# An-Chi **Liu**

SOFTWARE ENGINEER · SYSTEM SOFTWARE PROFESSION

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## Education

**National Yang Ming Chiao Tung University (NYCU)**
*Hsinchu, Taiwan*
**M.S. in Computer Science and Engineering**
*Sep. 2019 - May. 2022*
- GPA: 4.11/4.3. Thesis: "**Offworker: An Offloading Framework for Parallel Web Applications**". The research focused on offloading parallel web applications to the cloud using web workers, resulting in a performance improvement of up to 5x on mobile devices. Published at **WISE'22** conference (Ranking A).
- Earned **Best Master's Thesis Award**, Institute of Information & Computing Machinery, Taiwan (2022). (only 13 winners)

**Polytechnic University of Milan**
*Milan, Italy*
**M.S. Exchange Program in Computer Science and Engineering**
*Sep. 2021 - Feb. 2022*

**National Taiwan University (NTU)**
*Taipei, Taiwan*
**B.S. in Bio-Industrial Mechatronics Engineering**
*Sep. 2014 - Jun. 2019*

## Work Experience

**Mujin, Inc**
*Tokyo, Japan*
**Backend System Software Engineer**
*Sep 2022 - Present*
- Developed the **NetProbe** project, identifying network devices on LAN port despite unknown details. **C++ framework** enables easy, non-disruptive updates. Implemented diverse **industrial robotic protocols** via **PcapPlusPlus(libpcap)** for Mujin device detection.
- Developed and maintained features and functionality of **industrial cameras** for robotics, including Ensenso, IDS, Lucid, Irayple, Photoneo, Zivid, etc.
- Developed **surveillance camera monitoring system** based on **WebRTC** and **Golang**.
- Developed robot **pendant GUI** written in **Qt/QML with Python**.
- Implemented new **web APIs in Golang** to support frontend projects.
- Integrated new **ZMQ** APIs written in **C++** to enhance the functionality of internal services within the robot system.
- Maintained and supported existing services written in **Python and C++ with PyBind11** binding to ensure their smooth operation and reliability.

**National Yang Ming Chiao Tung University**
*Hsinchu, Taiwan*
**Teaching Assistant**
*2019 - 2021*
- Parallel Programming (Spring 2021, Fall 2020). Won the **NYCU outstanding teaching assistant award** in 2021. Led a four-TA team to serve a 120-student course, including designing programming assignments, providing workplace environments, and interacting with students.
- Numerical Software Development (Spring 2021, Fall 2020, Spring 2020, Fall 2019). Reviewed and scored students' programming assignments on Github.

**CloudMosa, Inc.**
*Taipei, Taiwan*
**Software Engineering Intern**
*Jul 2018 - Sep 2018*
- Developed the module that enables users to download files directly to Dropbox on Puffin browser, including a Python backend to connect cloud services APIs and modifications for the core of Puffin browser (a remote browser engine).
- Developed parts of frontend GUI (with GTK) for the Linux version of Puffin browser.

## Projects

**Open-Source Projects**
- **PcapPlusPlus**: PcapPlusPlus is a multiplatform C++ library for capturing, parsing and crafting of network packets. Mujin's NetProbe project relies on this project for packets handling. While developing NetProbe, I found many places in PcapPlusPlus can be improved, so I keep contributing to this project, providing new features and bug fixes. I was granted as a **maintainer** of the project. Project link: `https://github.com/seladb/PcapPlusPlus/`.
- **modmesh**: modmesh is a toolkit for solving partial differential equations. It is written in C++ and pybind11 for high-Performance numerical computing. This project is contributed by many Taiwanese software engineers in semiconductor industry for fun. We aim to develop the fastest and the most efficient numerical toolkit and we like to test new ideas on it. Project link: `https://github.com/solvcon/modmesh`.
- **node-color-log**: Owned a lightweight JavaScript logger with **46k/month** downloads, which provides an alternative solution to existing mature counterparts which usually have a huge codebase. Project link: `https://github.com/tigercosmos/node-color-log`.

## Skills

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| **Programming** | C/C++, Python, JavaScript, Node.js, Golang, Rust, PHP, Java, C#, SQL |
| **Interests** | web technology, web browser, system software, parallel programming, heterogeneous computing |
| **Frameworks/Tools** | Angular, CMake, CI/CD, Debuggers, Express, Flask, GDB, Git, HTML5, jQuery, Make, pybind11 Qt/QML, REST API, Wireshark, ZMQ |
| **Languages** | Mandarin Chinese (Native), English (Business) |