhD Software Engineering Intern at Uber

Sep. 2022 — Dec. 2022

- Led research & development of a causal machine learning model (applied to 100M+ samples) to dynamically match users with promotional campaigns demonstrating a potential **3-8% increase in profit margins for USA Eats platform**.
- Developed solution to enable Python3.8+ in PySpark and SparkMagic Jupyter notebooks, enabling users to upgrade and reduce technical debt in data science workflows with Python, Hive and Hadoop.

Co-Founder and CTO, Neurologic Solutions Corp.

Sep. 2018 — Dec. 2021

- Raised over \$600K to-date to fund R&D (Two NSF SBIR Phase I \$225k, Mayland Innovation Initiative \$150k, \$10K JHTV Pitch Competition).
- Filed provisional and full patents in the US, European and Japan markets through collaboration with Johns Hopkins Technology Ventures (JHTV).
- Led a team of 3 engineers for **product development** of a software medical-device that helps clinicians localize the epileptogenic zone in epileptic patients (AWS infrastructure with Kubernetes and Flux, REST API, algorithm development, UX design and data engineering).
- Led **510k FDA** approval process with a team of 5 engineers, consultants and advisors involving risk analysis, software requirements, design specifications, and user-testing (unit testing, continuous integration, and software documentation).

Co-Founder, Biometrics Analytics

Jun. 2012 — Sep. 2015

- 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.
- Led data acquisition of clinical data and full-body pose data from the Microsoft Kinect. Performed data analysis using machine learning and image processing algorithms (MATLAB, Python and C++).
- Raised over \$20,000 and obtained an IRB for a pilot clinical human study, resulting in the Gordon Fellowship Award for outstanding engineering leadership (awarded to 3 students/year at UCSD).
- Worked in a team of 4 for the Von Liebig NSF I-Corps Program and the NCIA Entrepreneurship Program (15% acceptance rate) for startup incubation.

Data Processing Intern, West Health Institute 501(C)

Jun. 2014 — Jun. 2015

- Wrote pymongo queries running on an event scheduler (Python, MongoDB) that provided computed features of game play and behavior for the clinical team to analyze behavior during experiments.
- Developed clinical web forms using HTML, CSS, JavaScript, which are then linked to an AWS server running MongoDB with Node.js (git and general version control).
- Built an Android application that created a custom launch screen for the clinical team with Java and XML.
- 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.

Project Team Leader, West Health Institute 501(C)

Jun. 2014 — Jun. 2015

- Wrote pymongo queries running on an event scheduler (Python, MongoDB) that provided computed features of game play and behavior for the clinical team to analyze behavior during experiments.
- Developed clinical web forms using HTML, CSS, JavaScript, which are then linked to an AWS server running MongoDB with Node.js (git and general version control).
- Built an Android application that created a custom launch screen for the clinical team with Java and XML.
- 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.

Process Development Engineering Intern and College Ambassador, Genentech

Aug. 2010 — Aug. 2011

- 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 SQL and Python).

Teaching

Teaching Assistant

NEURODATA DESIGN COURSE (BME 580.638) - DEVELOP OPEN SOURCE CONTRIBUTIONS TO PYTHON SCIENTIFIC COMPUTING LIBRARIES

Baltimore, MD

Sep. 2019 — Jan 2020

Head Teaching Assistant

SYSTEMS BIOENGINEERING II COURSE (BME 580.424) - 150 STUDENTS AND 6 TAS

Baltimore, MD

Jan. 2019 — May 2019

Teaching Assistant

DATA STRUCTURES COURSE (CSE 12) - C, C++

La Jolla, CA

Sep. 2014 — May 2015

Invited Talks and Presentations

CONFERENCE PRESENTATIONS

Causal discovery from observational and interventional data across multiple environments

NEURIPS

ADAM LI, AMIN JABER, ELIAS BAREINBOIM

New Orleans, USA

Dec 2023

Manifold random forests for decoding EEG data and estimating mutual information

CMSTATISTICS

ADAM LI, ET AL.

Berlin, Germany

Dec. 2023

Manifold Oblique Random Forests For Decoding EEG Signals Without Feature Engineering

SOCIETY FOR NEUROSCIENCE

ADAM LI, RONAN PERRY, CHESTER HUYNH, JONG SHIN, SOO KYUNG S. KIM, JORGE GONZALEZ-MARTINEZ, SRIDEVI V. SARMA AND JOSHUA VOGELSTEIN

San Diego, USA

Nov. 2022

Neural Fragility of the Intracranial EEG Network Decreases Intraoperatively after Surgical Resection of the Epileptogenic Zone in Children with Epilepsy

AMERICAN EPILEPSY SOCIETY

ADAM LI, PATRICK MYERS, CHESTER HUYNH, NEBRAS WARSI, KRISTIN M. GUNNARSDOTTIR, SOO KYUNG S. KIM, VIKTOR JIRSA, SRIDEVI V. SARMA AND GEORGE M. IBRAHIM

Chicago, USA

Dec. 2021

Neural Fragility as an EEG Marker of the Seizure Onset Zone

AMERICAN EPILEPSY SOCIETY

PATRICK MYERS, ADAM LI, C. HUYNH, Z. FITZGERALD, I. CAJIGAS, D. BRUSKO, J. JAGID, A. CLAUDIO, A. KANNER, J. HOPP, S. CHEN, J. HAAGENSEN, E. JOHNSON, W. ANDERSON, N. CRONE, S. INATI, K. ZAGHLOUL, J. BULACIO, J. GONZALEZ-MARTINEZ, S. V. SARMA

Chicago, USA

Dec. 2021

Neural Fragility of Intracranial EEG Networks: Towards an EEG Fingerprint for the Seizure Onset Zone

NEUROMATCH 3.0 CONFERENCE

ADAM LI, C. HUYNH, Z. FITZGERALD, I. CAJIGAS, D. BRUSKO, J. JAGID, A. CLAUDIO, A. KANNER, J. HOPP, S. CHEN, J. HAAGENSEN, E. JOHNSON, W. ANDERSON, N. CRONE, S. INATI, K. ZAGHLOUL, J. BULACIO, J. GONZALEZ-MARTINEZ, S. V. SARMA

Baltimore, USA

Oct. 2020

Automated classification of stereo-EEG contacts in white matter versus gray matter using recorded activity

IEEE ENGINEERING IN MEDICINE AND BIOLOGY

ADAM LI, PATRICK GREENE, JORGE MARTINEZ-GONZALEZ, SRIDEVI SARMA

Montreal, Canada (virtual)

Jul. 2020

Towards Automatic Localization and Anatomical Labeling of Intracranial Depth Electrodes in Brain Images

IEEE ENGINEERING IN MEDICINE AND BIOLOGY

ADAM LI, CHESTER HUYNH, JORGE MARTINEZ-GONZALEZ, SRIDEVI SARMA

Montreal, Canada (virtual)

Jul. 2020

Semi-Automatic SEEG Localization and Interactive Neuroimage Visualization in Epilepsy Patients

Montreal, Canada

ORGANIZATION FOR HUMAN BRAIN MAPPING

June 23 - July 3, 2020

ADAM LI, CHESTER HUYNH, CHRISTOPHER COOGAN, SRIDEVI SARMA

MNE-BIDS: MNE-Python + BIDS = easy dataset interaction (Version 1.0.1)

Montreal, Canada

ORGANIZATION FOR HUMAN BRAIN MAPPING

June 23 - July 3, 2020

STEFAN APPELHOFF, ADAM LI, ET AL. - 10.5281/ZENODO.3891836

Identification of the Epileptogenic Zone from Intracranial Electrocorticography with a Novel Network Fragility Algorithm in Patients with Temporal-Lobe Epilepsy

Virtual

AANS

Jun. 2020

IAHN CAJIGAS, DAMIAN BRUSKO, ANGEL CLAUDIO, ADAM LI, SRIDEVI SARMA, ANDRES KANNER, JONATHAN JAGID

Application of A Network Fragility Algorithm for the Identification of the Epileptogenic Zone from Intracranial Electrococtography in Patients with Temporal-Lobe Epilepsy

Baltimore, MD

AMERICAN EPILEPSY SOCIETY

Nov. 2019

ADAM LI, IAHN CAJIGAS, DAMIAN BRUSKO, ANGEL CLAUDIO, ANDRES KANNER, JONATHAN JAGID, SRIDEVI SARMA

Using personalized brain models to augment datasets for deep learning

Janelia, HHMI, USA

WORKSHOP ON MACHINE LEARNING AND COMPUTER VISION

Apr. 2019

ADAM LI, SRIDEVI SARMA, VIKTOR JIRSA

Integrating Large Brain Networks and Network Analysis to Understand The Epileptogenic Zone

Seattle, WA

ORGANIZATION FOR COMPUTATIONAL NEUROSCIENCE

Jul. 2018

ADAM LI, MARMADUKE WOODMAN, SRIDEVI SARMA, VIKTOR JIRSA

Integrating Large Brain Networks and Network Analysis to Understand The Epileptogenic Zone

Tuscany, Italy

ADVANCED COURSE ON DATA SCIENCE & MACHINE LEARNING

Jul. 2018

ADAM LI, SRIDEVI SARMA, VIKTOR JIRSA

T101. Use of a quantitative algorithm to help predict seizure lateralization in a patient with bitemporal epilepsy and responsive nerve stimulation

Seattle, WA

CLINICAL NEUROPHYSIOLOGY

2018

JENNIFER J. HAAGENSEN, STEPHANIE CHEN, JENNIFER L. HOPP, ADAM LI, SRIDEVI SARMA

INVITED TALKS

Robust Causal Discovery

Baltimore, MD

JOHNS HOPKINS NEURODATA LAB - LAB MEETING

08/26/2022

ADAM LI, A. RIBEIRO, E. BAREINBOIM

Neural Fragility as an EEG Marker of the Seizure Onset Zone

San Francisco, CA

UCSF EPILEPSY CENTER - JOURNAL CLUB

09/30/2021

ADAM LI, C. HUYNH, Z. FITZGERALD, I. CAJIGAS, D. BRUSKO, J. JAGID, A. CLAUDIO, A. KANNER, J. HOPP, S. CHEN, J. HAAGENSEN, E.

JOHNSON, W. ANDERSON, N. CRONE, S. INATI, K. ZAGHLOUL, J. BULACIO, J. GONZALEZ-MARTINEZ, S. V. SARMA

Leadership and Volunteer Work

Google Summer of Code

Worldwide

MENTOR

2022 — Present

- Mentor new developers in contributing to open-source software.

EverydayBME

Co-FOUNDER

Worldwide

2019 — Present

- Design and aggregate digital storybooks of Biomedical science (researchers, students, etc.) over the world. Worked with BMESDiversity and Whitaker Foundation to highlight under-represented groups in STEM.

AAMPLIFY 501(C)

DIRECTOR OF LEADERSHIP

San Francisco, CA

2017 — Present

- Planned and implemented a summer leadership and advocacy program for under-served AAPI youth. Also involved in raising over \$5000 as a non-profit organization.

Engineering & Medicine Exchange

Co-FOUNDER

JHU

2016 — 2017

- Planned events for collaborations between engineering, medicine, and public health. Arduino workshop, Machine Learning in Healthcare workshop, and Electronic Health Records for Engineering workshop.

Yale School of Management Pre-MBA Program

GLOBAL PRE-MBA LEADERSHIP PROGRAM

Yale

2014

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

BME PhD Council

SOCIAL CHAIR

JHU

2016 — 2017

- Coordinated and planned events for increasing collaboration within the department.

Alpha Kappa Psi

CLASS PRESIDENT

UCSD

2012 — 2014

- Led a class of 16 individuals.

Mentoring

Haash Mehta - Literature review of AI and Alzheimer's Disease

HIGH SCHOOL STUDENT AT JACKSON LIBERTY HIGH SCHOOL

Polygence

2023

Joshua Hu - Statistical analysis of alcohol consumption among college students

HIGH SCHOOL STUDENT AT THE KING'S ACADEMY

Polygence

2023

Rohan Sabbella - Spectral analysis of scalp EEG data for music and emotion

HIGH SCHOOL STUDENT AT CUPERTINO HIGH

Polygence

2023

Anil Palepu - Spectral analysis of scalp EEG data

UNDERGRAD - NOW MIT PHD

Neuromedical Control Systems Lab

2015-2017

Chester Huynh - Automating iEEG electrode localization and manifold trees

UNDERGRAD - NOW MICROSOFT SOFTWARE ENGINEERING

Neuromedical Control Systems Lab

2018-2021

Patrick Myers - Software development of EZTrack and scalp EEG analysis

MS STUDENT AND DIRECTOR OF PRODUCT DEVELOPMENT - NOW PHD AT JHU

Neurologic Solutions

2019-2022

Sophia Zhai - Morphology of high frequency oscillations

UNDERGRAD

Neuromedical Control Systems Lab

2019-2022

Jordan Drew - Estimating source-space time-varying linear dynamical system

PHD STUDENT AT UNIVERSITY OF WASHINGTON

Google Summer of Code

2022

Aaron Youn - Automating independent component analysis

HIGH SCHOOL STUDENT

Neuromedical Control Systems Lab

2022 - Present

Ikshita Sathanur - Blood cell correlates to COVID-19 symptoms

HIGH SCHOOL STUDENT AT EASTLAKE HIGH SCHOOL - NOW UNIVERSITY OF WASHINGTON

Polygence

2022

Jong Shin - Decision trees and open source software

RESEARCH ASSISTANT AT JOHNS HOPKINS UNIVERSITY - NOW MACHINE LEARNING ENGINEER AT ROYAL CARIBBEAN GROUP

Neurodata Lab

2021 - 2023

Jacob Feitelberg - Deep neural networks for automatic noise labeling in EEG

RESEARCH ASSISTANT AT JOHNS HOPKINS UNIVERSITY - NOW PHD AT COLUMBIA UNIVERSITY

Neuromedical Control Systems

Laboratory

2020 - 2022

Academic Service

- 2023 **Reviewer**, Neural Information Processing Systems (NeurIPS)
- 2023 **Reviewer**, IEEE Journal on Selected Areas in Information Theory (JSAIT)
- 2023 **Reviewer**, Journal of Machine Learning Research (JMLR)
- 2022 **Reviewer**, Uncertainty in Artificial Intelligence Conference Workshop
- 2022 **Reviewer**, Journal of Open Source Software
- 2022 **Reviewer**, Network Neuroscience
- 2021-2022 **Reviewer**, NeuroImage
- 2020 **Reviewer**, IEEE Engineering in Medicine and Biology

Skills

Programming Bash, Python, C++, Cython, MATLAB, Scikit-learn, Pandas, Numpy, Keras, Pytorch

Misc. Open-source, Git, Software Design and Engineering, Software Quality Control, Software Testing