Kamran Hussain

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Professional Summary

Highly motivated aspiring machine learning engineer seeking mentorship in neural decoding and machine learning, with the objective of advancing brain-computer interfaces (BCIs) and applied machine learning methodologies.

Education

University of California, Santa Cruz September 2023 - Present
Bachelor of Science, Computer Science and Engineering, and Applied Mathematics

Skills

Programming Languages: Python (12+ years), C/C++ (4 years), JavaScript (3 years), Swift (4 years), MATLAB, R, Shell
Frameworks: PyTorch (5+ years), TensorFlow/Keras (2 years), NumPy, SciKit-learn, CUDA, NWB, SpikeInterface, React/NodeJS
Platforms: Kubernetes, S3, AWS, GCP, Linux, Git, Slurm

Experience

Founder and CEO July 2023 - March 2024
TensorLearn LLC *San Francisco, CA*

- Raised $1 million in grants and venture capital funding to build generative interfaces, led to an acquisition.
- Managed a team of 14 software engineers and 3 non-technical staff members to build web tools, training infrastructure, and led machine learning research with autoregressive and diffusion models for code generation.
- Student-first design with notes powered by AI-insights, deep research agents with RAG grounding, and adaptive auto generated quizzes, flashcards, and study games.

SURFiN Research Fellow September 2024 - Present
Neural Prosthetics Translational Lab, Stanford University *Palo Alto, CA*

- Developing machine learning algorithms to decode human neural activity into text and speech and improving performance of current systems to achieve conversational rate speech BCIs.
- Improved decoding speed by 200% to 120 words per minute in real time brain-to-text decoding, restoring conversational rate of communication to people with paralysis.
- Analyzing temporal coding of high dimensional speech production in speech motor cortex at single neuron resolution.

Neural Research Engineer October 2023 - Present
Braingeneers, UC Santa Cruz Genomics Institute *Santa Cruz, CA*

- Developing an autoregressive foundation model for probing neural circuits and extracting neural dynamics for cortical organoid electrophysiology and cross-species multielectrode array recordings.
- Analyzing over 100 TB of raw time series datasets via distributed computing on 200+ servers across 12 locations.
- Automating tissue characterization and drug screening via wet-lab robotics and applied machine learning, eliminating manual labor and decreasing experimentation time from months to a single week.

Flight Dynamics, Trajectory, and Controls Intern January 2022 - May 2023
NASA Ames Research Center *Moffett Field, CA*

- Developed Transformer-based language models for recommendation of services on the Data and Reasoning Fabric, increased shareholder adoption by 60% and speed of platform by 4%.
- Collaborated with NASA partners to create a novel 50 GB machine learning dataset of aviation communication data.

Neural Data Science Intern July 2022 - March 2023
Translational Neuroengineering Lab, UC San Diego *San Diego, CA*

- Analyzed neural data recorded from 384-channel Neuropixel arrays implanted in Zebra Finch songbirds.
- Converted 8 neuroscience datasets to Neurodata Without Borders (NWB) format.
- Contributed to establishing Zebra Finch songbirds as models for vocal neuroprosthetics.

Selected Projects

Sushi Agent - 2nd Place @ Sushi Hackathon (Web App) November 2024

- AI deep research agent based on LLMs and web scraping for finding quality products.
- Recommends top 1% of all available products in terms of price to quality ratio regardless of vendor.

StatScanner (iOS App) December 2021 - June 2023

- On the-go data visualization mobile application featuring basic statistical regression and analysis.
- Built custom OCR models to run locally on iOS devices via Apple Neural Engine.