# YUSHUO HAN

# **SUMMARY OF OUALIFICATIONS**

#### **LANGUAGES**

Python, JavaScript, C/C++, HTML/CSS

#### DATA SCIENCE/MACHINE LEARNING

PyTorch, Keras, Tensorflow, Scikit-learn; Numpy, Pandas; Matplotlib, Seaborn

# **AMAZON WEB SERVICES**

Sagemaker, Rekognition, ECR; EC2, Lambda; Step Functions, SES, API Gateway; S3, CloudWatch; IAM

#### CONTAINERIZATION/DEVOPS

Docker, Kubernetes; AWS ECR; GCP Kubernetes Engine, Container Registry

#### **DATABASES**

MySQL, MSSQL; MongoDB

#### FRAMEWORKS AND ENVIRONMENT

OpenCV, Pillow, and Imgaug; Flask, React.js, Node.js, Express.js, JWT, Socket; SOL Alchemy, CherryPy, and Mako

# STRONG COMMUNICATION SKILLS

with experience of working in teams of various sizes

#### **RELEVANT COURSES**

- Statistical Learning Function Estimation
- Introduction to Machine Learning
- Algorithms
- Computational Statistics & Data Analysis
- **Applied Linear Models**
- Introduction to Database Management
- **Mathematical Statistics**
- Object-oriented Software Development
- Data Structures & Data Management
- (Advanced) Design Functional Programs
- **Operating Systems**

# **EDUCATION AND ACHIEVEMENTS**

# B. OF COMPUTER SCIENCE(2018-2023) **University of Waterloo (Average: 92.0%)**

- Mathematics Global Scholarship for exceptional international applicants
- President's Scholarship of Distinction for over 95% average
- Mathematics Promissory Scholarship for outstanding Euclid contest performance

#### **DISTINCTION (99.5% PERCENTILE)** AND SCHOOL CHAMPION IN EUCLID / FERMAT / HYPATIA CONTESTS

# University of Waterloo | OCT 2016-JUN 2017

Invited to UWaterloo on-campus workshops based on outstanding contest performances

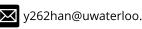
#### **DEAN'S HONOURS LIST**

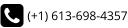
#### University of Waterloo | SEP 2018-APR 2021

Awarded "Term Dean's Honours List" for all terms.

# Bachelor of Computer Science, Data Science, 3B

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# in linkedin.com/in/yushuo-han/

# MACHINE LEARNING RESEARCH ENGINEER (CO-OP)

Huawei Technologies | Markham, ON | JAN - APR 2021

- Augmented network architectures of a facial landmark detection model.
- Implemented training script and loss functions using **Tensorflow Slim**. Prepared dataset with **hard sample mining** and trained the network.
- Researched state-of-the-art facial landmark detection neural networks. Conducted model inference and visualization in **Tensorflow** and **Caffe**.

# AI/ML SOFTWARE DEVELOPER (CO-OP. EXTENDED PART TIME) WorkshopX - CreativeLayer | Ottawa, ON | MAY - DEC 2020

- Researched, developed and trained a state-of-the-art **image matting** network on AWS EC2, including creating and augmenting datasets, developing training code and loss functions in **PyTorch**, adjusting training hyperparameters, and visualizing loss using TensorBoard.
- Implemented an automated workflow of the training and deployment of AWS Sagemaker deep learning models using AWS Step Functions, CloudWatch, API Gateway, Lambda, and SES.
- Created salient object detection and semantic segmentation model inference services using PyTorch, Docker and AWS ECR. Trained and deployed deep learning models using AWS Sagemaker and Rekognition.

# SOFTWARE DEVELOPER (CO-OP)

Opentext HQ | Waterloo, ON | MAY - AUG 2019

Pitched and completed the failure analysis feature of an automation test platform using MSSQL, SQL Alchemy, CherryPy, and Mako in Python.

# PROIECT EXPERIENCE

#### AUTOTRUCKX JAN - MAR 2021 /shawnhan108/AutoTruckX

- Implemented state-of-the-art **semantic segmentation** models that utilize transformers and UNet, including SETR(2020), TransUNet(2021), and UNet (2018). Trained models on the CityScape pix2pix dataset using PyTorch.
- Augmented and trained **steering angle prediction** models based on CNN, LSTM and transfer learning. Visualized the models' salient map features.

# BISENET-APP | MAR - MAR 2021 | /shawnhan108/BiSeNet-app

- Implemented a face semantic segmentation web app using model BiSeNet (2018) in PyTorch, and Flask.
- Deployed app on a Google Cloud Platform Kubernetes Engine cluster, in a docker container on Container Registry.

# NATURE NOTEBOOK | MAY-JUL 2020 | /shawnhan108/nature-notebook

- Created notebooks that leverage classical ML algorithms and DL neural nets using **TF**, **Keras**, **and Theano** to address biology and conservation issues.
- Implemented CycleGAN, BiLSTM, and CNN models. Utilized Scikit-Learn algorithms including KNN, SVM, Random Forest and Keras built-in models including Inception-ResNet-V2 and Vgg-16.
- Developed, trained, and inferenced models after exploratory data analysis and data preprocessing using Numpy and Seaborn.

#### THE RECOMMENDERS | JUL-AUG 2020 | /shawnhan108/The-Recommenders

- Created two recommender systems using Collaborative Filtering, Matrix Factorization, residue learning, and Bayesian Bandit.
- Implemented a Deep Learning Architecture for Collaborative Filtering Recommender Systems, proposed by Bobadilla et al (2020).