

# Yi-Ting Lai

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## EDUCATION

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### National Yang Ming Chiao Tung University

Hsinchu, ROC

MS Computer Science, *Advisor: Yi-Ping You* GPA: 3.95/4.3

Sep 2023 – Present

- Thesis (tentative): “*AutoTex: Automating CUDA Memory Optimizations with Texture Caches*”
- Courses: Advanced Compiler (*Instructor: Jenq-Kuen Lee*), Physical Design Automation, Advanced Unix Programming

### National Taipei University of Technology

Taipei, ROC

BS Electronic Engineering GPA: 3.96/4.0, **Rank: 1/116**

Jun 2023

- Courses: Pattern-oriented Software Design, High-Frequency Electronic Circuits, Data Structure, Linear Algebra, Principles of Communications
- **1st Place**, In-Campus Calculus Competition (245 participants, 2019)

### National Tainan First Senior High School

Tainan, ROC

- Clubs: Chinese Chess, Table Tennis

Jun 2019

## EXPERIENCE

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### Advanced Semiconductor Engineering, Inc.

Kaohsiung, ROC

#### IT Intern

Jul – Aug 2022

- Analyzed factory operations using **Apache Superset**, tracking production and downtime.
- Trained a **YOLOv5** model for defect detection, improving the yield.
- Configured **SMTP** for internal email delivery on self-hosted services.

## TEACHING ASSISTANTSHIPS

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NYCU EEDE30050 Parallel Programming

Feb – Jun 2025

NYCU CSIC30045 Parallel Programming

Sep – Dec 2024

NYCU CSIC30098 Compiler Design, **Excellent Teaching Assistant Award**

Feb – Jun 2024

NYCU CSCS10012 Introduction to Compiler Design

Sep 2023 – Jan 2024

NTUT 5901206 Object-Oriented Programming

Feb – Jun 2021

## PROJECTS

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### VitaminC | C++

2023 – Present

A simple C compiler, targeting **QBE** and **LLVM IR**.

- Implemented key C features, including functions, arrays, pointers, loops, conditionals, structs, and unions.

### sT Compiler | C

2023

A compiler for sT, a simple Turing-complete language, targeting **JASM** to run on the **JVM**.

- Designed a context-free grammar with documented syntax and semantics, implemented using **Flex** and **Bison**.
- Structured into distinct **lexer**, **parser**, and **code generator** phases for clarity and maintainability.

### FastShop | Python

2022 – 2023

A lightweight shopping website with **Flask** backed by **MariaDB**.

- Designed and deployed the **RESTful API**, enabling seamless backend communication.
- Mapped MariaDB tables with ORM via **SQLAlchemy** for efficient data handling.
- Achieved **99% test coverage** with unit tests and **CI integration**.

### Concentration Judgment System | Python

2021 – 2022

A real-time student concentration analysis system for online courses.

- Developed a **PyQt5** GUI following the **MVC** pattern, with data visualization using **Matplotlib**.
- Integrated **Dlib** and **OpenCV** for face and posture detection, using **SciKit-Fuzzy** for judgment with fuzzy logic.

## SKILLS ---

**Programming:** C/C++, CUDA, Python, Go, Rust, Java, Bash

**Software & Tools:** Linux, Git, Make/CMake, GDB, Docker, LLVM, NVIDIA Nsight Compute/Systems, perf

**Language:** Mandarin Chinese (Native), English (Professional Proficiency, TOEIC 875), Japanese (Basic)

## PUBLICATION ---

1. Yi-Ting Lai, Meng-Shiuan Pan. “*A Concentration Judgment System for Online Courses: Design and Implementation.*” VTS Asia Pacific Wireless Communications Symposium (APWCS), 2023.