Hongyu Wu

Dayton, OH (willing to relocate)

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2020 Spring graduate seeking a software technology related full-time position

Education

University of Dayton   **Dayton, OH**

M.S. in Computer Engineering · **GPA : 3.67**   **Aug. 2017 - May 2020**

- Coursework : Data Structure & Algorithm · Object Oriented Programming · Computer Networking · Database Mangament System

B.S. in Electronic and Computer Engineering Technology · **GPA : 3.58**   **Aug. 2013 - May 2017**

- Deans' List for all semesters · Tau Beta Pi (Top 10% of Department)

Experience

University of Dayton · **Wireless Communication Networks & Sensor Lab**   **Dayton, OH**

Research Assistant - Machine Learning   **May 2019 - May 2020**

- Proposed an autonomous model updating framework to revise deep learning-based network traffic classifiers by generating a new dataset through filtering and labeling packets of unknown classes. Published research work in 2 high impact conferences.
  - Designed Multilayer Perceptron, 1D, 2D, and 3D Convolutional Neural Network-based classifiers for end-to-end network traffic classification, which achieved an average 97% precision and recall with 16 distinct evaluation datasets under 3 scenarios.
  - Applied Principle Component Analysis and K-means Clustering to successfully discriminate over 90% packets of unseen classes from the seen classes, and label filtered packets as new classes autonomously.
  - Built a Docker container to encapsulate packages for deployment. Constructed an Amazon Web Services (AWS) EC2 machine learning instance with industrial-level GPUs for tool development and testing, which economized 50% time and human cost.
- Leveraged knowledge in **Python/Matlab**, **Numpy**, **Pandas**, **Matplotlib**, **Seaborn**, **Scikit-learn**, **Tensorflow**, **Jupyter**, **Bash**, **Docker** and **AWS**.

Chaminade Julienne Public High School · **STEMM Program**   **Dayton, OH**

Engineering Teacher   **Aug. 2019 - May 2020**

- Independently taught the Engineering Design course and navigated a class of 20+ students in 3 different grade levels.
- Tutored high school students in programming concepts using Matlab and Processing while providing input for lesson plans and project ideas.
- Leveraged knowledge in **Matlab**, **Functional Programming**, **Problem-solving**, **Leadership**, **Interpersonal Communication**.

Tech II Inc. · **Automation Team**   **Springfield, OH**

Computer Engineer Intern   **Jan. 2019 - May 2019**

- Led several robot integration projects to ensure smooth running of more than 10 production lines, which increased company's earning by 20%.
- Programmed in Python and C with ROS-Industrial, a motion control program for UR-10 robotic arm, which improved production efficiency by 20%.
- Identified key pain-points in defect detection by calibrating the software of Keyence camera vision system, which boosted the detection rate to 99%.
- Leveraged knowledge in **Python/C**, **Universal Robots programming**, **Operating System**, **Keyence vision system**, and **Industrial Automation**.

Software Projects

Thesis : Autonomous RC Car + Wi-Fi Based Indoor Localization System   **May 2020**

- Proposed a single WiFi source and high precision deep learning based indoor localization system, and published the research work in OhioLINK.
- Built a network-driven remote control car by integrating a Raspberry pi with a PWM motor and a Software Defined Radio board, to perform as a mobile signal receiver, which reduced 80% redundant human data collection cost.
- Designed an autonomous localization data labelling scheme based on YOLOv3 and perspective transformation algorithm, a ConvLSTM based localization model and a Vanilla LSTM based route tracking method which predicted object's location and moving state with 96% precision in real time.
- Utilized : **Python**, **C/C++**, **Socket (TCP/IP) programming**, **Raspberry pi**, **SDR radio**, **openCV**, **YOLOv3**, **Keras**, **Deep learning**.

Django Based Serverless Machine Learning Application   **Dec. 2019**

- Initiated a Django based serverless RESTful API by deploying Machine learning applications to AWS, which allowed real time interactive prediction.
- Developed Ajax based frontend to visualize Regression model, NLP classifier and ResNet-50 image recognizer, with Webpack, React.js and Redux; Implemented MTV backend with Django and backend job queue with MongoDB.
- Productionized application by containerizing it with Docker and deploying it to AWS Lambda with DynamoDB, which reduced the development cost.
- Utilized : **Javascript**, **Python**, **Webpack**, **React.js**, **Redux**, **Django**, **MongoDB**, **REST**, **Docker**, **AWS Lambda**, **DynamoDB**, **Git**, **Machine learning**.

Publications

- Jielun Zhang, Fuhao Li, **Hongyu Wu**, and Feng Ye, "Autonomous Unknown-Application Filtering and Labeling for DL-based Traffic Classifier Update," appeared in **IEEE INFOCOM 2020**, July 6-9, 2020, held virtually.
- Jielun Zhang, Fuhao Li, **Hongyu Wu** and Feng Ye, "Autonomous Model Update Scheme for Deep Learning based Network Traffic Classifiers," appeared in **IEEE GLOBECOM 2019**, Dec. 9-13, 2019, Waikoloa, HI.

Skills

Languages / Tools	Python 3 · C/C++ · Matlab · JavaScript · HTML5/CSS3 · SQL · Git · Bash · Docker · AWS · ROS
Web Development	ReactJS/Redux · Webpack · Bootstrap · JQuery · Django · MongoDB · DynamoDB · Virtualenv · REST
Machine Learning	Scikit-learn · Tensorflow · Keras · Opencv · Numpy · Pandas · Matplotlib · Seaborn · Jupyter Notebook

" Live Well, Love Lots, and Laugh Often. Be Optimistic Every Day "