Jen-Hung (Tom) Chang

@personal website | @gmail | @linkedin | @github

Education

Duke University | *Durham, NC* *Sept. 2024 – Present*
M.Eng. in Electrical and Computer Engineering (Expected graduate 2026 Spring)

Chung-Yuan Christian University | *Taoyuan, Taiwan* *Sept. 2018 – June 2022*
B.S. in Information and Computer Engineering

- Overall GPA: 3.9/4.0, ranking 10/119
- Awards: Certificate of Holistic Honorary Award (only 50 people in one year), Independent Study Competition (Third place)
- Relevant Coursework: Data Structures and Algorithms, Object Oriented Programming, Analysis of Algorithm, Programming Language, Operating System, Linux Operating System Practices, Intro. to Data Mining, Network Security, Computer Graphics

Work Experience

Software Engineer | *RealPlus Technology, Taoyuan, Taiwan* *June 2022 – Present*

- Designed a data pipeline among devices **under ROS** (Robot Operating System) on Jetson Nano
- Enhanced flexibility for secondary development by designing APIs to support variable modes in self-driving car project
- **Increased** lane tracking **accuracy by 20%** through the integration of Gaussian blur and a lane prediction algorithm

Software Engineer Intern | *Innovati Inc., Hsinchu, Taiwan* *June 2018 - Sept. 2018*

- **Reduced 10% error** probability by optimizing libraries code for the control board using C and Assembly

Projects

Using Action Recognition to Crack reCAPTCHA | *Python, Computer Vision, Machine Learning* *Sept. 2020 – Dec. 2021*

- IDesigned a defense strategy to distinguish between machines and humans when using reCAPTCHA with action
- Generated and classified cropped pictures by designing Machine Learning models using **transform learning** & **Grad-CAM**
- Achieved **accuracies of 98%, 60%, and 65%** for 3 classifications under our best defense approach

OurScheme Interpreter | *C/C++, Programming Language* *Feb. 2021 – June 2021*

- Implemented parser and scanner by tree-based structure and **20 Scheme instructions** using C++
- Handled syntax error and run-time error (no return value and unbound) from **thousands of inputs**

FRANCIS Compiler | *C/C++,* ***Compiler*** *Sept. 2020 – Jan. 2021*

- Designed a compiler for FRANCIS, a high-level language similar to FORTRAN
- Implemented a Lexical Analysis and Syntax Analysis
- Generated Intermediate Code by generating 7 tables to address and record identifiers and arrays

Extracurricular Activities

Pattern Recognition Lab | *Participant* *June 2020 – Dec. 2021*

- Participated in Using Action Recognition to Crack reCAPTCHA plan, ranked **third place** out of our department
- Built the training environment in **Docker** , **improving** training efficiency by **40%**
- Qualified with the application for the Undergraduate Research Fellowship authorized by the Taiwanese government

Taiwan Sustainable Campus Project | *Participant* *June 2019 – June 2020*

- Participated in a Taiwanese government project focused on achieving Sustainable Development Goals
- Revamped database to enhance the accuracy of hitting information by **20%** and security of website's authority using **SQL**
- Developed and implemented a new pop-out announcement feature on the website using **JavaScript** and **HTML** , enhancing user communication capabilities

Technical Skills

Programming Languages : C/C++, Java, Python, JavaScript, Bash, Shell Scripts, R, MySQL, JSON, HTML, CSS, Verilog, Assembly(ARM, x86)
Libraries and Environment : Pytorch, Tensorflow, OpenCV, OpenGL, WebGL, Node.js, React
DevOps and API Tools : Git, Docker, REST