Jacob Lamadrid

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EDUCATION

MS, Georgia Institute of Technology, Analytics *Starting 08/2025 (*Online Part-time)*
Track: Analytical Tools

BS, University of California San Diego, Cognitive Science with a Specialization in Machine Learning *06/2024*
Minor: Data Science
3.5 GPA; 3.75 Major GPA
Honoree of Provost Honors
Cognitive Science Student Association Mentor
2024 Cognitive Science Summer Scholar

EMPLOYMENT

Research Fellow *07/2024 - 09/2024*
UC San Diego Cognitive Science: Natural Computation Lab
- Conducted independent research on audio reconstruction from EEG signals, utilizing Convolutional Neural Networks (CNN), Latent Diffusion Models, and Deep Convolutional Generative Adversarial Networks (DCGAN) in Python
- Performed comprehensive data processing, analysis, and visualization on EEG/MEG and audio data, applying signal processing methods to enhance data quality and prepare inputs for deep learning models

Application Developer & Research Data Associate *06/2022 - 09/2024*
UC San Diego Health: Neurosciences
- Developed a cross platform app using Flutter (Dart) and a NoSQL database structure via Google's Firestore, allowing parents of subjects to log data at and better track their child's trends in development
- Leading role in comprehensive data management including data entry, database maintenance, and developing scripts and GUI tools in Python for effective data cleaning, transformation, analysis, and visualization for the UCSD Autism Center of Excellence
- Managed clinical research data involving patient psychological assessments and biological sample data for the purpose of computational modeling of infantile autism

Software Development Intern *06/2023 - 09/2023*
NASA Langley Research Center: Atmospheric Science Data Center
- Developed and implemented a data pipeline for the migration and integration of legacy data for the **TOLNet** online repository
- Engineered interfaces and tools to facilitate the migration of HDF/CDF files and associated metadata, while performing in-depth quality checks to ensure adherence to file standards and integrity
- Conducted data quality analytics post-migration, ensuring the correctness of metadata and file formats for ongoing atmospheric research projects

Instructional Assistant *01/2022 - 03/2022 & 01/2024 - 03/2024*
UC San Diego: Cognitive Science Department
- Introduction to Data Science under professor Bradley Voytek which taught an overview of the data science and the many processes of developing a question, hypothesis, and plan of action for research in any domain through available data
- Introduction to Python under professor Jason Fleischer teaching the fundamentals of Python, terminal utilization, software development and coding at large

Engineering Intern *06/2020 - 09/2020*
APEM
- Performed quality control and environmental testing on returned, outgoing, and prototype units involving developing reports of potential root causes for failure mitigation in manufacturing and engineering
- Software development for PIC16 HMI pressure sensor embedded system in C

PROJECTS

Audio Texture Synthesis - Generative AI:
Achieved realistic audio "texture" generation via Convolutional Neural Network (PyTorch) on Spectrogram images for the purpose of audio extension
MRI Tumor Classification:
Achieved 95.97% accuracy through CNN (TensorFlow) and 93.8% accuracy via PCA to MLP/KNN method (Scikit-learn) in classifying 4 tumor types from MRI images additionally processed using wavelet transforms
WaveMAP Clustering:
Implemented unsupervised machine learning and signal processing methods, focused on the applications of UMAP and Louvain Clustering, for the purpose of clustering and analyzing neuronal event related potential's

SKILLS

Programming Languages: Python, R, SQL, JavaScript, C++
AI/ML: Classical Machine Learning (Unsupervised, Supervised), Deep Learning (CNN, GAN, Diffusion, etc.), Computer Vision, Probabilistic Models, Optimization, NLP, Signal Processing
Libraries: NumPy, Pandas, PyTorch, SK-Learn, TensorFlow, Keras, Spark