Noah Yacowar

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SKILLS

Languages: Python, Java, C, C++, C#, HTML, CSS, JavaScript, LaTeX
Technologies/Frameworks: Git, Arduino, OpenCV, PyTorch, Jupyter Notebook, MonoGame
Software: Unity, Unreal Engine, Github, Visual Studio Code, Microsoft Office

PROJECTS

Unity First-Person Shooter 🔗   July 2022 - August 2022

- Built horror-themed first-person shooter in unity, in which levels are randomly generated using prefabs.
- Implemented **A* path-finding algorithm** for the enemy, and used a parallel combination of a linked list and grid system for level generation.

Guitar Playing Robot 🔗   September 2022 - November 2022

- Built a robot that plays a string on guitar. The system has fretting and strumming mechanisms.
- Encoded notes on coloured paper strips. Used **motor encoders** to coordinate both mechanisms.
- Processed input from a colour and ultrasonic sensor to interpret song notes and timing (**95%** accurate).
- Programmed functions in **C** to control onboard mechanisms using the RobotC library.

Portfolio Website 🔗   December 2022

- Produced a fully responsive personal website using HTML, CSS and Vanilla **Javascript**.
- Implemented adaptive website functionality for varying screen sizes using **@media** rules.

Toyota Innovation Challenge   October 2022

- Partook in hackathon using computer vision to track car's wheel to take a picture at appropriate time.
- Built minimum bounding box algorithm which isolated the front wheel with $\pm$**1mm** error.
- Built program using **OpenCV** code snippets, implementing Hough transform and contour detection functions. When the car passes a certain point, a picture is taken.

WORK EXPERIENCE

Computer Vision Sub-Team Member   December 2022 - present
Waterloo Aerial Robotics Group

- Developed an image classifier trained on the CIFAR-10 dataset using the **PyTorch** framework.
- Used a trained convolutional neural network to interpret test images with **82%** accuracy.
- Graphed losses and accuracy of the model using **Matplotlib**.

Computer Science Club Founder   April 2021 - June 2022
Personal Venture

- Led group of 7 students alongside 2 other instructors. Taught coding concepts from object-oriented programming to **data sorting** and **game development**, meeting 2-3 times per week.
- Organized meetings with industry workers to give insight into industry tools and experiences.

EDUCATION

Candidate for BASc in Mechatronics Engineering   September 2022 - present
University of Waterloo - President's Scholarship