

# Manas Joshi

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[Linkedin](#) | [Youtube](#) | [Github](#) | [Website](#)

## TECHNICAL SKILLS

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**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

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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

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[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

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

## INTERESTS

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Photography | Lawn Tennis | Exercising