[](mailto:zm2zaman@uwaterloo.ca)

**TECHNICAL SKILLS**

ZAHIN M. ZAMAN

[](https://github.com/alvii147/pupil)[](https://devpost.com/software/pupil-3sctez)[](https://youtu.be/_9XTW2mqdjo)[](https://github.com/alvii147/cram.ai)[](https://devpost.com/software/cram-ai)[](https://cram-ai.herokuapp.com/)[](https://youtu.be/P16aGODx5OU)[](https://alvii147.github.io/ImageNoiseInterpolation/report/ECE_313_Course_Project)[](https://github.com/alvii147/ImageNoiseInterpolation)[](https://youtu.be/eLksAlg7IP8)[](https://github.com/alvii147/HachikosJournal)[](https://devpost.com/software/hachiko-s-journal)[](https://devpost.com/alvii147)[](https://github.com/alvii147)[](https://www.linkedin.com/in/zahin-zaman/)[](https://zahin-zaman.vercel.app/)

**cram.ai**

WinterHacklympics – **Best Use of Google Cloud**

* Web platform that uses natural language processing to analyze lecture videos and generate learning flashcards
* 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**

**Open-Source Software Developer**

*codePrentice | Sept 2020 – Present*

* Expanded Python multiparty-computation library, **MP-SPDZ,** to support **CNNs** including SqueezeNet, ResNet, and DenseNet
* Composed [comprehensive tutorial](https://stumpy.readthedocs.io/en/latest/Tutorial_Annotation_Vectors.html) based on Matrix Profile research paper for Python time series analysis library, **STUMPY**
* Optimized cache utilization in STUMPY's multi-threaded Matrix Profile computation by implementing tiling scheme algorithm using **NumPy** arrays and **Numba** just-in-time compilation

**Full-Stack Developer**

*Prodigy Education | Jan 2022 – April 2022*

* Maintained **OAuth 2.0** & **OpenID Connect** identity service built on **Ruby on Rails**
* Leveraged multi-staged **Docker** builds to optimize production server container hosted on **Amazon ECS**, reducing image size by **58.4%**
* Designed & documented **Apache Kafka** calls to stream backend server events for data tracking and verified data payloads with unit tests utilizing **RSpec** & **Minitest** on Rails

**Full-Stack Developer**

*Nokia | May 2021 – August 2021*

* Developed & managed authentication security, community articles page, and voucher redemption system for [Nokia Network Developer Portal](https://network.developer.nokia.com) 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

**Image Noise Interpolation**

* Applied methods described in research paper to detect salt-and-pepper noise in colored images and retrieve original pixels
* Outlined functions for manipulation of **NumPy** arrays and used **Matplotlib** color maps for visualization
* Performed **normalized mean-squared error** as performance metric to measure effectiveness of implemented method

**pupil**

HackDuke – **Wolfram Award**

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

**Hachiko’s Journal**

HackRU – **1st Place Health Track**

* 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
* Implemented multi-threading in Python to accommodate **NLP** computations while running frontend

github.com/alvii147

**EXPERIENCE**

**EDUCATION**

**University of Waterloo**

*B.A.Sc. in Electrical Engineering, 4th Year | Sept 2018 – May 2023*

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

**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

**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

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**PROJECTS**

**Languages:** Python, C++, Go, JavaScript, HTML, CSS, Bash

**Frameworks:** Django, NumPy, pandas, Matplotlib, TensorFlow, Keras, scikit-learn, OpenCV, MySQL, PostgreSQL, React.js

**Tools/Services:** Docker, Kubernetes, AWS, Google Cloud, Jupyter

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