Chester Huynh

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Education

Johns Hopkins University   *Baltimore, MD*
B.S. Biomedical Engineering, B.S. Applied Mathematics & Statistics, B.S. Computer Science (GPA: 3.96)   *Aug. 2017 - May 2021*
- **Dean's List** (All semesters)
- **Computer Science Coursework**: Data Structures, Algorithms, Object-Oriented Software Engineering
- **AI/Machine Learning Coursework**: AI, Machine Learning, Deep Learning, Deep Learning in Discrete Optimization, Data to Models
- **Mathematics Coursework**: Probability, Statistics, Optimization, Statistical Theory, Matrix Analysis
- **Teaching Assistant/Tutoring:** BME Modeling & Design, Discrete Math, Probability, Statistics, AI

Experience

Microsoft   *Redmond, WA*
Software Engineer   *Aug. 2021 – Present*
- Led projects for increasing data observability, data quality, and data governance for Microsoft's network infrastructure data.
- Created data feed and dashboard that monitors high bandwidth users on Microsoft's internal VPN.
- Created data quality monitoring frameworks and a data catalog for the network infrastructure teams to enable easy discovery of datasets.
- Mentored our team's intern through a proof-of-concept project to visualize Microsoft's network topology using Azure Cloud Services.
- **Technologies Used**: Python, Power BI, Azure Data Explorer (Kusto), Azure Synapse Analytics, Azure Purview, Azure Digital Twins, Azure Storage

Microsoft   *Richmond, VA*
Software Engineering Intern (Remote)   *May 2020 - Aug. 2020*
- Developed an unsupervised machine learning model as a proof-of-concept for identifying rogue wireless access points (APs) connected to the Microsoft enterprise network.
- Created data analytics report with Power BI to deliver model results for business stakeholders.
- Leveraged modern cloud technology to service big data and perform data science experiments.
- **Technologies Used**: Python, Azure Databricks, Azure DevOps, Azure SQL, Azure Active Directory, Power BI.

Medtronic   *Framingham, MA*
Software Engineering Intern   *May 2019 - Aug. 2019*
- Led Summary Website for Automation project as a part of Medtronic's MCS R&D cohort on the Validation & Verification team.
- Composed user needs and requirements documentation to guide project design and execution.
- Developed nightly updating dashboard website to reduce the need for text-heavy XML test result files and time between Agile sprints.
- **Technologies Used**: Django web framework, Python, JavaScript, HTML/CSS, SQL, IIS, and SVN.

Neuromedical Control Systems Laboratory (Prof. Sridevi Sarma)   *Baltimore, MD*
Undergraduate Research Assistant   *Dec. 2018 - May 2021*
- Optimized threshold clustering algorithm for locating and labeling SEEG electrodes in brain scans to accelerate patient coregistration.
- Contributed to SEEK pipeline by implementing Python script that automates localization and labeling electrodes in brain scans.
- Implemented a variation of the Random Forest algorithm specialized for classification tasks with multivariate time series data.
- **Technologies Used**: Python, Cython, C++, Jupyter, Docker, Git.

Programming & Tools

Proficient	Python, Scikit-learn, Git, Azure Cloud Services, KQL
Intermediate	Apache Spark, SQL, Power BI, PyTorch, LaTeX
Basic	R, Cython, HTML, CSS, Javascript, Docker

Projects

Scikit-learn   *Github PR*
Contributor - Oblique Random Forests   *Mar. 2020 - Jun. 2021*
- Implemented the Oblique Random Forest algorithm in Cython to be consistent with scikit-learn code standards.
- Achieved under 20% increase in runtime from the scikit-learn Random Forest algorithm by performing profiling and benchmark testing Cython code.

CardioViz   *BME JHU CardioViz Article*
BME Senior Design Project   *Mar. 2020 - May 2021*
- Contributed to 3D-2D image registration and dynamic time warping algorithms with pre-operative CT scans and echocardiography images to provide improved visualizations for transcatheter tricuspid valve interventions.
- Worked with BME and Hopkins medical faculty through root cause analysis and project design cycle.
- Recognized for technical expertise by BME senior design faculty.
- Mentored underclassmen teammates to perform image segmentation on pre-operative CT scans using pretrained deep learning networks.

Wavenet Contrastive Predictive Coding Music Translation
DEEP LEARNING COURSE PROJECT (CS482)

Github Link
Mar. - May 2021

- Won Best Project award for the course and received a cash prize from Intuitive Surgical. See an article here.
- Modified the encoding layer of Facebook AI Research's Wavenet model with Contrastive Predictive Coding to achieve music translation between instruments in classical pieces.
- Leveraged Google Cloud Platform to perform model training and achieved results similar to FAIR's Wavenet samples.

Hïre
OBJECT-ORIENTED SOFTWARE ENGINEERING COURSE PROJECT (CS421)

Heroku App Link
Jan. - May 2020

- Developed an all-in-one web application to streamline the application process for potential teaching assistants for the CS department.
- Primary contributor to database modeling and back-end development. Contributed to front-end development.
- Technology stack consisted of Java, Spark, PostgreSQL, Handlebars, HTML/CSS, Javascript, and Heroku.

TetrisAI
PERSONAL PROJECT

Github Link
Jul. 2019

- Developed using Python and TensorFlow/Keras to further understanding in deep learning and reinforcement learning.
- Achieved a score of 700,000 points given scoring schema, using Q-learning neural networks to approximate state-action q-values.

Publications

Peer-reviewed Publications

Neural fragility as an EEG marker of the seizure onset zone

Nature Neuroscience
(Oct. Cover)

2021

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

Pre-prints

Analysis of Neural Fragility: Bounding the Norm of a Rank-One Perturbation Matrix
A. LI AND **CHESTER HUYNH**

ArXiv Pre-print
2022

Manifold Oblique Random Forests: Towards Closing the Gap on Convolutional Deep Networks (2021)
R. PERRY, A. LI, **CHESTER HUYNH**, T. M. TOMITA, R. MEHTA, J. ARROYO, J. PATSOLIC, B. FALK, AND J. T. VOGELSTEIN

ArXiv Pre-print (in review at SIMODS)
2022

Conference Abstracts & Presentations

Towards Automatic Localization and Anatomical Labeling of Intracranial Depth Electrodes in Brain Images
CHESTER HUYNH, A. LI, J. GONZALEZ-MARTINEZ, S. V. SARMA.

IEEE EMBC Program
2020

Extracurriculars

Hippocrates Medical Review (HMR)
BIOTECHNOLOGY COMMITTEE WRITER

Baltimore, MD
Aug. 2018 - May 2021

- JHU's medical editorial that publishes articles on the official HMR website and prints articles in the HMR journal publication.
- Authored three articles that have been featured on the HMR website with one featured in the HMR 2019 journal publication.

TEDxJHU
MULTIMEDIA SPECIALIST

Baltimore, MD
Aug. 2017 - May 2021

- Responsible for photographing speaker events, creating promotional videos, and editing speaker videos.
- Created promotional videos for events as well as edited and curated videos for the official TEDx site and YouTube channel.