# YUXIN CHEN

PHD · CONTROL · ROBOTICS · MACHINE LEARNING

*2521 Hearst Ave, Berkeley, CA, 94709*

 +1 (734) 881-4119 | ✉ yuxinc@berkeley.edu |  thomaschen98 | ⊕ https://thomaschen98.github.io

## SUMMARY

I build safe and agile embodied agents that intelligently perceive, interact with, and collaborate within the physical world while adhering to human values. My research emphasizes whole-body control of mobile robots, dexterous manipulation, and human-robot interaction, leveraging state-of-the-art advancements in reinforcement learning, generative models, optimization, and control.

## EDUCATION

**University of California, Berkeley**                                                           *Berkeley, CA*
PH.D. MECHANICAL ENGINEERING (CONTROL)                                         *Aug 2022 – May 2027*
- Advisor: Prof. Masayoshi Tomizuka
- Minors: Machine Learning, Optimization

**University of Michigan, Ann Arbor**                                                       *Ann Arbor, MI*
M.S. ROBOTICS                                                                             *Aug 2020 – May 2022*
- Advisor: Prof. Ram Vasudevan

**University of Michigan, Ann Arbor**                                                       *Ann Arbor, MI*
B.S.E. AEROSPACE ENGINEERING (SUMMA CUM LAUDE)                               *Sep 2018 – May 2020*
- Minor: Computer Science

**Shanghai Jiao Tong University**                                                         *Shanghai, China*
B.S. MECHANICAL ENGINEERING                                                             *Sep 2016 – Aug 2020*

## RESEARCH EXPERIENCE

**University of California, Berkeley**                                                           *Berkeley, CA*
GRADUATE STUDENT RESEARCHER                                                             *Aug 2022 – Present*
Faculty member: Prof. Masayoshi Tomizuka
Affiliation: Mechanical Systems Control (MSC) Laboratory & Berkeley AI Research (BAIR) & Berkeley DeepDrive (BDD)

**University of Michigan, Ann Arbor**                                                       *Ann Arbor, MI*
GRADUATE STUDENT RESEARCHER                                                           *May 2020 – Jul 2022*
Faculty member: Prof. Ram Vasudevan
Affiliation: Robotics and Optimization for the Analysis of Human Motion (ROAHM) Laboratory

**University of Michigan, Ann Arbor**                                                       *Ann Arbor, MI*
UNDERGRADUATE RESEARCH ASSISTANT                                                     *Oct 2018 – May 2020*
Faculty member: Prof. Ella Atkins & Prof. Brent Gillespie
Affiliation: Autonomous Aerospace Systems (A2SYS) Laboratory & HAPTIX Laboratory

## WORKING EXPERIENCE

**Robotics and AI Institute**                                                               *Cambridge, MA*
RESEARCH INTERN. (MENTOR: JIUGUANG WANG)                                         *Mar 2025 – Jul 2025*

**Mitsubishi Electric Research Laboratories**                                               *Cambridge, MA*
RESEARCH INTERN. (MENTOR: DEVESH JHA & DIEGO ROMERES)                         *May 2024 – Aug 2024*

**Zoox, Inc.**                                                                               *Foster City, CA*
SOFTWARE ENGINEERING INTERN. (MENTOR: RICK ZHANG)                             *May 2021 – Aug 2021*

**Honda R&D Americas, LLC**                                                               *Ann Arbor, MI*
STUDENT MEMBER, MULTIDISCIPLINARY DESIGN PROGRAM (MENTOR: TYLER NAES)        *Jan 2021 – Dec 2021*

**ZF (China) Investment Co., Ltd**                                                         *Shanghai, China*
SOFTWARE DEVELOPMENT & TESTING INTERN. (MENTOR: YI ZHANG)                      *Jan 2018 – Mar 2018*

## PUBLICATIONS

*(The superscript * indicates equal contribution.)*

**Journal**

[J2]  R. Jalayer, **Y. Chen**, M. Jalayer, C. Orsenigo, M. Tomizuka, "Testing Human-Hand Segmentation on In-Distribution and Out-of-Distribution Data in Human-Robot Interactions Using a Deep Ensemble Model," *Mechatronics*, 2025.

[J1]  P. Ewen, A. Li, **Y. Chen**, S. Hong and R. Vasudevan, "These Maps are Made for Walking: Real-Time Terrain Property Estimation for Mobile Robots," *IEEE Robotics and Automation Letters (RA-L)*, vol. 7, no. 4, pp. 7083-7090, 2022.

**Conference Proceedings**

[C9]  **Y. Chen***, X. Zhu*, L. Sun*, F. Niroui, S. Le Cleac'h, J. Wang, K. Fang, "Versatile Loco-Manipulation through Flexible Interlimb Coordination," *2025 Conference on Robot Learning (CoRL)*, 2025. (acceptance rate: 35.8%, **Oral: 4.47%**)

[C8]  **Y. Chen***, C. Tang*, J. Wei, C. Li, R. Tian, X. Zhang, W. Zhan, P. Stone, M. Tomizuka, "MEReQ: Max-Ent Residual-Q Inverse RL for Sample-Efficient Alignment from intervention," *2025 Conference on Robot Learning (CoRL)*, 2025. (acceptance rate: 35.8%)

[C7]  **Y. Chen**, D. Jha, M. Tomizuka, D. Romeres, "FDPP: Fine-tune Diffusion Policy with Human Preference," *2025 IEEE International Conference on Robotics and Automation (ICRA)*, 2025. (acceptance rate: 38.7%)

[C6]  T. Zhang, Z. Wu, **Y. Chen**, Y. Wang, B. Liang, S. Moura, M. Tomizuka, M. Ding, W. Zhan, "Physics-Aware Robotic Palletization with Online Masking Inference," *2025 IEEE International Conference on Robotics and Automation (ICRA)*, 2025. (acceptance rate: 38.7%, **Best Paper Award in Automation: 1/1606**)

[C5]  **Y. Chen***, Y. Xu*, J. Nie, Y. Wang, H. Zhuang, M. Okumura, "Advancing Cross-domain Discriminability in Continual Learning of Vision-Language Models," *Advances in Neural Information Processing Systems (NeurIPS)*, 2024. (acceptance rate: 25.8%)

[C4]  **Y. Chen**, C. Tang, R. Tian, C. Li, J. Li, M. Tomizuka and W. Zhan, "Quantifying Interaction Level Between Agents Helps Cost-efficient Generalization in Multi-agent Reinforcement Learning," *Proceedings of the 1st Reinforcement Learning Conference (RLC)*, 2024. (acceptance rate: 40%)

[C3]  **Y. Chen**, C. Tang, R. Tian, C. Li, J. Li, M. Tomizuka and W. Zhan, "Quantifying Agent Interaction in Multi-Agent Reinforcement Learning for Cost-efficient Generalization," *Proceedings of the 23rd International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, pp. 2201-2203, 2024. (Extended Abstract, acceptance rate: 45.1%)

[C2]  P. Ewen, J.P. Sleiman, **Y. Chen**, W.C. Lu, M. Hutter and R. Vasudevan, "Generating Continuous Motion and Force Plans in Real-Time for Legged Mobile Manipulation," *2021 IEEE International Conference on Robotics and Automation (ICRA)*, pp. 4933-4939, 2021. (acceptance rate: 43.6%)

[C1]  M. Romano, **Y. Chen**, O. Marshall, and E. Atkins, "Nailed it: Autonomous Roofing with a Nailgun-Equipped Octocopter," *AIAA Aviation 2021 Forum,* pp. 3211, 2021.

**Workshop**

[W4]  **Y. Chen***, X. Zhu*, L. Sun*, F. Niroui, S. Le Cleac'h, J. Wang, K. Fang, "Versatile Loco-Manipulation through Flexible Interlimb Coordination," *RSS 2025 Workshop on Whole-body Control and Bimanual Manipulation: Applications in Humanoids and Beyond (WCBM)*, 2025.

[W3]  **Y. Chen***, J. Wei*, C. Xu, B. Li, M. Tomizuka, A. Bajcsy, R. Tian, "Reimagination with Test-time Observation Interventions: Distractor-Robust World Model Predictions for Visual Model Predictive Control," *RSS 2025 Workshop on Out-of-Distribution Generalization in Robotics (OOD)*, 2025. (**Oral**, **Best Paper Finalist**)

[W2]  **Y. Chen**, D. Jha, M. Tomizuka, D. Romeres, "Adapting Diffusion Policies to Human Preferences via Reward-Guided Fine-Tuning," *ICRA 2025 Workshop on Safely Leveraging Vision-Language Foundation Models in Robotics: Challenges and Opportunities (Safe-VLM),* 2025. (**Oral**)

[W1]  P. Wang, X. Zhu, **Y. Chen**, C. Xu, M. Tomizuka, C. Li, "Residual Policy Gradient: A Reward View of KL-regularized Objective," *ICRA 2025 Workshop on Safely Leveraging Vision-Language Foundation Models in Robotics: Challenges and Opportunities (Safe-VLM),* 2025. (**Spotlight**)

**Preprints and Working Papers**

[P4]  **Y. Chen***, J. Wei*, C. Xu, B. Li, M. Tomizuka, A. Bajcsy, R. Tian, "Reimagination with Test-time Observation Interventions: Distractor-Robust World Model Predictions for Visual Model Predictive Control," *under review*, 2025.

[P3]  S. Zhao, K. Yang, **Y. Chen**, C. Li, Y. Xie, X. Zhang, C. Wang, M. Tomizuka, "DexCtrl: Towards Sim-to-Real Dexterity with Adaptive Controller Learning," *under review*, 2025.

[P2]  P. Wang, X. Zhu, **Y. Chen**, C. Xu, M. Tomizuka, C. Li, "Residual Policy Gradient: A Reward View of KL-regularized Objective," *under review*, 2025.

[P1]  S. Zhao*, X. Zhu*, **Y. Chen**, C. Li, X. Zhang, M. Ding, M. Tomizuka, "DexH2R: Task-oriented Dexterous Manipulation from Human to Robots," *under review*, 2024.

## TEACHING EXPERIENCE

**University of California, Berkeley** *Berkeley, CA*
ADVANCED CONTROL SYSTEM I (MECENG 232) - GRADUATE STUDENT INSTRUCTOR *Fall 2024*
Instructor: Prof. Masayoshi Tomizuka
ADVANCED CONTROL SYSTEM II (MECENG 233) - GRADUATE STUDENT INSTRUCTOR *Spring 2024*
Instructor: Prof. Masayoshi Tomizuka
AI FOR AUTONOMY (MECENG 292B) - GRADUATE STUDENT INSTRUCTOR *Spring 2024*
Instructor: Dr. Wei Zhan

**University of Michigan, Ann Arbor** *Ann Arbor, MI*
SELF-DRIVING CARS: PERCEPTION AND CONTROL (ROB 535) - GRADUATE STUDENT INSTRUCTOR *Fall 2021*
Instructor: Prof. Ram Vasudevan
MOTION PLANNING (EECS 598) - COURSE ASSISTANT *Winter 2021*
Instructor: Prof. Dmitry Berenson
INTRODUCTION TO AEROSPACE SYSTEMS (AERO 201) - COURSE ASSISTANT *Fall 2019*
Instructor: Prof. Ella Atkins

## ACADEMIC SERVICES

**Journal Reviewer**
- IEEE Robotics and Automation Letters (RA-L) *2024 – Present*

**Conference Reviewer**
- International Conference on Learning Representations (ICLR) *2025*
- International Conference on Machine Learning (ICML) *2025*
- Robotics: Science and Systems (RSS) *2025*
- Conference on Robot Learning (CoRL) *2025*
- IEEE International Conference on Robotics and Automation (ICRA) *2024 – 2025*
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) *2023 – 2025*
- Reinforcement Learning Conference (RLC) *2025*
- Learning for Dynamics & Control Conference (L4DC) *2025*

**Program Committee**
- Co-organizer of IAVVC workshop on Scenario and Behavior Diversity in Simulation for Autonomous Vehicle Validation *2023*
- Program Committee of ICRA workshop on Human-Centered Robot Learning in the Era of Big Data and Large Models *2025*
- Program Committee for the 40th AAAI Conference on Artificial Intelligence (AAAI-26) *2025*

## AWARDS AND SCHOLARSHIPS

2025 **ME Graduate Fellowship**, *University of California, Berkeley*
2025 **ICRA 2025 Best Paper Award in Automation**, *IEEE Robotics and Automation Society*
2025 **Qualcomm Innovation Fellowship Finalist**, *Qualcomm Incorporated*
2020 **Outstanding Graduates of Shanghai (top 3%)**, *Ministry of Education of Shanghai*
2020 **Capstone Design Gold Award (top 1%)**, *Shanghai Jiao Tong University*
2020 **James B. Angell Scholar**, *University of Michigan*
2019 **Roger King Scholarship**, *University of Michigan*
2018 **Longey-SJTU Global Elite Scholarship**, *Shanghai Jiao Tong University*
2017 **Rongchang Science and Technology Innovation Scholarship**, *Shanghai Jiao Tong University*
2017 **Undergraduate Academic Excellence Scholarship**, *Shanghai Jiao Tong University*