Manas Joshi

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Linkedin | Github | Website

TECHNICAL SKILLS

Computer Languages: Python, Julia, RISC-V Assembly, Java, C, C++, JavaScript, Bash, HTML/CSS

Framework: TensorFlow, RL-Glue, Scikit-learn, Django, Flask, NLTK

Technologies: Git, MySQL, Leafletjs api, OpenWeather api

EXPERIENCES

Bionix · EMG & RL Systems — Volunteer

- Building reinforcement-learning driven assistance systems for leg-amputee mobility using EMG signals. Working on RL control for prosthetic legs, collecting and processing EMG data.
- 2nd place (64-hr hackathon) for real-time EEG motion-imagery classifier.

PROJECTS

NeuroMotion — ***Python, PyTorch, Flask, JavaScript,HTML,CSS*** ***November 25***

- Built a real-time EEG motor-imagery web app using a 2-second sliding window and a PyTorch MLP classifier, achieving 87% validation accuracy for left/right predictions.
- Integrated an OpenBCI headset with a 4-electrode setup; noted that a production-level system would expand to 20+ electrodes for higher accuracy and richer motor-imagery classes.
- Developed the deep-learning model and real-time Flask API pipeline; secured 2nd place in the hackathon where the project was demonstrated.

SkyNav — ***Python, Scikit-learn, Flask, JavaScript,HTML,CSS*** ***February 25***

- Built a real-time navigation system for small aircraft/drones using A* pathfinding with dynamic weather avoidance.
- Trained a Random Forest model (95% accuracy) for realistic route prediction and future flight-data integration.
- Added weather-aware routing via OpenWeather API; designed scalable Python backend and pilot UI.

Math-Vision-Model — ***Python, TensorFlow, Matplotlib*** ***July 24 - January 25***

- Created a ResNet-based vision model achieving 88% accuracy across 89 handwritten/printed math symbol classes.
- Combined EMNIST and synthetic image data and fine-tuned with mathematical symbols for robust character recognition.
- Used focal loss for hard classes; automated versioning via exported .h5 models..

natHACKS 2023 - Video Game — ***Unity, C#, C++*** ***November 23***

- Built a Unity horror game driven by real-time ECG data, with adaptive gameplay based on heart rate.
- Built Arduino-C# bio-signal integration and led biofeedback mechanics.

EDUCATION

University Of Alberta — Third year — BSc Hons Computing Science — *Expected May 27*
Formal Systems and Logic | Machine Learning | Algorithms | Computer Architecture | Reinforcement Learning

INTERESTS

Photography | Lawn Tennis | Exercising