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Summary

Machine learning engineer with a Computer Science background. Adept at back-end programming along with developing machine learning models that are integrable to programs. Undergone full software development process during last summer internship and have cultivated great discipline in coding practices. Able to speak and write in English fluently and idiomatically as well as read English technical documents.

Skills

Programming: Python, Java, Node.js, SQL**Machine Learning Fields:** Image Recognition, Object Detection, Image Segmentation**Machine Learning Techniques:** ANN, CNN, LSTM, Classification, Clustering, Regression, Visualization**Machine Learning Packages:** NumPy, Pandas, Matplotlib, TensorFlow, Keras, Scikit-learn, Dlib**Back-End Development:** Web Scraping, Express.js, MariaDB, CI/CD(GitLab)**Tools & Environments:** Git, Colab, Kaggle, Docker, MacOS, Ubuntu, Google Cloud Platform(GCP)

Education

Tamkang University**Taipei, Taiwan****Bachelor's - Dept. of Innovative Information and Technology (Software Engineering Division) Sep. 2016 – Jun. 2020**

Overall GPA: 3.7

Winona State University**Minnesota, U.S.****Non-degree Partner School Program - Dept. of Computer Science Aug. 2018 – May 2019**

Overall GPA: 4.0 (taken 11 courses and obtained 34 credits during the one-year abroad studying)

Experiences

IEEE Global Conference on LifeTech 2020**Kyoto, Japan****Conference Paper Co-Author****Mar. 10 – Mar. 12, 2020**

Extended the undergraduate research project **Chinese Cafeteria Food Recognition**¹ by adding automatic price and nutrition facts calculation functions in the application, dedicated to minimizing the long waiting queue during checkout by installing this application at the cafeteria checkout counter. Documented the approach in the paper **Image Recognition Approach for Expediting Chinese Cafeteria Checkout Process** and published at the IEEE Global Conference on LifeTech 2020.

Paper: <https://ieeexplore.ieee.org/document/9080943>**Tamkang University****Taipei, Taiwan****Teaching Assistant, Dept. of Innovative Information and Technology****Sep. 2019 – Jun. 2020**

Taught python programming and applied machine learning (5 supervised learning algorithms, 3 unsupervised learning algorithms, linear regression, neural network with CNN and LSTM) to junior classmates with hands-on examples during the first and second semester respectively.

Techniques: Python, scikit-learn, TensorFlow, Keras

Cathay Life Insurance Co., Ltd.**Taipei, Taiwan****Programmer Internship, Investment Application Programming Sector****Jun. 2019 – Aug. 2020**

Went through the employee training and learned their system development process and coding practices in the first two weeks. Participated in developing 10 modules across 3 projects during the two-month summer internship.

Techniques: Java, JUnit, IBM WebSphere, IBM DB2, IBM Rational ClearCase

Minnesota Undergraduate Scholars Posters**Minnesota, U.S.****Poster Co-Author and Presenter, Minnesota Traffic Accident Analysis****Feb. 28, 2019**

Collaborated with teammates on the Database Design course project **Minnesota Traffic Accident Analysis**. The project involved database design and normalization, data collection from National Highway Traffic Safety Administration(NHTSA), data cleansing, and web design for visualizing the correlation of the data. Our team were promoted by the department chair as the department representative team to demonstrate the project at the poster event at the Minnesota State Capitol after the project was completed.

¹ Details of the undergraduate research project **Chinese Cafeteria Food Recognition** are displayed in Project Section in page 2.

Assisted students with their in-class assignments during Java Programming courses. Resolved students questions as well as checked and corrected students' assignments for the professor during office hours.

Technique: Java

Projects

Chinese Cafeteria Food Recognition

Built up a real-time object detection model on Chinese cafeteria entrees with teammates as the undergraduate research project. In charge of constructing the object detection model based on YOLOv3 and model training. The model has achieved an accuracy of 70% on individual entree recognition after training around 100 epochs with 575 entree-catered plate images.

Techniques: Python, TensorFlow, Keras, CNN, YOLOv3, Git

Github: <https://github.com/andywu0913/Chinese-Cafeteria-Food-Recognition>

Train Machines to Play a 2D Car Racing Game by Implementing Deep Q Learning

Implemented a Deep Q Learning agent that learned to play a 2d car racing game by itself. The agent includes 2 convolutional layers built on top of the core network to convolve the top-view input images. After self-playing 500 rounds of the game, the model could pass through 700 time-steps before the game ends in most cases.

Techniques: Python, TensorFlow, Keras, CNN, Reinforcement Learning, Deep Q Network, Git

Github: <https://github.com/andywu0913/OpenAI-GYM-CarRacing-DQN>

Captcha Recognition Using CNN

Trained a CNN model to recognize captcha from the college courses registration system with 100 captcha images in training. The captcha blank can now be filled in instantaneously with the model and finally achieved automatic login.

Techniques: Python, TensorFlow, Keras, CNN, Git

Github: <https://github.com/andywu0913/ML-CNN-Verification-Code-Recognition>

Taiwan Stock Analysis

Implemented an automated stock quotes scraping with Node.js and stores stock quotes in the database daily. Adopted Express.js as the web application framework to serve the well-designed website that displays the organized stock quotes on the front end for personal investment references. Established a cloud server on GCP for hosting the entire aforementioned Node.js web application. Applied CI/CD so that deployments on server-side are automatic.

Techniques: Node.js, Express.js, AdminLTE, Highcharts, MariaDB, Git, CI/CD, Google Cloud Platform(GCP)

Website: <https://Stock.AndyWu.tw/>

Technical Blog

Hosting a technical blog on the cloud server on GCP. Regularly sharing experiences and technical notes on the blog to help others when encountering same scenarios. Practice organizing technical problems with solutions methodically in writing. Learn to operate and maintain a cloud server.

Techniques: Wordpress, PHP, Apache, MariaDB, Google Cloud Platform(GCP)

Website: <https://Notes.AndyWu.tw/>

Accomplishments and Honors

- Received Academic Excellence Award during the freshman, sophomore and senior year in Tamkang University
- Participated in ACM ICPC Asia Regional Taipei-Hsinchu Contest 2019
- Participated in ACM ICPC North Central North America Regional Contest 2018
- Received scholarship for overseas study from Ministry of Education Taiwan(ROC) 2018
- Received the New Star Award during Tamkang University Hackathon 2017

Others

- Proficient in English - 830 points in TOEIC tested during high school. Lived in MN, US for a year during college.
 - Open to overseas assignments - Enjoy collaborating with multicultural teams.
 - Will be doing the military service from July, 2020 to November, 2020.
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