CELENE CHEN

@ hl5chen@uwaterloo.ca +1 519-778-7609 linkedIn.com/in/hl5chen hl5chen.github.io github.com/hl5chen

EXPERIENCE

SOFTWARE ENGINEER - PERCEPTION

WATonomous

Jan 2019 – Present Waterloo, Ontario

University of Waterloo's autonomous vehicle team working towards level 4 autonomy

- **Camera Calibration:** Image rectifications, perspective transform, depth map development, intrinsic calibration in **OpenCV-Python**
- **Lane Detection:** Semantic segmentation processing, stop signs and stop lines detection and tracking

MACHINE VISION SYSTEMS DESIGNER INTERN

Taymer International Inc.

May 2019 – Aug 2019 Markham, Ontario

- Designed and implemented a multi-camera system on NVIDIA Jetson TX2 in **C++** and GUI via **Qt** in **embedded Linux** environment
- Evaluated and optimized real-time performance of algorithms and identified bottlenecks for hardware performance and testing
- Interfaced common hardware protocols **(GPIO, I2C, SPI)** for camera synchronization and external encoder implementation
- Increased frame rate by **45%** through **multi-threading**

SOFTWARE DEVELOPER INTERN

ATS Automation Tooling Systems

Sep 2018 – Dec 2018 Cambridge, Ontario

- Sped up daily reconciliation report from **40 minutes to under 30 seconds** through improved algorithms and tools in **Java** and **VB** scripts
- Developed data visualization tools used for management and forecasting decisions
- Built **web text scraper** tool to extract data from existing websites used for further data manipulation in **VB.NET**

RELIABILITY ENGINEER INTERN

IKO Industries Ltd.

Dec 2017 – Apr 2018 Brampton, Ontario

- Led a team of five in the development of two platforms for report automation which reduced overall labour quantity and time from **8 hours to 15 minutes**
- Improved accuracy and latency of the project by automating and combining workflow of 7 different tasks
- Assessed criticality ranking of existing **Failure Modes** and identified **Root Causes** of defects to develop Predictive, Preventive, Condition Based Maintenance Strategies to prevent and reduce possible failure

RESEARCH COMPUTER ASSISTANT

University of Waterloo

Aug 2016 – Dec 2016 Waterloo, Ontario

- Provided front line and remote technical support for graduate students and professors at the university's ECE department ranging from hardware, software, networking and other on-campus systems
- Troubleshot and tested workstation hardware
- Made **shell scripts** to establish remote testing environment

TECHNICAL SKILLS

PROGRAMMING

- C/C++
- Python
- SQL
- Java
- HTML/CSS
- MATLAB/Simulink
- Bash
- VBA

HARDWARE

- Jetson TX2
- RaspberryPi 3
- Arduino
- Teensy

OTHERS

- Git
- AutoCAD
- SOLIDWORKS
- ROS
- Qt
- Visual Studio
- Eclipse
- Xcode
- PLC
- LabVIEW
- Linux (Ubuntu, Debian)

PROJECTS

Smart Security Camera

- An IoT **Raspberry Pi** security camera running **OpenCV** that sends an email with an image if a motion has been detected

Autonomous Search&Rescue Robot

- An autonomous multi terrain robot interfaced with **IR, IMU, TFmini LiDAR sensors** and **optical encoders**

Marble KOMBAT

- A shooting game programmed in **C** using Keil MCB1700 Evaluation Board

N-body Simulation

- A simulation which predicts the trajectory of objects interacting with each other gravitationally using **MATLAB**

iSCORE

- A music score translator using **Lego Mindstorms NXT2.0**

EDUCATION

BASc in Mechatronics Engineering

University of Waterloo

Sep 2015 - May 2020 (Expected)

- Data Structures and Algorithms
- Database Management Systems
- Algorithm Design and Analysis
- Microprocessors and Digital Logic
- Computer Structures and Real-Time Systems