SZU-CHI (Sandy) KUAN

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EDUCATION

Penn State University — State College, PA
M.S. in Information Science and Technology, Data Sciences Concentration — **GPA: 3.95 / 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, JavaScript, SQL, C++
- **Tools:** jQuery, Flask, MySQL, MongoDB, Amazon Web Service (RDS, Lambda, Elasticsearch Service, EC2), Alexa Developer Console, Git

WORK EXPERIENCE

Penn State University – Crowd-AI Lab — State College, PA
Research Assistant — May 2020 – present

- Integrated Amazon Echo and human intelligence in an innovative architecture system while also balance the response latency and conversation quality.
- Customized Alexa skill to accurately capture dynamic phrases in real uses cases.
- Implemented web frontend and human worker interface using HTML, CSS, and JavaScript.
- Developed backend system using Python, Flask framework and MySQL database with AWS Lambda function and Elasticsearch service.
- Conducted user study and evaluated system performance in both quantitative and qualitative data analysis.

Industrial Technology Research Institute — Hsinchu, Taiwan
Industrial Marketing Data Analyst & Project Management — July 2012 – July 2019

- Managed several projects (~$20 million) in smart manufacturing and advanced metrology field.
- Planned and analyzed cost control and project scheduling; Performed risk assessments, strategic planning, and communications across customers and team members.
- Interpreted global trading data, policies, economic, and technology trends of the machine tool industry to make recommendations and offer counsel to the Taiwan government.
- Organized technical exhibitions and forums in Thailand, Indonesia, and Russian to bridge domestic machine tool manufacturers and foreign potential customers.

PROJECTS

Crowdsourcing Restaurants from Food Photograph [*HTML, CSS, jQuery, JavaScript, Python, Flask, MongoDB***]**

- Built a web-based automatic crowdsourcing system to allow users to upload food photographs and receive correct restaurant information (90% accuracy) within a few minutes.
- Designed and implemented 3 different web interfaces for users and Amazon Mechanical Turk workers by using HTML, CSS, jQuery, and JavaScript.
- Developed backend using Python, Flask, and MongoDB to manage external HITs on Mechanical Turk for data collections.

Predict Future Sales (Kaggle Competition) [*Python, Tensorflow, SKLearn, Pandas, Numpy, Seaborn, Matplotlib***]**

- Applied exploratory data analysis, data preprocessing and feature engineering tasks using Python, Seaborn and Matplotlib.
- Implemented machine learning algorithms 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.

Database Backend Web Application of University COVID-19 Policies [*Python, HTML, CSS, JavaScript, SQL, Flask***]**

- Created a web interface to search University COVID-19 policies using HTML, CSS and JavaScript.
- Implemented backend using Python, Flask and SQL database in PyCharm.

Statistical Testing for Comparing Machine Learning Algorithms [*Python***]**

- 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 on four different machine learning classifiers: XGBoost, Random Forest, Support Vector Machine and Logistic Regression with the wine dataset using Python.

RELEVANT COURSEWORK

- Programming Design, Data Structures and Algorithms, Data Mining Techniques and Applications, Applied Statistics, Crowdsourcing and Crowd-AI Systems, Distributed System, Database Management System