Tzu-Chun Hsieh

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Proficient programmer in Python and C++ with experience in video games development and constructing Deep Learning algorithms for data science projects.

EDUCATION

Duke University, Durham, NC   **Aug 2019-May 2021**
Master in Interdisciplinary Data Science   *GPA: 3.8/4.0*
o Coursework: Algorithms, Machine Learning, Data Management Systems, Cloud Computing

National Taiwan University (NTU), Taipei, Taiwan   **Jun 2014**
Bachelor of Arts in Economics (ranked top 10% in class)   *GPA: 3.95/4.30*

WORK EXPERIENCE

Rhodes Information Initiative, Duke University, Durham, NC   **Jun-July 2020**
Data Scientist Intern
- Implemented dimension reduction (PCA, t-SNE, factor analysis), and unsupervised learning (K-means, autoencoder) to analyze the similarity in children's taste using food preference survey data.
- Built and visualized an interactive food recommendation system that gives suggestions to parents of children who have ARFID, an eating disorder characterized by highly selective eating habits, the best food to try next to extend the variety of food children accept.

CyberAgent, Inc. Taiwan Branch, Taipei, Taiwan   **Oct 2016—Jun 2018**
Project Manager (Department of Advertising)
- Led a team of 5 to develop and execute digital marketing strategies for at maximum 6 clients from various industry at the same time.
- Raised the profit of online ad campaigns by up to 50% and improved sales by up to 100% for 10+ companies by conducting A/B Testing on biding, audience choice, creative ideas to optimize ads performance on Google Ads and Yahoo Native Ads.
- Awarded by Oath Inc. as one of the five YAHOO Monthly Best Native Ads in August 2017.

PROJECTS

Vehicle Routing (Capstone Project)   **Aug 2020-May 2021**
- Built new reinforcement learning model (Pytorch) based on recent papers by applying new learning method (PPO, TRPO) and minimized distance of routes that vehicles could follow for delivery.
- Containerized and executed the models on Duke Compute Cluster (HPC with slurm) using bash scripts.
- Optimize the cost or time required for daily delivery if released for commercial use.

Classification of Urban Sounds   **April 2020**
- Conducted Mel-Frequency Cepstral Coefficients (MFCC) to extract audio features and applied SVC, Multi-Layer Perceptron (MLP), and CNN to classify sounds into 10 categories with 90% accuracy.
- Contribute to keeping cities under surveillance by detecting crime-related sounds such as gunshot if launched.

Identify solar panels from satellite images   **March 2020**
- Implemented histogram of oriented gradients (HOG) to detect edges and applied Support Vector Machine (SVM) and CNN to categorize satellite images into two classes: including solar panels or not.
- Achieved 97% accuracy and F-1 score:0.92 with the CNN model.
- Provide solar panel development patterns for governments to develop renewable energy policies.

SKILLS & CERTIFICATIONS

Programming: Python (Pytorch, Tensorflow, Scikit-learn), C, C++, SQL, JavaScript, HTML, CSS, R
Technical skill: Data Structure, Algorithm, Machine Learning, Deep Learning, Reinforcement Learning, Computer Vision, Statistical Models, A/B testing
Tools and Framework: AWS, GCP, Spark, Hadoop, Docker, HPC cluster system, Tableau
Languages: Mandarin (native); Japanese (fluent)