

Po-Chih Chen

✉ pc.toby.chen@gmail.com | 🏠 pochihh.github.io | 📧 pochihh | 🌐 pcchen0106

Education

National Taiwan University

Taipei, Taiwan

M.S. IN ELECTRICAL ENGINEERING (GPA: 4.04/4.3)

2020 - 2022

B.S. IN ELECTRICAL ENGINEERING (GPA: 3.69/4.3)

2016 - 2020

- Courses: Robotics, Computer-aided Engineering Drawing, Optimization in Engineering, Linear System, Neuro-control Systems, Precision Motion Control, Machine Learning

Skills

Programming Languages C/C++, Python, MATLAB/Simulink, LabVIEW, Verilog, Javascript (React)

Engineering Softwares 2D CAD (AutoCAD), 3D CAD (Fusion360, Inventor), PCB Layout (EasyEDA, Altium Designer, Eagle)

Other Embedded Systems (Code Composer Studio, Keil/CubeIDE), ROS, PyTorch, OpenCV, Git, \LaTeX

Work Experience

Mechanical and Aerospace Engineering, University of California, Los Angeles

Los Angeles, CA, United States

PHD STUDENT AND GRADUATE RESEARCHER

2024 - present

- Developing a hydraulic MRI-compatible surgical system for hepatic surgeries

Mantis Robotics Inc.

Taipei, Taiwan / Leuven, Belgium /

Bay Area, CA, United States

ROBOTIC SYSTEMS ENGINEER – PROJECT LEAD

2022 – 2024

- Coordinated and led a project to implement a safety proximity sensor system in Belgium and Taiwan teams
- Developed robotics systems under Functional Safety Regulations: 61508, 15066, 62998, etc.
- Worked on client-side application projects, delivering products and collecting client feedback in the United States

Next-generation Automated Surgical Apparatus Lab, NTU, Prof. Cheng-Wei Chen

Taipei, Taiwan

MASTER STUDENT AND GRADUATE RESEARCHER

2020 - 2022

- **The infant Cardiac Robotic System (iCROSS)** [1]
 1. Defined the clinical specifications for the proposed robot-assisted pediatric cardiac surgery
 2. Designed and built the system, which can adapt general instruments and collaborate within one single small incision
 3. Evaluated the performance of the system in terms of workspace, accuracy, precision, and latency in teleoperation; perform dry-lab experiments on an infant model generated from CT scans
- **The intraOcular RoBotic Interventional System (iORBIS)** [2]
 1. Solved the existing backlash issue by using a tension spring mechanism
 2. Solved the unstable joint issue by designing a new adapter for one of the actuators

Publications

- [1] **P. -C. Chen**, P. -A. Hsieh, J. -Y. Huang, S. -C. Huang and C. -W. Chen, "Design and Evaluation of the infant Cardiac Robotic Surgical System (iCROSS)," 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022, pp. 413-418, doi: 10.1109/IROS47612.2022.9981503. [[IEEEExplore](#)]
- [2] C. -W. Chen, H. -C. Chen, H. -Y. Yang, X. -Y. Zeng, X. -H. Wu, and **P. -C. Chen**, "intraOcular Robotic Interventional System (iORBIS): Mechanical Design for Distally-Actuated Instrument Insertion and Automatic Tool Change," Mechanism and Machine Theory, vol.167, p. 104568, 2022. [[ScienceDirect](#)]

Side Projects

Automatic Thermometer System with Smart Access Control

Taipei, Taiwan

PROJECT LEAD IN THE STUDENT VOLUNTEER TEAM

June 2020

- Motivated by the risk of staff being infected when measuring body temperature by hand during the **COVID-19 pandemic**
- **Entrusted by NTU**, manufacturing 80 devices and offering service to **protect 34,000 faculties and students** on campus
- Nominated as Altruistic Award and Social Devotion Special Award

EE Night Tron Dance (video)

Taipei, Taiwan

PROJECT LEAD

Apr. 2019

- Led a team of 15 to design and build the whole Tron Dance suits and control systems
- Used Raspberry Pi and customized circuit boards to control electroluminescence and LED strips on the customized suits