Chia-Yuan Wu

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EDUCATION

Lehigh University   **Aug. 2022 - Present**
Ph.D. in Industrial and System Engineering   *Bethlehem, PA, USA*
National Chiao Tung University   **Sept. 2011 - Jun. 2017**
M.S. in Industrial Engineering and Management   *Hsinchu, Taiwan*
B.B.A. in Management Science

TECHNICAL SKILLS

Programming Languages: Python, C#, PL/SQL, T-SQL, Matlab
Database Management Systems: Oracle, SQL Server, MySQL
AI Tools and Optimization Software: PyTorch, TensorFlow, Keras, scikit-learn, CPLEX, GLPK, AMPL, Gurobi
Other Technology: Pandas, Numpy, ASP.NET, VSTO, Git, JIRA, CI/CD, Microsoft Office, LaTeX

WORK EXPERIENCE

Advanced Micro Devices, Inc. (AMD)   **Apr. 2021 - Jul. 2022**
Software System Designer   *Hsinchu, Taiwan*
- Developed and optimized a unified data feed solution to automate SCM and S&OP processes, boosting supply chain operations system efficiency (MSSQL, C#, VSTO)
- Managed and resolved user requests via JIRA, customizing and refining Kinaxis RapidResponse functionalities to improve supply chain planning and decision-making (Kinaxis RapidResponse, JIRA)
- Collaborated with cross-functional teams to integrate GPU/CPU planners, managing multiple concurrent tasks while demonstrating flexibility and initiative to enhance system performance

AU Optronics Corp. (AUO)   **Sept. 2017 - Apr. 2021**
Senior Software Engineer   *Hsinchu, Taiwan*
- Designed, optimized, and deployed MIP models for complex scheduling and resource allocation, fine-tuning solver parameters to enhance convergence speed (IBM CPLEX, C#, PL/SQL)
- Crafted a seamless end-to-end system pipeline for automated job scheduling and result processing, integrating optimization solver execution with real-time database updates (SQL Server, Oracle DB)
- Developed and implemented an interactive visualization dashboard for daily/weekly production scheduling (DPS/WPS), enabling real-time monitoring of optimization results and KPIs (VSTO, ASP.NET)

SELECTIVE PROJECTS

Synthetic Data for Fair and Private Collaborative Machine Learning, *Lehigh University*   **Apr. 2024 - Jan. 2025**
- Developed a novel bilevel optimization model that combines data distillation and unfairness mitigation, generating representative synthetic datasets that preserve client privacy while enabling fair and robust server model training
- Designed and implemented a framework that leverages synthetic data generation and differential privacy to address privacy concerns and algorithmic bias in collaborative learning environments (Python, PyTorch, MySQL)
- Architected a streamlined distributed learning system that reduces client-server communication to a single round, enhancing both computational efficiency and prediction fairness across decentralized networks

Available-to-Promise Pegging Optimization, *AU Optronics Corp. (AUO)*   **Sept. 2020 - Mar. 2021**
- Transformed bill-of-material structure and business requirements into a robust mathematical programming model
- Engineered a system integrating data processing, advanced optimization models (MIP), and UI design
- Enhanced inventory management with advanced optimization, doubling order success rate, increasing component availability, and reducing buyer workload by 95%

BEOL WPS Scheduling, *AU Optronics Corp. (AUO)*   **Sept. 2019 - Dec. 2019**
- Led a 3-member cross-functional team in math programming to replace rule-based scheduling with MIP models
- Demonstrated inclusive teamwork and effective communication
- Enhanced efficiency by reducing operational time by 90%

PUBLICATIONS

[1] **Chia-Yuan Wu***, Frank E. Curtis, and Daniel P. Robinson. A Bilevel Optimization Approach for Computing Synthetic Data to Mitigate Unfairness in Collaborative Machine Learning. *Preprint in review*, 2025. (Link)

CONFERENCES

- Enhancing Fairness in Machine Learning through Training Synthetic Datasets in Multi-Client Scenarios. *MOPTA 2024*, Bethlehem, PA, August 2024.