Zahin M. Zaman

zm2zaman@uwaterloo.ca
519-721-2837
github.com/alvii147
linkedin.com/in/zahin-zaman
devpost.com/alvii147

PROJECTS

Spoilers Alert

Python, SciPy, Universal Sentence Encoder

- Incorporated **natural language processing** tools to construct spoiler detection program for popular TV shows
- Restructured text into vectors using **Google's Universal Sentence Encoder** to assess semantic similarity
- Implemented **least-squares regression** using **SciPy** with **sigmoid function** model to execute binary classification

Smart Wardrobe

Python, TensorFlow, Pillow, Matplotlib, PyQt

- Modelled multi-layered neural network with **TensorFlow** and **Keras** to categorize pieces of clothing
- Extracted image data using **Pillow** and visually presented training data accuracy with **Matplotlib**
- Optimized cost function based on **mean-squared error** by implementing **stochastic gradient descent**
- Incorporated **multi-threading** in Python to develop interactive user interface with **PyQt**

Digital Piggy Bank

C++, Raspberry Pi Zero W

- Constructed coin-identifying piggy bank with lasers and photodiodes using **Raspberry Pi Zero W**
- Assembled circuit to read analog voltage using operational amplifier and differential comparator
- Implemented **state machines** and **watchdog timers** to program and monitor state of lasers

Ubisoft Game Dev Challenge

C++, SFML, HackerNest API

- Employed **Ubisoft's HackerNest API** and **SFML** library in to develop adventure minigame
- Executed realistic physical movement by installing smooth sprite animation
- Enhanced gameplay and mechanics by incorporating precise game physics

TECHNICAL SKILLS

Programming: C, C++, Python, HTML, CSS, Javascript, Perl, SystemVerilog, VHDL, ARM Assembly
Tools & Frameworks: Linux, Windows, Git, Tensorflow, Keras, scikit-learn, OpenCV, Django, Flask, PyQt5

EXPERIENCE

Display Verification Engineer

Qualcomm | Jan 2020 – May 2020

- Engineered **SystemVerilog assertions** and **C++** simulations tests to verify display processor design
- Attained **20%** increase in functional coverages by debugging waveform using Synopsys Verdi tool
- Automated **formal verification** using **Perl** scripting to extract design hierarchy and formulate assertions
- Web-scraped design database and employed **PyQt** to build interactive GUI for managing hardware registers

Embedded Software Developer

Imagine Communications | May 2019 – August 2019

- Debugged and reconstructed source code in **C/C++** on a **Linux** environment to fix firmware bugs
- Extracted IP routing data from data structures and developed troubleshooting functions and mapping tables
- Utilized **SoapUI** to inspect and track REST API issues and processes

CAN Interfacing Team Member

WATonomous | Jan 2019 – April 2019

- Developed **Python** code in **ROS** framework for the car's lock and turn signals
- Enhanced low-speed **CAN** interfacing system of the car and performed simulation in **Virtual CAN Driver**
- Reverse-engineered source code for inertial navigation system driver and analyzed sensor data

Programming Tutor

Sir John Wilson School | Oct 2016 – Jan 2018

- Co-founded **Python Programming Club** in high school to provide coding platform for students
- Tutored **30+** students in Python programming lessons and supervised various coding projects

EDUCATION

University of Waterloo

B.A.Sc. in Electrical Engineering, 2B | Sept 2018 – May 2023

- **Term Dean's Honour List,** for outstanding academic performance
- **President's Scholarship of Distinction,** for 95%+ admission average