Zahin M. Zaman

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PROJECTS

pupil

HackDuke 2020 – Wolfram Award
Python, OpenCV, PyQt5

- **OpenCV** application that detects pupil movement and develops eye-tracking communication for Cerebral Palsy patients
- Applied **Haar Cascade classifiers, blob detection** and **morphological transformations** to process images
- Utilized **multi-state sigmoid activation function** to calibrate pupil coordinates

Hachiko's Journal

HackRU 2020 – 1st Place Health Hack
Python, PyQt5, Google Cloud Language

- AI-based digital therapeutic journal writing for mental health patients with interactive virtual assistant
- Performed sentiment analysis using **Google Cloud Language** to provide real-time feedback and compliments
- Developed desktop application with stylish frontend and interactive virtual assistant using **PyQt5**

EduSource

HackTheU 2020 – Best Use of Google Cloud
Hackrithmitic 2020 – Best Use of Google Cloud
Python, Flask, Bootstrap, Google Cloud Vision

- Web application for enriched remote education, crowdsourcing course materials and scientific equation recognition
- Constructed full-fledged **Flask** application in **Python** with **HTML, CSS** and **Bootstrap**
- Employed **Google Cloud Vision** tool to implement scientific equation recognition from handwriting

Goodwill Studio

sunhacks 2020 – Best Use of Google Cloud
Python, PyQt5, Google Cloud Speech

- Profanity-filtering application to effectively combat Tourette Syndrome and Coprolalia
- Employed **Google Cloud Speech** to transcribe audio and censored profane language using natural language processing
- Incorporated **multi-threading** in **PyQt5** to develop interactive GUI with voice recording capabilities

TECHNICAL SKILLS

Programming: C, C++, Python, Bash, HTML, CSS, Javascript, Perl, SystemVerilog, VHDL, ARM Assembly

Tools & Frameworks: Linux, Windows, Git, Tensorflow, Keras, scikit-learn, OpenCV, PyQt5, Flask, Django, Google Cloud Developer Tools

EXPERIENCE

Software Developer

Wind River Systems | Sept 2020 – Dec 2020

- Rectified multi-threading and memory-based defects for **VxWorks** RTOS and **Helix Virtualization Platform**
- Debugged and reconfigured source code in **C** and utilized inline **Assembly** to write thread-safe functions
- Developed interactive program in **PyQt5** that assists in writing git commit messages, and verifies **Jira** issue and code review status
- Formulated **git hook** script to detect and block commits on restricted files and identify file author

Open-Source Software Developer

codePrentice | Sept 2020 – Present

- Streamlined **Python** code structure for open-source **multiparty-computation** library **MP-SPDZ**
- Expanded machine learning computation to support **Tensorflow SqueezeNet** and **ResNet** models

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 **PyQt5** to build interactive GUI for managing hardware registers

Embedded Software Developer

Imagine Communications | May 2019 – August 2019

- 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** processes

CAN Interfacing Team Member

WATonomous | Jan 2019 – April 2019

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

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