Manas Joshi

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Linkedin | Youtube | Github | Website

TECHNICAL SKILLS

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

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

Technologies: Git, MySQL, Leafletjs api, OpenWeather api

PROJECTS

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

- Developed a real-time navigation system for small aircraft and drones using A* pathfinding algorithm, delivering optimal routes and dynamically avoiding severe weather conditions.
- Enhanced realism and reliability by training a Random Forest classifier on simulated pathfinding data—achieving over 95% accuracy in route prediction and paving the way for seamless integration of actual flight data for even more accurate routing.
- Engineered weather-aware routing by integrating OpenWeather API data to ensure up-to-date, safe, and efficient flight paths.
- Designed scalable backend logic in Python; implemented APIs and a user interface for pilots to receive real-time weather hazard avoidance.

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

- Built a deep learning vision model utilizing a residual network (ResNet) to recognize handwritten and printed math symbols, with 88% validation accuracy across 89 classes.
- Combined EMNIST and synthetic image data and fine-tuned with mathematical symbols for robust character recognition.
- Implemented focal loss to boost accuracy on hard-to-distinguish classes; automated model versioning and sharing via exported .h5 files for broad usability.

Math-Vision-OCR — ***Python, TensorFlow*** ***August 24 - September 25***

- Designed a GUI application featuring a model selection/download list and an interactive drawboard for handwritten math input.
- Connected the GUI to an Excel-based registry tracking all available models, supporting future additions with minimal code changes.
- Enabled rapid OCR deployment: users can write, process, and solve math expressions using downloaded machine learning models.

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

- Developed a Unity game that uses real-time ECG (heart rate) data to adapt gameplay, creating unique, personalized horror experiences.
- Programmed Arduino-C# integration for reliable bio-signal capture and adaptive event triggers.
- Led biofeedback logic, contributing innovative gameplay design while collaborating in a multidisciplinary hackathon team.

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