

CHIA-EN LU

La Jolla, California

☎ +1-331-341-8507 | ✉ chiaen119@gmail.com | 🌐 Chia-En Lu

EDUCATION

University of California, San Diego

Master of Science in Computer Science and Engineering

Sept. 2024 - June 2026 (Projected)

California, United States of America

National Tsing Hua University (NTHU)

Bachelor of Science in Computer Science, Minor in Arts and Design

Sept. 2019 - June 2023

Hsinchu, Taiwan

- GPA: 3.89/4.0 (WES)

WORK EXPERIENCE

Taiwan AI Labs | Python, C++

Software Engineering Intern

June 2024 - Present

Taipei, Taiwan

- Designed a pipeline for Neural Machine Translation on a low-resource Austronesian Language Truku
- Trained a multilingual Austronesian Language NMT by training on parallel bible data of different Austronesian Languages
- Improved BLEU score from 28 to 32 and lowered training time by 13% by utilizing in-domain fine-tuning with Dynamic Data Selection while preserving generalization capabilities
- Utilized retrieval methods for LLM for medical training data augmentation, achieved a BLEU score of 37.5 and TER of 41 for medical document translation.

Institute of Information Science, Academia Sinica | Python, C++

Research Assistant, PI: Prof. De-Nian Yang

July 2023 - Nov. 2023

Taipei, Taiwan

- Designed a Knowledge Graph Query system for Natural Language Queries utilizing an NLP pipeline
- Utilized GNNs for structural analysis and graph matching between the query and knowledge graph
- Constructed a modified version of the A* algorithm to prune low-priority search paths, improving the search speed threefold
- Achieved a 7% error rate with 86% precision rate while handling link prediction, tail prediction, and complex query matching

RESEARCH EXPERIENCE

Auto-generation of mammogram reports with KangNing General Hospital (KNH)

Research Assistant at NTHU Human-Centered Machine Intelligence Lab, PI: Prof. Po-Chih Kuo

Apr. 2023 - Dec. 2023

Hsinchu, Taiwan

- Designed a multi-view feature fusion model to combine different views of breast mammograms
- Fine-tuned a medical BERT for generating mammogram reports that align with the BI-RADS standard, achieving a 78% BLEU-1 score using medical reports provided by KNH
- Implemented a ConvNeXt density classifier for efficiency, resulting in 90% accuracy and an average f1-score of 85%
- Combined a YOLO-based mass detection system with grid-based detection, yielding an 85% accuracy score

Reinforcement Learning on Electronic Design Automation (EDA)

Undergraduate researcher at NTHU TC Lab, PI: Prof. Ting-Chi Wang

Jan. 2022 - Aug. 2023

Hsinchu, Taiwan

- Implemented an RL agent for floorplanning refinements and placing, aiming to reduce the time and resources required
- Designed a cell-grouping algorithm based on cell properties such as routing requirements, energy consumptions, and pin location, resulting in a reduction of the problem dimensionality, increasing the stability and robustness
- Achieved a time improvement by fivefold while achieving similar results on congestion, Half-Perimeter Wirelength, and routability when compared to RePlAcE, a widely used placement tool

SELECTED PROJECTS

6-Degree-of-Freedom Robot Arm with Deep Reinforcement Learning | PyTorch, ROS, OpenCV

Jan. 2022 - July 2022

- Utilized the ROS control pipeline, integrating cameras and a 6-degree-of-freedom robot arm
- Employing Unity as a simulator for the reinforcement agent to perform actions learned via the DDPG algorithm
- Designed and produced a high-precision 6-DOF robot arm from scratch utilizing AutoCAD for model deployment

AWARDS AND HONORS

- CAD Contest at 2022 IEEE/ACM International Conference On Computer Aided Design (ICCAD), Global Top 10 2022
3D Placement with D2D Vertical Connections, Problem set by: Synopsys Corp. (World's largest EDA Solutions and Services company)
- IEEE/ACM MLCAD 2023 FPGA Macro-Placement Contest, Global Finalist 2023

SKILLS

Programming Language : Python, C/C++, HTML/CSS, JavaScript, Dart, TypeScript, Rust, MySQL

Machine Learning: Pytorch, Tensorflow, Scikit-Learn, OpenCV

Tools : Kubernetes, Docker, Git, Node.js, React, Chrome DevTools, ROS