

Cheng-Hao, Kao



About me

A second-year MASc student in Mechatronics engineering at the University of Waterloo. Proficient in machine learning, microcontrollers, control systems, and robotics. Possess the analytical abilities required for research and design as well as a comprehensive grasp of engineering principles. Currently working in the Structural Biomechanics Lab on injury prediction and analysis. Previously involved in the Microelectromechanical Systems Lab dedicated to FPCB mirror-based scanners, and in the Robotics and Computer Vision Lab conducting research on multi-robot collaboration joint trajectory planning and control systems. Seeking more professional training for further development within the field of robotics, microcontrollers, and control systems.

Contact

Born on 1999/11/30, Age 25

howardkao1130@gmail.com

+1 6476716097

Unit 247, 350 Columbia St. West
Waterloo (On) N2L 6P2, Canada

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Languages

Chinese - Native Language

English - Professional Knowledge

EDUCATION

January
2024 -
Ongoing

MASc in Mechanical and Mechatronics Engineering
University of Waterloo
GPA: 3.90/4.0 Cumulative

Waterloo, On, Canada

Relevant Coursework: Introduction to Machine Learning, Pattern Recognition and Machine Learning, Deployment of Deep Learning Model, Computational Intelligence, Optimization Methods, Human Factors in Testing

August 2018
- June 2023

Bachelor of Engineering
Toronto Metropolitan University
GPA: 3.85/4.33 Cumulative

Toronto, On, Canada

Relevant Coursework: Mechanical Design, Control of Robotic Manipulators, Real-Time Computer Control Systems, Fundamentals of Robotics, Mechatronics Systems Design, Measurements, Sensors and Instruments, Microprocessor Systems, Control Systems Digital Systems, Computer Programming Fundamentals, Electric Machines and Actuators, Electric Circuits, Applied Finite Elements, Vibrations, Machine Design, Mechanics of Machines, Solid Mechanics, Statics and Mechanics of Materials, Dynamics, Manufacturing Fundamentals, Introduction to Engineering Design, Engineering Graphical Communication, Numerical Analysis, Linear Algebra, Differential Equations and Vector Calculus, Calculus II, Calculus I

August 2015
- June 2018

High School Diploma
No.2 High School of East China Normal University
Average: 95.3/100

Shanghai, China

WORK EXPERIENCE

August 2025
- Ongoing

Research Intern
Huawei

Toronto, On, Canada

- Research on agentic AI compute technologies and trends

June 2023 -
January
2024

Research Assistant
Toronto Metropolitan University RCVL Lab

Toronto, On, Canada

- Research on multi-robot collaboration joint trajectory planning and control
- Research on micro-plastic detection via ultrasonic sensor and machine learning
- Software development

September
2022 -
February
2023

Research Assistant
Toronto Metropolitan University MEMS Lab

Toronto, On, Canada

- Research on FPCB mirror-based lidar scanners
- Integration of PSD sensors and ToF sensors
- Incorporation of GUI with the scanner

Professional Skills

Mechatronics Engineering

Mechanical Engineering Machine Learning

Deep Learning Optimization Robotics

SolidWorks Simulation and Design

Engineering Mathematics

Control System Design Microcontrollers

Honors and Awards

Dean's List 2018 to 2019 Dean's List 2019 to 2020

Dean's List 2020 to 2021 Dean's List 2021 to 2022

Mechanical Engineering Alumni Award

Mechanical Engineering Capstone Project Award

Graduation with Distinction

Soft Skills and Strengths

Adaptability Problem Solving Collaboration

Team Working Open-Mindedness

Critical Thinking Communication

Willingness to Learn Responsibility Reliability

Enthusiasm Autonomy Motivated

Stress Tolerance Research and Analysing

Personal Time Management Strategic Planning

Patience Empathy Discipline

Interests

- Deep Intelligence
- Billiards
- Machine Learning
- Board Games
- Control Systems
- Card Games
- Robotics
- Squash
- Basketball

April 2021 - September 2021**Research Assistant**📍 Toronto, On, Canada
Toronto Metropolitan University Ultrashort Laser Nanomanufacturing Lab (Summer Internship Program)

- Conducting porosity and fiber analyses
- Generating molecular dynamics simulations
- SEM image processing

April 2020 - September 2020**Research Assistant**📍 Toronto, On, Canada
Toronto Metropolitan University Ultrashort Laser Nanomanufacturing Lab (Summer Internship Program)

- Conducting porosity and fiber analyses
- Generating molecular dynamics simulations
- SEM image processing

 **PUBLICATIONS****Manuscript**

2025

Predicting the Risk of ACL Injuries Using Machine Learning Models and Anatomical Predictors, Under Review, Link Unavailable**Arxiv Preprint**

2024

Morphological Detection and Classification of Microplastics and Nanoplastics Emerged from Consumer Products by Deep Learning, IEEE, Link**Journal Article**

2023

MR. CAP: Multi-Robot Joint Control and Planning for Object Transport, IEEE Control System Letters, Link **SOFTWARE SKILLS****Data Analysis**

PyTorch

TensorFlow

AutoGluon

SkLearn

XGBoost

CATBoost

SAM

YOLO

NLopt

Optuna

MATLAB

GTSAM

Modeling and Simulation

Simulink

Multisim

Design and Development

ANSYS

Processing

Version Control

SolidWorks

LabVIEW

Office Automation

GitHub

MS Office (Excel, Word, PowerPoint)

Overleaf

Adobe Illustrator

</> PROGRAMMING LANGUAGES

- Python
- LaTex
- Matlab
- VHDL
- Processing
- C
- Fortran
- C++