Yu-Sheng (Adam) Tang

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Education

University of Freiburg, Germany — Oct 2018 - Feb 2021
Master of Science in Sustainable Systems Engineering — German Grade: 1.7, GPA: 3.6/4.0

Chang Gung University, Taiwan — Sep 2012 - Jun 2016
Bachelor of Science in Mechanical Engineering — German Grade: 1.3, GPA: 3.8/4.0

Skills

Languages: Python, MATLAB, HTML/CSS, JavaScript, C++, Bash, LaTex

Databases: MySQL (SQL), GraphDB (SPARQL)

Frameworks: Flask, PyTorch, Pytest, Bootstrap

Data Skills: ETL pipeline, RESTful API, data wrangling, web scraper, web crawling, data warehousing, DevOps

Tools & Techs: pip, Git, GitHub (Action), GitLab (CI/CD), Docker, AWS

Management: Jira (administrator), project management, agile management, requirement engineering

Certificate: IBM Data Science Professional Certificate, International Requirement Engineering

Experience

Data Scientist | Fraunhofer EMI | Germany — **Oct 2021 - Present**

Technique:
- Built an ontology for semantic data structure by using RDF, RDFs, OWL and other ontologies
- Established a knowledge graph for material life cycle assessment of additive manufacturing process
- Analyzed queried data from SPRAQL in Python
- Built data ETL pipeline in Python
- Bridged database APIs and parsed data in Python

Management:
- Lead a master student for project and thesis
- Generated generic use-case guideline of UML diagram and use-case description template to improve the efficiency and quality of software development processes
- Monitored and planned requirements engineering cycles
- Applied project management, particularly, agile management, and requirements management in management software using Jira

Research Assistant | Fraunhofer EMI | Germany — **May 2020 - Sep 2021**
- Modeling the impact failure (delamination) of different configurations of CFRP under various scenarios in LS-DYNA
- Modeled the failure of a single-lap hybrid joint (Al-CFRP) under tensile loading with LS-DYNA
- Calculated required numerical parameters, and analyzed simulated results and built data visualization with Python

Research Assistant | INATCH | Germany — **May 2020 - Dec 2020**

Simulation:
- Built numerical models of small-scale pivot specimens for torsion tests using LS-Dyna software.
- Analyzed simulated results and developed data visualizations with Python to aid in interpretation of the results.

Experiment:
- Conducted cyclic stress (fatigue) loading for small-scale material characterization experiments.
- Controlled stepper motors using Python to implement cycling loading and optimized the sleeping time by considering signal frequency, rotation speed, and gear ratio.

Projects

HERAKLION — **Mar 2022 – Present**
Heuristic Resilience Analyses for Municipalities Using Data Space Functionalities
Tech Stack: pip, git, CI/CD, ETL, RESTFul APIs, Python, package-building, KG, requirement engineering, agile management
- Our objective is to improve the accessibility and usability of crisis preparation and management data for municipalities and emergency forces. By creating an "ecosystem" for data, we aim to establish a model that can be used throughout Germany to quickly identify and manage crises. To achieve this, we are developing a demonstrator for a scalable resilience data space that incorporates the needs of users and implements them conceptually. Our goal is to ensure that all stakeholders have access to critical information during a crisis to enable effective and timely responses.

ADAM-SusTrace — **Oct 2021 - Feb 2022**
Networking of digital assets and data-driven value creation through data ecosystems in additive manufacturing
Tech Stack: git, Python algorithm, Ontology, knowledge graph, LCA
- The project focuses on sustainability analysis (Life Cycle Assessment, LCA) for additive manufacturing process (AM) based on linked data and digital traceability. The goal is to provide a practical application of digital traceability for LCA of an AM product or process and to provide tools and workflows that demonstrate the added value of the data ecosystem.

XOR Neural Networks — **Apr 2022 – Apr 2022**
Networks for XOR-Logic Prediction
Tech Stack: Python, NNs
- This project involves the development of a single-layer perceptron and a multi-layer perceptron (MLP) to understand and predict XOR logic. Both models are trained on the training data and tested on the test data. The performance and decision boundaries of the models can be visualized.

Energy Market Analysis — **Apr 2019 – Jul 2019**
Analyzing the market value of wind and solar power for different electricity markets
Tech Stack: Python, NumPy, Pandas, Matplotlib, Scikit-learn, Energy market value
- A model was created to analyze the market value of wind and solar power in various electricity markets, including Germany, France, and Sweden. Python was used to develop the model and visualize the generated data.