# Yi-Ting Lai

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## EDUCATION

**National Yang Ming Chiao Tung University** — Hsinchu, ROC
MS Computer Science, *Advisor: Yi-Ping You*    GPA: 3.95/4.3 — Sep 2023 – Present
- Focus: GPU Compiler Memory Optimizations

**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

**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

- 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

**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.
- Modernized the C++ codebase with **smart pointers**, ensuring proper ownership and lifetime management.

**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, Rust, Java, Bash
**Software & Tools:** Linux, Git, Make, CMake, GDB, Docker, Neovim, Clang/LLVM, Flask
**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.