Jen-Hung (Tom) Chang

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Technical Skills

Programming Languages : C, C++, Java, Python, JavaScript, R, MySQL, JSON, HTML, CSS, Verilog, ARM Assembly
Libraries and Environment : Pytorch, Tensorflow, OpenCV, OpenGL, WebGL, Node.js, React
DevOps and Tools : Git, Docker, AWS (Lightsail, Route 53, Cloudfront), GNU debugger (GDB), REST API

Education

Duke University | *Durham, NC* *Sept. 2024 – Present*
Master of Engineering candidate in Electrical and Computer Engineering

Chung-Yuan Christian University | *Taoyuan, Taiwan* *Sept. 2018 – June 2022*
Bachelor of Science 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)
- Major Coursework: Data Structures and Algorithms, Object Oriented Programming, Software Engineering, System Programming, Analysis of Algorithm, Programming Language, Computer Organization, Operating System, Linux Operating System Practices, Intro. to Data Mining, Network Security, Computer Graphics

Professional 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 integration of Gaussian blur and lane prediction algorithm

Student Researcher | *Pattern Recognition Lab* *June 2020 – Dec. 2021*

- Produced 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 fors Undergraduate Research Fellowship authorized by Taiwanese government

Full-Stack Software Engineer Intern | *Taiwan Sustainable Campus Project* *June 2019 – June 2020*

- Contributed in 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 new pop-out announcement feature on website using **JavaScript** and **HTML** , enhancing user communication capabilities

Selective Projects

Personal Website | *JavaScript, HTML, CSS, React, REST API, AWS (Lightsail, Route 53, Cloudfront)* *March 2024*

- Constructed and deployed a React website on **AWS Lightsail** for a cost-effective and scalable infrastructure
- Implemented dynamic GitHub repositories update using React components via callig **REST API** with Axios
- Developed a user-friendly contact form with form validation to facilitate communication via EmailJS

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

- Designed 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