Zahin M. Zaman

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PROJECTS

pupil

HackDuke – **Wolfram Award**

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

cram.ai

WinterHacklympics – **Best Use of Google Cloud**

- Utilized **YouTube Transcript API** to extract lecture video transcript and applied pre-trained **RNN** to add punctuation
- Incorporated **NLTK** and **Google Cloud Language** to summarize 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 – **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 interactive virtual assistant using **PyQt5**

EduSource

HackTheU – **Best Use of Google Cloud**
Hackrithmitic – **Best Use of Google Cloud**

- Web application for enriched remote education, crowdsourcing course materials and scientific equation recognition
- Employed **Google Cloud Vision** to implement scientific equation recognition from handwriting
- Built **Flask** app with **HTML, CSS,** and **Bootstrap,** and managed database **ORMs** in **Flask SQLAlchemy** and **SQLite3**

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, HTML, CSS, Bash
Frameworks: Django, Flask, React.js, React Native, MySQL, PostgreSQL, TensorFlow, Keras, OpenCV, pandas, Matplotlib, PyQt5
Tools/Services: Docker, Google Cloud, Heroku, Firebase

EDUCATION

University of Waterloo

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

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

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 permissions, cross site scripting protection and honeypot setups
- Composed unit tests for Django forms, models and API endpoints, and configured **Docker** image for **Gitlab CI** automation testing
- Designed responsive frontend in **Jinja2** using **jQuery** and **Bootstrap**

Open-Source Software Developer

codePrentice | Sept 2020 – Present

- Expanded Python multiparty-computation library, **MP-SPDZ,** to support **CNNs** including SqueezeNet, ResNet & DenseNet
- Composed comprehensive tutorial based on Matrix Profile research paper for Python time series analysis library, **STUMPY**
- Worked on optimizing multi-threaded Matrix Profile computation algorithm using **NumPy** and **Numba** to avoid cache misses

Software Developer

Wind River Systems | Sept 2020 – Dec 2020

- Devised thread-safe functions in **C** and inline **Assembly** to fix multi-threading and memory-based defects for VxWorks RTOS
- Developed interactive application in **PyQt5** that assists in writing git commit messages and verifies status of Jira issues and code reviews
- Formulated git hook script to block commits on restricted files

Display Verification Engineer

Qualcomm | Jan 2020 – May 2020

- Attained **20%** increase in functional coverages by engineering **SystemVerilog** assertions to verify processor design
- Automated formal verification using **Perl** scripting to extract design hierarchy and formulate assertions

Embedded Software Developer

Imagine Communications | May 2019 – Aug 2019

- Reconstructed **C/C++** code on Linux environment to fix firmware bugs
- Extracted IP routing data from data structures and developed troubleshooting functions and mapping tables