SZU-CHI (Sandy) KUAN

(814) 777-8518 / sbk5672@psu.edu

OBJECTIVE: Software Engineering / Data Analyst Internship

EDUCATION

Penn State University — State College, PA
M.S. in Information Science and Technology, Data Sciences Concentration — GPA: 3.90 / 4.0 — May 2021

National Taiwan University — Taipei, Taiwan
M.S. in Mechanical Engineering — Class Rank: 1st / 19 — Overall GPA: 4.22 / 4.3 — Jun. 2012

National Tsing Hua University — Hsinchu, Taiwan
B.S. in Power Mechanical Engineering — Class Rank: 1st / 53 — Overall GPA: 3.90 / 4.0 — Jun. 2010

SKILLS

- Languages: Python, HTML/CSS, C++, JavaScript
- Tools: Git, MATLAB, TensorFlow, Flask, MySQL, Bootstrap, Amazon Web Service (AWS), Linux

PROJECTS

Using Text-Only Back-End to Power Voice Device – Crowdsourcing and Natural Language Processing Application

- Implemented web front end and user interface with HTML, CSS, and JavaScript.
- Developed backend using Flask framework and MySQL and deployed the application to Amazon Web Service for interaction with Echo/Alexa devices.
- Introduced novel automatic post-editing approach for Alexa Automatic Speech Recognition (ASR) where the phoneme and transcription relation were modeled as a sequence-to-sequence model.
- Conducted both quantitative and qualitative data analysis on data gathered from focus groups and implemented user surveys.

Predict Future Sales (Kaggle Competition) – Data Analysis and Machine Learning Application

- Applied exploratory data analysis, data preprocessing and feature engineering tasks using Python, seaborn and matplotlib.
- Built and run machine learning models such as XGBoost, Long Short-Term Memory (LSTM), Random Forest and Convolutional neural network (CNN) to get the best prediction model through parameters tuning.
- Ranked top 15% on Kaggle leaderboard for final prediction result.

Statistical Testing for Comparing Machine Learning Algorithms – Statistical Analysis

- Evaluated two hypothesis testing methods: McNemar's test and 5x2cv paired t test for comparing the performance of machine learning classifiers.
- Implemented the statistical testing by Python and analyzed the experiments on four different machine learning classifiers with the wine dataset.

RELEVANT COURSEWORK

- Programming Design, Numerical Linear Algebra, Data Mining Techniques and Applications, Applied Statistics, Data Structures and Algorithms (2020 Spring), Crowdsourcing and Crowd-AI Systems (2020 Spring)

WORK EXPERIENCE

Industrial Technology Research Institute — Hsinchu, Taiwan

Project Management *at Center for Measurement Standards* — Apr. 2016 – July 2019

- Managed projects (~$20 million) in smart manufacturing and advance metrology field.
- Controlled project progress on-schedule and under budget to support principal investigators: performed risks assessments, strategic planning and communications across customers.

Industrial Data Analyst *at Industry, Science & Technology International Strategy Center* — Sept. 2014 – Mar. 2016

- Consulted for Taiwan government to develop market strategy and policy: utilize the trading data to research and analyze global markets trends and top 15 trade partners of Taiwan's machine tool industry.
- Evaluated and recommended supply chain strategy for Taiwan's machine tool industry: coordinated exhibitions and forums in Southeast Asia to bridge manufacturers and potential customers.

Mechanical Engineer *at Green Energy and Environment Research Laboratories* — Jun. 2012 – Sept. 2014

- Established a Building Integrated Photovoltaic database: modeled and simulated complex solar systems and environmental factors with large datasets for a 90% accuracy forecast of power generation and consumption.

PUBLICATIONS

- Szu-Chi Kuan, "The global trends of the machine tool developments and applications," *Journal of Industrial Mechatronics*, 394, 2016.
- Szu-Chi Kuan, "Assessments of the Taiwan's machine tool industry in 2015," *Machine Tool & Accessory Magazine,* 75, 2016.