Chieh-Jen Wang
(王界人)

https://cjwang0318.github.io/
https://reurl.cc/XGvlXE/
cjwang@nlg.csie.ntu.edu.tw
+886-9-21585858

Career Objective

Seeking a Senior Software Engineer or Project Leader role specializing in Artificial Intelligence (AI), Large Language Models (LLM), and Generative Deep Vision (GDV) to drive innovation and enhance productivity in the semiconductor industry.

Education

National Taiwan University
Ph.D. in Computer Science and Information Engineering , June 2013, (GPA: 4.07/4.3)

Work Experience

Industrial Technology Research Institute (ITRI)
Technical Deputy Manager/Senior Engineer, July 2013-present

- Over 10 years of data analysis experience in the semiconductor industry
- Coordinated and integrated cross-unit cooperation projects, including the division of labor for technical modules and the integration of R&D resources
- Secured funds more than 35 million from government or industry projects
- Assisted manufacturers in securing over $50 million in government grants

Core Competencies

Large Language Models (LLM)

- Retrieval-Augmented Generation (RAG), Natural Language Generation (NLG), Natural Language Processing (NLP), Summarization

Generative Deep Vision (GDV)

- Anomaly Detection, Object Detection and Segmentation, Image Synthesis, 3D Reconstruction

Selected Projects

Prognostics and Health Management (PHM)

- Predicted failures and remaining useful life for semiconductor equipment/components up to 48 hours in advance
- Collected and analyzed factory and sensor data
- Researched and implemented multi-level ensemble learning techniques integrating advanced machine learning algorithms with domain knowledge
- Achieved accuracy higher than 95% with a false alarm rate below 1%
- Use case: Winbond PHM system(https://tinyurl.com/ye994bgj)

Industry Knowledge-Based Large Language Model(LLM)

- Discovered relevant knowledge from structured and unstructured data
- Extracted causal relations to establish a knowledge graph for semiconductor problems
- Researched and implemented a RAG-based model for knowledge discovery
- Achieved a knowledge discovery precision rate higher than 93% and a relation extraction accuracy rate higher than 90%, representing a 54.2% improvement over the original KMS
- Use case: Winbond KMS system

Knowledge Graph-Based Maintenance Manual Optimization

- Optimized original operating instructions to be semantically complete with low cognitive load, enhancing ease of understanding for maintenance engineers
- Expert evaluations showed an 87.84% improvement in comprehension of the optimized instructions
- Use case: Successfully implemented in Marketech semiconductor equipment

Additional Skills

- **Deep Learning Frameworks**: PyTorch, TensorFlow, Keras
- **Software Development**: Version control (Git, Bitbucket), Continuous Integration (Jira), Software Quality (SonarQube)
- **Programming Languages**: Python, Java, C++, SQL