

IRENE XIANGYI CHEN

Candidate for Bachelor of Software Engineering (2B Term, Sept 2017 - April 2022) @ the University of Waterloo

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LANGUAGES	Python, C / C++, Go (Golang), Bash, Matlab / Octave, ARM Assembly
FRAMEWORKS & LIBRARIES	Keras, Tensorflow, Docker, OpenStack, Git, Kubernetes, OpenCV
OTHER	UNIX / Linux, Auditing CS480 (Machine Learning) @uWaterloo, CENGN Enterprise Virtualization Certificate (sponsored by Wind River Systems)
HOBBIES	Taekwondo (Black Belt II), Muay Thai, Blogging

► WORK EXPERIENCE

Cloud Infrastructure Developer @ Wind River Systems (formerly an Intel subsidiary) Jan. 2019 - Apr. 2019
Go (Golang) • Docker • OpenStack • Python • Bash • Kubernetes • UNIX/Linux • Git

- Improved **Titanium Cloud**'s infrastructure dev workflow: configured a fully-connected private cloud with **Docker** registry, deployed with network interfaces, security groups and subnets, automated deployment with **Bash** scripts
- Implemented Docker container vulnerability scanning in **Go**, pipelined into workflow by **Dockerizing** services
- Reduced false positives/negatives, resulting in +230% scan performance by implementing OS-specific **Go** drivers
- Refactored VM topology's **OpenStack Keystone Python** auth client to use **Barbican** on **StarlingX**'s infrastructure

Software Developer Intern @ Sensors & Software Inc. Apr. 2018 - Aug. 2018
C / C++ • Python • Tensorflow • UNIX/Linux • Git

- Reduced **embedded systems** runtime by 250%: redesigned and implemented **C/C++** filters to extend **Python** modules
- Took initiative to solve data processing bottleneck: introduced PoC **Python/Tensorflow MobileNet** hyperbola **classifier**: transformed non-conventional dataset to images to solve with **CNNs**, achieved >88% accuracy on test set
- Sped up **ARM** software test cycles >20% by implementing **C++** preprocessors for cross-platform **make** compatibility

Machine Learning Vision Lead @ SailBOT Waterloo Design Team Sept. 2017 - May 2018
Python • Tensorflow • Docker

- Led team of 5 to build the sailboat's autonomous navigation using a **Dockerized machine learning** buoy detection
- Fine-tuned **Inception V3** model using **Tensorflow/Python**, achieved 90% accuracy on test set (buoys <15m distance)

► PROJECTS

Molecroscope • cuHacking 2019 2nd Place Winner • Innovapost Challenge Winner Feb. 2019

- Led team of 4 and designed skin cancer classification and mole diff tracking tool with x75 magnification
- Implemented **VGG-16** fine-tuning with **Keras**, achieved ~60% accuracy on test data in 200 epochs in 7 hours

Azul AI Feb. 2019 - Present

- Discovered new optimal strategies by implementing **deep learning** for tile-laying board game Azul
- Developed **reinforcement training** process with **Tensorflow**, using auto-generated **Python** gameplay data
- Trained **CNN** model to obtain value network for decision heuristics, minimized cost function with **A*** search

Sunspot Bot Jan. 2019

- Designed and implemented a gesture-controlled, light-sensitive plant carrier platform as a **distributed system**
- Integrated **Dockerized pub/sub messaging** to connect cross-platform microservices: performed **MQTT** point-to-point messages of translated gesture instructions from the **Leap Motion Python script** to the **RedBoard**, request-reply connectivity checks, and publish-subscribe connections from **Raspberry Pi**'s video stream to the web app

LifePointer • Hack the North 2018 Sept. 2018

- Designed visual impairment helper headgear with real-time AR object classification with **Tensorflow (MobileNet)**
- Integrated gesture recognition functionality using the Myo Armband's API implemented with **Python**
- Increased output accuracy by ~25% by designing and implementing an object intersection matching algorithm