Zahin M. Zaman

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PROJECTS

pupil

HackDuke 2020 – Wolfram Award

- **Computer vision** application **in OpenCV** 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 in real-time
- Utilized **multi-state sigmoid activation function** to calibrate pupil coordinates

cram.ai

WinterHacklympics 2020 – Best Use of Google Cloud

- Utilized **YouTube Transcript API** to extract lecture video transcript and applied pre-trained **RNN** to add punctuation
- Incorporated Python **NLTK** library and **Google Cloud Language** to summarize key points from lecture videos
- Generated flashcards with questions and answers in a user-friendly frontend served by a **Flask** backend hosted on **Heroku**

Hachiko's Journal

HackRU 2020 – 1st Place Health Hack

- AI-based digital therapeutic journal writing application 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

- 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
- Established foreign key relations between ORM objects using **Flask SQLAlchemy** and **SQLite3**

TECHNICAL SKILLS

Programming: Python, C++, Javascript, HTML, CSS, Bash
Tools & Frameworks: Django, Flask, React.js, React Native, Google Cloud, Heroku, Docker, Firebase, MySQL, TensorFlow, Keras, OpenCV, pandas, PyQt5

EXPERIENCE

Full-Stack Developer

Nokia | May 2021 – August 2021

- Developed & managed authentication security, community articles page and voucher redemption system for Nokia Network Developer Portal on **Django** server with an **Azure MySQL** database
- Secured backend using **Django REST framework** API authentication, cross site scripting protection and honeypot setups
- Improved test coverage by **6%** using Python **unittest** module and installed **Gitlab CI** pipeline for automated testing of forms, models, and REST API endpoints
- Designed responsive frontend in **Jinja2** templates by utilizing **jQuery** and **Bootstrap**

Open-Source Software Developer

codePrentice | Sept 2020 – Present

- Expanded Python multiparty-computation library, **MP-SPDZ,** to support **Convolutional Neural Networks,** including **SqueezeNet, ResNet** and **DenseNet** models
- Implemented image processing operations using **Pillow** and **SciPy**
- Composed comprehensive tutorial based on Matrix Profile research paper for Python time series analysis library, **STUMPY**

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 status of Jira issues and code reviews
- Formulated git hook script to detect and block commits on restricted files and identify file author

Display Verification Engineer

Qualcomm | Jan 2020 – May 2020

- Engineered **SystemVerilog** assertions and **C++** simulation 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

EDUCATION

University of Waterloo

B.A.Sc. in Electrical Engineering, 3B | Sept 2018 – May 2023

- **Term Dean's Honour List,** for outstanding academic performance
- **Artificial Intelligence Degree Specialization**