

# 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%**

### NUMERICAL DIGIT OCR 🧠 | 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