# Chun-Mao (Michael) Lai

858-373-7788 michaellai901026@gmail.com Chun-Mao Lai Mecoli1219 www.mecoli.net

## EDUCATION

**University of California San Diego** **09/2024 – 06/2026**
*MS. in Computer Science and Engineering* *La Jolla, California*
- Courses: Operating Systems, Principles of Database Systems, Recommender Sys and Web Mining.

**University of Illinois Urbana-Champaign** **08/2023 – 12/2023**
*Exchange Program in Electrical and Computer Engineering* *Urbana, Illinois*
- GPA: 4.0/4.0; Courses: Distributed Systems, Machine Learning, The Principles of Safe Autonomics.

**National Taiwan University** **09/2020 – 06/2024**
*BSE. in Electrical Engineering* *Taiwan*
- GPA: 3.97/4.0; Five Machine Learning publications; One-time Dean's List recipient.
- The Member of Phi Tau Phi Scholastic Honor Society of the Republic of China.

## SKILLS/QUALIFICATIONS

| | |
|---|---|
| **Programming** | Python, C/C++, Javascript/Typescript, Golang, Swift, LaTeX, Bash |
| **Web Development** | HTML/CSS, React, NextJS, Tailwind, ThreeJS, NodeJS, ExpressJS, Swagger, GraphQL, Prisma, Flask |
| **Data Analysis** | MySQL, PostgreSQL, MongoDB, Redis |
| **Machine Learning** | TensorFlow, Keras, PyTorch, HuggingFace, Scikit-learn |
| **Technology** | Git, Linux, MacOS, Docker, Kubernetes, GoogleAPI, Spark, Ray, Flyte |

## WORK EXPERIENCE

**Open Source - Flyte** **04/2024 – Present**
*Open Source Contributor* *Remote*
- Contributed to the Flyte project, a workflow orchestration platform for ML and data pipelines primarily written in Golang and Python, with a codebase of over 1,000,000 lines.
- Developed a core feature by creating a protobuf message to support tuple types in the Flyte system, enabling Tuple and NamedTuple usage in Flytekit.
- Implemented a key enhancement enabling Jupyter notebook support through code pickling, along with integration tests to validate its functionality, allowing users to run code remotely from notebook cells.
- Implemented unsafe typing in Flytekit, simplifying the migration of legacy codebases by bypassing strict type checks.
- Fixed the usage of the Any type in Flytekit, allowing the correct use of Any type via the command line with the Click package.

**Appier** **06/2024 – 08/2024**
*AI Research Scientist Intern* *Taiwan*
- Enhanced machine learning algorithms in a recommendation system using Diffusion Models to address data inefficiency and imbalance, reducing performance drop by 25%.
- Analyzed experimental results to derive key insights and contributed to academic paper writing for the research team.

**Taiwan Semiconductor Manufacturing Company(TSMC)** **06/2023 – 07/2023**
*Machine Learning Research Engineer Intern* *Taiwan*
- Designed and developed an innovative pairwise Style Transfer model for super-resolution images (3M pixels per image), resulting in a 50% reduction in error rates.
- Optimized the data pipeline with Python MPI for image extraction and processing, achieving a 75% reduction in processing time.
- Implemented TensorFlow distributed computing across 2 nodes with 4 A100 GPUs each, boosting training efficiency by 5 times.

## EXTRACURRICULAR ACTIVITIES & LEADERSHIP

**NTUEE Light Dance** **09/2021 – 07/2023**
*Software Leader, https://www.youtube.com/@ntueelightdance6849* *Taiwan*
- Led a 25-member team responsible for developing the Light Dance editor service, managing a substantial codebase of 800,000 lines.
- Built the backend service from scratch to facilitate the storage of light dance data (up to 5GB) on a server and provide a co-editing environment.
- Optimized data structure with SQL-based database, reducing client-side latency to less than 1 second per operation.
- Achieved significant visibility with 40,000 views on YouTube for the Light Dance video in 2022.

**NTUEE Student Association Information Department** **09/2020 – 07/2023**
*Minister, https://github.com/NTUEEInfoDep* *Taiwan*
- Led a team of 40 individuals in producing and maintaining student association websites and web services, which included 8 long-standing services and various activity-based services, benefiting over 1,000 students.
- Offered weekly technical courses to NTUEE students and trained department members in website and service development.
- Collaborated with the Student Association to organize NTUEE Week, NTUEE Night, MakeNTU, and other departmental activities.

## PUBLICATIONS

[1] "Diffusion-Rewards Adversarial Imitation Learning", NeurIPs 2024 **(First Author)**

[2] "Diffusion Imitation from Observation", NeurIPs 2024

[3] "Diffusion Model-Augmented Behavioral Cloning", ICML 2024

[4] "AV-SUPERB: A Multi-Task Evaluation Benchmark for Audio-Visual Representation Models", ICASSP 2024

[5] "Controllable User Dialogue Act Augmentation for Dialogue State Tracking", SIGDIAL 2022 **(First Author)**