Darshil Shah

3B Engineering | dr5shah@uwaterloo.ca | 647.707.3156 | darsh.dev

SKILLS

PROGRAMMING LANGUAGES: Python • Java • C++ • C# • Ruby • JavaScript

HARDWARE EXPERIENCE: Arduino • FPGA • Circuit Design • Soldering

EXPERIENCE

MACHINE LEARNING DEVELOPER | Geminare
May 2020 – Aug 2020 | Toronto, ON

- **Proposed and implemented high-level architectural changes** that led to successful tag generation for complex images
- Trained multiple project-critical CNNs to average **accuracies above 93%** ; applied a variety of techniques, including semantic segmentation and object classification
- Multithreaded and optimized model integration scripts to **reduce tag generation runtime by over 68%**
- Developed and integrated tools for image quality assessment and image restoration using stacked autoencoders to filter and fix images with undesirable properties (Ex. Gaussian noise)

SOFTWARE DEVELOPER (CLOUD-ACCESS) | Teradici
Sept 2019 – Dec 2019 | Vancouver, BC

- Developed unit-tested firmware in C to automate connection to virtual machines with smart-cards and simultaneously gained experience using tools such as CMake and Google Test
- Improved utility software written in C++ to determine host-side capabilities to handle smart-card single sign-on (SSO)
- Stabilized USB data transferring to enable remote printing to client-side devices

SOFTWARE DEVELOPER | Oculys Health Informatics
Jan 2019 – Apr 2019 | Waterloo, ON

- Developed back-end services for analytics dashboards used in hospitals with C# in the ASP.NET MVC framework
- Enhanced user interfaces by employing efficient web-development practices with JavaScript and jQuery

JR. SOFTWARE DEVELOPER | Fine Cotton Factory
Apr 2018 – Aug 2018 | Toronto, ON

- Developed a system that tracked metrics such as machine efficiency and material usage per job with Ruby on Rails
- Acquired experience **deploying with Docker**

PROJECTS

AR SUDOKU SOLVER | Augmented Reality, Computer Vision
Aug 2020 – Sept 2020

- Developed an application that solves Sudoku puzzles and augments missing digits back onto the board in real-time
- Applied image processing techniques using OpenCV to **increase digit localization and recognition accuracy to 97%**

HANDWRITTEN DIGIT CLASSIFIER | Neural Network
Mar 2019 – May 2019

- Created an artificial neural net in Python to classify handwritten digits; model achieved a **classification accuracy over 95%**

NEOWULF | Wrist Exoskeleton
Jan 2018 – Aug 2018

- Designed and 3D-printed a functional prototype of a wrist exoskeleton to help a quadriplegic user regain partial dexterity
- Processed EMG data streamed from a Myo armband through an ESP32 microcontroller to control a linear actuator

EDUCATION

UNIVERSITY OF WATERLOO
Candidate for Bachelor of Applied Science, Honours Biomedical Engineering (Co-op) 2017 – 2022

- Relevant Coursework: Algorithms, Pattern Recognition, Digital Systems, Circuits, Linear Algebra, Statistics
- Specialization: **Artificial Intelligence**

INTERESTS

Computer Vision • Deep Learning • Competitive Programming • Chess • Ping-Pong