YUSHUO HAN

Bachelor of Computer Science, Data Science, 3B

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SUMMARY OF QUALIFICATIONS

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;
SQL 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 .

WORK EXPERIENCE

MACHINE LEARNING RESEARCH ENGINEER (CO-OP)
Huawei Technologies Canada | Toronto, ON | JAN - APR 2021

- **Augmented network architectures** of a **facial landmark detection** model.
- Implemented training script and loss functions using **Keras** and **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.

PROJECT 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).