Hsiang-Ying (Mitty) Yu

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Technical Skills

Hard skills: Python (PyTorch, Pandas, NumPy, Seaborn), Java, C++/C, C#, AnyLogic simulation, Machine learning, Computer vision, Deep learning, NLP, Operations research, Statistical and data analysis, Data structures and algorithms
Soft skills: Leadership, Communication, Project management, Problem solving, Critical thinking
Developer Tools: Git, GitHub, VSCode, AWS, Google cloud

Professional Experience

Data Scientist (Industrial Engineer) July 2024 – Present
Applied Materials *Santa Clara, CA*

- Spearheaded the end-to-end development and analysis of a Java-based warehouse simulation model (digital twin) to provide precise resource allocation insights, empowering the operations team with a data-driven deployment plan for the new AS/RS system, significantly reducing risk and facilitating future strategic planning.
- Developed numerous controlling components and user friendly UI's in the AnyLogic simulation page which enable end users to interactively choose modules and run highly customizable simulations for warehouse operations.
- Managed and developed a 3-person team to continuously enhance digital twin models to provide critical warehousing insights for decision-making, leveraging technology to optimize operational efficiency by 15%.
- Identified bottleneck and deployed a custom-designed counting tray to reduce warehouse small part counting time by 80% (from 10s to 2s), demonstrating end-to-end problem-solving from concept to production.
- Led detailed app testing for a computer vision bin bulk counting project; provided continuous feedback and insights to guide iterative improvements and enhance app accuracy to 99% on general parts and UI/UX usability.
- Designed and proposed workstation layouts for bin bulk counting project to optimize workflow efficiency, incorporate ergonomic design and stable lighting conditions critical for computer vision accuracy.

Software Algorithm Engineer Intern June 2023 – September 2023
ASML *San Jose, CA*

- Developed machine learning and deep learning defect classification models to streamline anomaly detection, achieving 99.62% accuracy. Built a visualization tool to interpret Convolutional Neural Network (CNN) features. Conducted extensive research and analysis of existing algorithms to identify potential improvements.
- Conceptualized a patent-eligible method for loading image patches, showcasing strong problem-solving skills and innovation. Developed custom DataLoaders for feature extraction from single-beam image patches with CNNs.
- Created a comprehensive t-SNE evaluation pipeline with a KNN classifier. Experimented with various dimensionality reduction tools including PCA, t-SNE, and PaCMAP, to effectively visualize high-dimensional data.
- Adapted to the agile development style by creating project plan, demoing completed features and functionalities in weekly retrospectives, and providing progress updates in daily standups.

Selected Projects

Representation Learning for Land Cover Classification June 2023

- Supported SDG 15 in SustainBench Challenge by improving land cover classification in regions with limited data.
- Adopted Tile2Vec and experimented with different backbone architectures to learn expressive representations from the satellite/aerial images. Our GoogTiLeNet-V1 produced embeddings with similar quality as those generated by TileNet18, while being 7.5 times faster to train and having fewer than half the parameters that TileNet18 does.

Supplementing The Ocean Cleanup's Global Dataset with Named Entity Recognition Mar 2023

- Earned **2nd place** for Best Poster at the **ICME XPO research symposium**.
- Designed an Deep Learning solution for The Ocean Cleanup to supplement their global beached plastics database to better understand the coastal transport and sinks of plastics. Successfully implemented NLP models using PyTorch to extract key data attributes from unstructured text, achieving an impressive F1 score of approximately 94.
- Effectively coordinating a team of 3 student researchers, ensuring the timely completion of deliverables.

Education

Stanford University September 2022 – April 2024
MS in Institute for Computational and Mathematical Engineering (ICME), Data Science *Stanford, CA*

National Tsing Hua University September 2018 – June 2022
BS in Industrial Engineering & Engineering Management, minor in Computer Science *Hsinchu City, Taiwan*