Armaan Raina

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EDUCATION

North Carolina State University — Raleigh, NC
Bachelor of Science in Statistcs and Computer Science - AI Concentration — *May 2027*
GPA: 4.0

Wake Technical Community College — Raleigh, NC
Associate's in Sciences — *May 2023*

EXPERIENCE

Innovation in Neurotech Fellow — May 2025 – Present
Washington University Medical School - Center for Innovation in Neuroscience and Technology — *St. Louis, MO*
- Collaborated in an interdisciplinary team of engineers, surgeons, residents, and professors to develop a novel neuro-medical device to address clinical needs
- Conducted extensive research in materials science, neurosurgery, and manufacturing processes to implement feasible modifications to a device on the scale of microns

Undergraduate Neurobiology Research Assistant — Jan. 2024 – Present
North Carolina State University — *Raleigh, NC*
- Engineered time-frequency features from brain tissue recordings and utilized several Sklearn models to decode estrous phase achieving 91.2% accuracy, leveraging PSD and simple signal features extracted using Scipy
- Leveraged Python and VSCode to automate merging 107 excel sheets into a large dataset for publication in the Dryad Data Repository
- Prepared treats in line with experimental conditions, feeding animals while maintaining safety protocols

PackBionics, Software Team Member — Aug. 2023 – Feb. 2025
North Carolina State University — *Raleigh, NC*
- Researched various neural network models, determining their appropriateness for implementation into human gait phase prediction for a prosthetic leg
- Developed a human gait phase decoder model using Sklearn KMeans presenting clear visualizations created using Matplotlib, based on camera data using OpenCV

PROJECTS

Estrous Phase Decoder | *Python, Keras, Scipy, pyABF, os* — Feb. 2025 – Present
- Utilized os and pyABF to read in raw electrophysiology recordings
- Extracted experimental features using Scipy and pywt for comparison with previously assessed MiniAnalysis features
- Compared classification accuracies across different feature sets and network configurations, determining feature importance and efficacy for decoding Estrous cycle phase

EEG Schizophrenia Classification | *Python, Sklearn, NumPy, Pandas, MNE* — June 2024 – Aug. 2024
- Read in, preprocessed, and analyzed 28 raw EEG files using MNE and numpy
- Visualized the EEG data using raster plots, power spectral density graphs, and topographical heatmaps
- Performed feature extraction by way of extracting band power from raw EEG data
- Implemented and trained an Sklearn RandomForestClassifier to 97.1% accuracy on processed data

COURSEWORK

Software Development Fundamentals, C/Software Tools, Neurobiology, Data Structures and Algorithms, Automated Learning and Data Analysis, Statistical Computing and Data Management, Operating Systems, Introduction to AI, Neural Interface Engineering, Regression Analysis

TECHNICAL SKILLS

Languages: Java, Python, R, SAS, C
Frameworks: PyTorch, Scikit-learn, Pandas
Developer Tools: Git, VSCode, Intellij, Eclipse, PyCharm, Google Colab
Libraries: Pandas, SeaBorn, Matplotlib, OpenCV, MNE, Scipy