Hanyu Jin

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ACADEMIC HIGHLIGHT

- Received bachelor's degree with First Class Honor from top university (top 10 in QS World University Ranking), currently continuing graduate study with GPA 4.00/4.00 in top university (top 30 in U.S. News National University Rankings), see Education.
- 1 first authored/co-authored paper submitted to RA-L, 3 other papers published/submitted to top journals/conferences, see Publications.
- Over 2 years of research experience on multiple topics (mobile robotics and soft robotics) in world leading universities, see Research Experience.
- Recipient of prizes in international mathematics competitions (awarded to global top 25%) and robotics competitions (international winner among over 50 teams), see Honors & Awards.
- Practical experience in various engineering software, see Skills & Others.

EDUCATION

Carnegie Mellon University   Pittsburgh, PA
M.S. Mechanical Engineering – Research   *2023.08 - 2025.05*
- GPA: 4.00/4.00
- Related Modules: Optimal Control and Reinforcement Learning, Introduction to Robot Learning, Machine Learning and Artificial Intelligence for Engineers, Modern Control Theory

University College London   London, United Kingdom
BEng Mechanical Engineering   *2020.09 - 2023.06*
- GPA: 3.96/4.00, top 5%, First Class Honor.
- Related Modules: Control and Instrumentation, Control and Dynamics, Introduction to Robotics, Machine Learning for Robotics, Robotics in Medicine and Industry.

RESEARCH INTERESTS

- Mobile Robotics: path planning, trajectory optimization, and perception
- Soft Robotics: design and modelling of soft robotics

PUBLICATIONS

- Z. Xu*, **H. Jin***, X. Han, H. Shen, and K. Shimada. Intent Prediction-Driven Model Predictive Control for UAV Planning and Navigation in Dynamic Environments. Submitted to IEEE Robotics and Automation Letters 2024. [pdf][video]
- Z. Xu, X. Han, H. Shen, **H. Jin**, and K. Shimada. NavRL: Learning Safe Flight in Dynamic Environments. Submitted to IEEE Robotics and Automation Letters 2024. [pdf]
- J. Shi, W. Gaozhang, **H. Jin**, G. Shi, and H. A. Wurdemann. Characterisation and control platform for pneumatically driven soft robots: Design and applications. IEEE International Conference on Soft Robotics 2023. [pdf]
- J. Shi, **H. Jin**, S. Abad, G. Shi, W. Gaozhang, and H. A. Wurdemann. Soft Robots with Densely Reinforced Chambers: A Design, Modelling and Evaluation Framework.

RESEARCH EXPERIENCE

UAV Autonomous Navigation in Dynamic Environments
Computational Engineering and Robotics Lab   Carnegie Mellon University, United States
M.S student, Principal Investigator: Prof. Kenji Shimada   *2023.09-2024.09*

- Developed a Model Predictive Control (MPC) based framework for UAV trajectory planning and obstacle avoidance in dynamic environments.
- Designed a quadcopter and deployed the navigation framework for dynamic obstacle avoidance.
- Submitted a written paper to RA-L, see Publications.

Wearable Pneumatic Flexible Supernumerary Robotic Limb for Grasping Compensation

Huang Jian's Lab   Huazhong University of Science and Technology, China

Research Assistant, Principal Investigator: Prof. Jian Huang   *2023.06 –2023.08*

- Developed a closed-loop control system for the pneumatic flexible robotic limb.
- Implemented a learning-based human hand motion classification for robotic limb gesture control.

Design and Analytical Modelling of Soft Manipulators

Soft Haptics and Robotics Lab   University College London, United Kingdom

Research Assistant, Principal Investigator: Prof. Helge Wurdemann   *2022.03 - 2022.12*

- Created a MATLAB App for developing soft continuum robots with various dimensions and materials based on the analytical kinematic model.
- Collaborated a written paper, see Publications.

Control, Experimentation and Evaluation of Soft Robots

Soft Haptics and Robotics Lab   University College London, United Kingdom

Research Assistant, Principal Investigator: Prof. Helge Wurdemann   *2022.03 - 2022.12*

- Built a platform for the actuation and characterization of soft robots, developed a MATLAB toolbox with Graphical User Interface (GUI) and the Arduino module for the platform.
- Published a paper to 2023 IEEE International Conference on Soft Robotics, see Publications.

Soft Actuators Design for Wearable Soft Robotics Glove

Neurorehabilitation and Robotics Laboratory   Chinese University of Hong Kong, China

Research Assistant, Principal Investigator: Prof. Raymond Kai-Yu Tong   *2022.06-2022.08*

- Designed fiber reinforced actuators using SolidWorks that enhanced the soft robotic glove performance in rehabilitation by improving range of motion of the thumb exoskeleton.
- Modelled the actuators in Ansys and applied Finite Element Analysis for force and kinematics.

HORNOURS & AWARDS

- RCC Qianjiang International Robotics Open   2019
  International winner among 50 teams over the world
- The FIRST Robotics Competition (FRC)   2018
  Second Place, Dean's List Finalist among 50 teams over the world
- Euclid Mathematics Contests, organized by University of Waterloo   2018
  Global TOP 25% among 20000 students over the world
- Hypatia Mathematics Contests, organized by University of Waterloo   2018
  Global TOP 25% among 20000 students over the world

SKILLS & OTHERS

- Languages: Mandarin (native), English (fluent), French (basic)
- Programming Languages: C/C++, Python, Julia
- Development Tools: ROS, CMake, Git, Arduino, MATLAB &Simulink
- CAD Modelling: SolidWorks, Autodesk Fusion 360
- Finite Element Method: Abaqus, Ansys
- Basic Applications: Microsoft Office (Word, Excel, PowerPoint), Adobe (Premiere, Audition)