XIHANG YU (JIMMY)

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EDUCATION

UNIVERSITY OF MICHIGAN, COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS	ANN ARBOR, MI
B.S. in Computer Science with Honors, B.S. in Mathematics, GPA: 4.0 /4.0	*Jan 2022 – May 2024(Expected)*
COLUMBIA UNIVERSALITY, COLUMBIA COLLEGE	NEW YORK, NY
Visiting Student Program in Computer Science track, GPA: 4.0/4.0	*Sep 2021 - Dec 2021*
CHINESE UNIVERSITY OF HONG KONG, DEPT. OF COMPUTER SCIENCE	HONG KONG
Major in Artificial Intelligence: Systems and Technologies, GPA: 3.869/4.0	*Sep 2019 - May 2021*

SELECTED COURSES:
Graduate Level: Hybrid Control, Continuous Optimization Methods, Mobile Robotics, Nonlinear Dynamics and Geometric Mechanics, Deep Learning for Robot Perception, Principles of Machine Learning
Undergraduate Level: Analysis and Optimization, Combinatorics and Graph Theory, Linear Programming, Introduction to Autonomous Robotics, Natural Language Processing, Computer Vision, Computational Aspects of Robotics, Introduction to Computer Systems, Computer Science Theory, Introduction to Cryptography

RESEARCH INTERESTS

Optimization, Robot Perception, Vision-based Control

PUBLICATION

X. Yu, S. Teng, T. Chakhachiro, W. Tong, T. Li, TY. Lin, S. Koehler, M. Ahumada, JM. Walls, M. Ghaffari, "Fully Proprioceptive Slip-Velocity-Aware State Estimation for Mobile Robots via Invariant Kalman Filtering and Disturbance Observer", *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (acceptance rate: 43.3%)[arXiv]
X. Yu, H. Yang, "SIM-Sync: From Certifiably Optimal Synchronization over the 3D Similarity Group to Scene Reconstruction with Learned Depth". *Submitted to IEEE Robotics and Automation Letters (RA-L).* [arXiv]
B. Wang, F. Yang, **X. Yu**, C. Zhang, H. Zhao, "APISR: Anime Production Inspired Real-World Anime Super-Resolution". *In submission.*

RESEARCH AND INTERNSHIP

MANIPULATION AND ROBOT PERCEPTION | ROBOTICS INSTITUTE, UNIVERSITY OF MICHIGAN
Research Assistant Supervised by Dr. Chad Jenkins (Lab for Progress)   *Jan 2023– Present*
  ▪ Honors Thesis: Developing language-conditioned object grasping algorithm (In development)
CERTIFIABLE ALGORITHM AND SEMIDEFINITE PROGRAMMING | HARVARD UNIVERSITY
Visiting Scholar Supervised by Dr. Heng Yang (Computational Robotics Lab)   *May 2023– Aug 2023*
  ▪ Developed certifiably correct camera trajectory estimation algorithm using semidefinite programming
MOBILE ROBOT | ROBOTICS INSTITUTE, UNIVERSITY OF MICHIGAN
Research Assistant Supervised by Dr. Maani Ghaffari (Curly Lab)   *Jan 2022 – Dec 2022*
  ▪ Conducted research on state estimation using Invariant Extended Kalman Filter
REHABILITATION ROBOT | MECHANICAL ENGINEERING DEPT., COLUMBIA UNIVERSITY
Research Assistant Supervised by Dr. Sunil K Agrawal (ROAR Lab)   *Dec 2021 – May 2022*
  ▪ Contributed kinematics and dynamic libraries to wheelchair robot for active postural support using rospy. [website]
AV SIMULATION | CIVIL ENGINEERING AND ENGINEERING MECHANICS DEPT., COLUMBIA UNIVERSITY
Research Assistant Supervised by Dr. Sharon Di (DitecT Lab)   *Sep 2021 - Dec 2021*
  ▪ Integrated MmWave communication in TraCI framework for NS3 and SUMO Coupling in the COSMOS project
SOFTWARE ENGINEER INTERNSHIP | HUAWEI TECHNOLOGIES CO., LTD   *June 2021 - Aug 2021*
  ▪ Contributed to code auto-generation frame on HUAWEI OptiX OSN1800 OTN communication platform
LYAPUNOV STABILITY AND FINITE-TIME CONTROL | CUHK SUMMER RESEARCH INTERNSHIP
Research Assistant Supervised by Dr. Dongkun Han   *May 2020 - Aug 2020*
  ▪ Designed CBF-based coordination controller in Multiagent Systems with Matlab simulation [video]

EXTRACURRICULAR ACTIVITIES AND SERVICE

REVIEWER | TRANSACTION ON MECHATRONICS (TMECH)

TEACHING ASSISTANT | ROB 530 MOBILE ROBOTICS, UNIVERSITY OF MICHIGAN

Instructor: Dr. Maani Ghaffari   *Jan 2023 - Apr 2023*

- Developed homework and quizzes and organized office hour sessions in the graduate course with 158 students

GRADER, MATH 465 COMBINATORICS AND GRAPH   *Oct 2022 - Dec 2022*

AUTONOMOUS VEHICLES DEVELOPMENT | COLUMBIA UNIVERSITY ROBOTICS CLUB

Motion Planning Subteam Leader   *Sep 2021 - Dec 2021*

HONORS AND COMPETITION AWARDS

LEUNG SIU KOI SCHOLARSHIP, CUHK *Academic Merit*		*Dec 2021*
ELITE STREAM SCHOLARSHIP, CUHK *Academic Merit*		*Oct 2021*
DEAN'S LIST, CUHK *Top 10% in the department*		*Aug 2021, Aug 2020*
CHUNG CHI COLLEGE CLASS SCHOLARSHIP, CUHK *Best student in the class of a department*		*Nov 2020*
TALENT DEVELOPMENT SCHOLARSHIP, HONG KONG GOVERNMENT EDUCATION BUREAU		*May 2020*
NATIONAL CREATIVE COMPOSITION COMPETITION *Grand Prize (10 awards in total, National-level)*		*Aug 2018*
SECOND PRIZE CHINESE MATHEMATICAL OLYMPIAD (CMO) 35TH, CHINESE MATHEMATICS SOCIETY		*Oct 2018*
SECOND PRIZE CHINESE PHYSICS OLYMPIAD 35TH, NATIONAL PHYSICS COMPETITION COMMITTEE		*Oct 2018*

SKILLS

- Programming Tool: C/C++, Python, MATLAB
- Robotics Tool: ROS, CUDA, NVIDIA Issac Gym, PyBullet