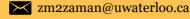
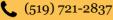
# ZAHIN M. ZAMAN







# **PROJECTS**

# pupil

HackDuke - 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 - 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 - 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 realtime feedback and compliments
- Developed desktop application with stylish frontend and 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
- 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, PostgreSQL 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 <u>Nokia Network Developer</u> <u>Portal</u> 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 <u>comprehensive tutorial</u> 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