

# YAN DING

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## EDUCATION

<b>State University of New York at Binghamton, USA</b>	Sep 2019 - Feb 2024
- Ph.D., Department of Computer Science, Majoring in Computer Science and Technology	
- Supervised by Associate Prof. Shiqi Zhang [ <a href="#">Homepage</a> ]	
- GPA: 3.93/4.0	
- USNews Best National University Rankings: 73 [ <a href="#">Link</a> ]	
<b>Chongqing University, China</b>	Sep 2016 - Jun 2019
- Master, College of Computer Science, Majoring in Computer Science and Technology	
- Supervised by Full Prof. Chao Chen [ <a href="#">Homepage</a> ]	
- 2023 National Science Fund for Excellent Young Scholars	
- GPA: 3.03/4.0	
<b>Chongqing University, China</b>	Sep 2012 - Jun 2016
- Bachelor, College of Mechanical Engineering, Majoring in Mechatronic Engineering	
- Supervised by Full Prof. Fei Liu [ <a href="#">Homepage</a> ]	
- GPA: 3.23/4.0, Rank: 9/125	

## WORK EXPERIENCE

<b>Shanghai AI Lab, China</b>	April 2024 - Present
- <b>Position:</b> Researcher	
- <b>Research Focus:</b> Robotics, Embodied AI, Mobile Manipulation	
- <b>Team Leadership:</b> Leading a team of about 20 interns and graduates to complete big projects.	

## RESEARCH GOAL

I am dedicated to developing a general-purpose household robot that frees humans from tedious chores, allowing them to enjoy their leisure time. My research focuses on the intersection of planning and learning in complex home environments, using techniques from IL, VLMS and LLMs. To be more specific, *my focus is on addressing the challenge of enabling mobile manipulators — including wheeled robots with arms, humanoid robots, and quadrupeds with arms — to efficiently and successfully complete long-term tasks in open-world environments.*

## RESEARCH EXPERIENCE

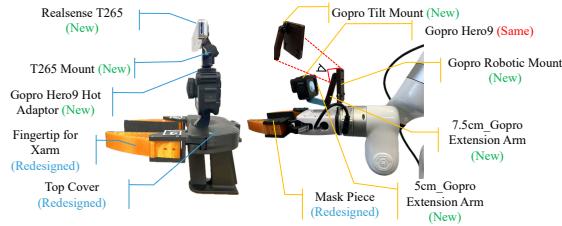
<b>Shanghai AI Lab, China</b>	Aug 2024 - Present
• <i>Humanoid:</i> Develop a series of algorithms specifically designed for humanoid robots and implement them on the Fourier GR-1 robotic platform.	



## Shanghai AI Lab, China

May 2024 - Present

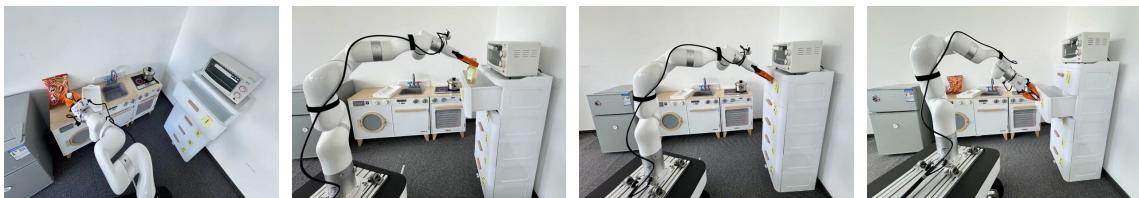
- **Data Collection System:** Develop the FastUMI system, an integrated software-hardware framework comprising two core components: a human-operated handheld device for data collection and a robot-mounted module for policy inference. This system serves as an efficient and intuitive platform for facilitating data acquisition in robotic learning applications.



## Shanghai AI Lab, China

Feb 2024 - Present

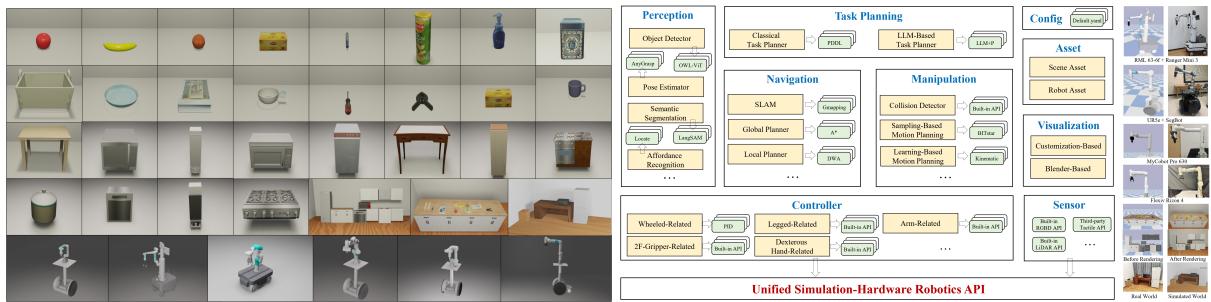
- **Planning Algorithms:** Develop VLM-powered task planning algorithms to enable household robots to effectively align their actions with user-defined reminders, enhancing adaptability in domestic environments.



## Shanghai AI Lab, China

April 2024 - Present

- **Embodied AI Platform:** Optimize BestMan. The updated platform introduces modular architecture, unified interfaces, and hardware-agnostic design, streamlining development and enhancing its value for Embodied AI research. The framework has also been deployed on multiple real-world robotic systems [Project Link].



## State University of New York at Binghamton, USA

Sep 2019 - Feb 2024

- Developed sophisticated algorithms for robotic planning and learning, enabling robots to complete long-horizon tasks in open-world settings.
- Developed BestMan-Alpha, a practical mobile manipulator integrating a UR5e robotic arm with a Segbot base to enhance functional capabilities, and oversee its open-source simulation project in Gazebo and Pybullet [Project Link].

## Ford Motor Company, USA

Dec 2019 - Feb 2024

- Delivered lectures on advanced AI technologies such as GPT-3, ChatGPT, DALL-E, and BERT, emphasizing their application in service robotics.
- Contributed significantly to the development of a case-based reasoning system, acknowledged and accepted at the ICCBR 2021 Conference. The associated paper is titled ‘Task and Situation Structures for Case-Based Planning’



## Chongqing University

*Oct 2015 - Jun 2019*

- Developed sophisticated algorithms for vehicle mobile trajectory data, focusing on map-matching, compression, and implementation.

## SELECTED PUBLICATIONS

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# Equal Contribution, † Corresponding Author

1. AlignBot: Aligning VLM-powered Customized Task Planning with User Reminders Through Fine-Tuning for Household Robots
  - Zhaxizhuoma, Pengan Chen, Ziniu Wu, Jiawei Sun, Dong Wang, Peng Zhou, Nieqing Cao, Yan Ding<sup>†</sup>, Bin Zhao, Xuelong Li
  - Submitted to ICRA 2025
  - [Paper] [Project]
2. Fast-UMI: A Scalable and Hardware-Independent Universal Manipulation Interface
  - Ziniu Wu<sup>#</sup>, Tianyu Wang<sup>#</sup>, Zhaxizhuoma<sup>#</sup>, Chuyue Guan, Zhongjie Jia, Shuai Liang, Haoming Song, Delin Qu, Dong Wang, Zhigang Wang, Nieqing Cao, Yan Ding<sup>†</sup>, Bin Zhao<sup>†</sup>, Xuelong Li
  - Technical Report
  - [Paper] [Project]
3. FLASH: Fast Learning and Servoing for High-precision Domestic Manipulation Tasks
  - Zhaxizhuoma<sup>#</sup>, Ziniu Wu<sup>#</sup>, Yan Ding<sup>†</sup>
  - Ongoing
4. MoMa-Pos: An Efficient Object-Kinematic-Aware Base Placement Optimization Framework for Mobile Manipulation
  - Beichen Shao<sup>#</sup>, Yan Ding<sup>#†</sup>, Xingchen Wang, Xuefeng Xie, Fuqiang Gu, Jun Luo, Chao Chen<sup>†</sup>
  - Submitted to ICRA 2025
  - [Paper] [Project]
5. Integrating Action Knowledge and LLMs for Task Planning and Situation Handling in Open Worlds
  - Yan Ding<sup>†</sup>, Xiaohan Zhang, Saeid Amiri, Nieqing Cao, Hao Yang, Chad Esselink, Shiqi Zhang.
  - Autonomous Robots Journal (AURO 2023)
  - Impact Factor: 3.5; JCR: Q1; SCI: 3
  - [Paper] [Project] [Code] [Demo]
6. Task and Motion Planning with Large Language Models for Object Rearrangements
  - Yan Ding<sup>†</sup>, Xiaohan Zhang, Chris Paxton, Shiqi Zhang.
  - IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2023).
  - Top Conference in Robotics; CCF-C
  - [Paper] [Project] [Demo]
7. Learning to Ground Objects for Robot Task and Motion Planning
  - Yan Ding<sup>†</sup>, Xiaohan Zhang, Xingyue Zhan, Shiqi Zhang
  - IEEE Robotics and Automation Letters (RAL 2022)

- Impact Factor: 5.2; JCR: Q1; SCI: 2  
- [Paper] [Project] [Code] [Demo]
8. Task-Motion Planning for Safe and Efficient Urban Driving
- Yan Ding<sup>†</sup>, Xiaohan Zhang, Xingyue Zhan, Shiqi Zhang
  - IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2020)
  - Top Conference in Robotics; CCF-C
  - [Paper] [Project] [Code] [Demo] [Presentation]
9. GLAD: Grounded Layered Autonomous Driving for Complex Service Tasks.
- Yan Ding<sup>†</sup>, Cheng Cui, Xiaohan Zhang, Shiqi Zhang
  - Under Review
  - [Paper] [Project] [Code] [Demo] [Dataset]
10. DAVT: an error-bounded vehicle trajectory data representation and compression framework.
- Chao Chen<sup>#†</sup>, Yan Ding<sup>#</sup>, Suiming Guo, Yasha Wang
  - IEEE Transactions on Vehicular Technology (TVT) 2019.
  - Impact Factor: 6.8; JCR: Q1; SCI: 2
  - [Paper]
11. VTracer: When online vehicle trajectory compression meets mobile edge computing.
- Chao Chen<sup>#†</sup>, Yan Ding<sup>#</sup>, Zhu Wang, Junfeng Zhao, Bin Guo, Daqing Zhang
  - IEEE Systems Journal, 2019.
  - Impact Factor: 4.4; JCR: Q1; SCI: 2
  - [Paper]
12. TrajCompressor: An Online Map-matching-based Trajectory Compression Framework Leveraging Vehicle Heading Direction and Change.
- Chao Chen<sup>#†</sup>, Yan Ding<sup>#</sup>, Xuefeng Xie, Shu Zhang, Zhu Wang, Liang Feng
  - IEEE Transactions on Intelligent Transportation Systems (TITS), 2019.
  - Impact Factor: 8.5; CCF-B; JCR: Q1; SCI: 1
  - [Paper]
13. Fuel Consumption Estimation of Potential Driving Paths by Leveraging Online Route APIs
- Yan Ding, Chao Chen<sup>†</sup>, Xuefeng Xie, Xuefeng Xie, Zhikai Yang
  - Green, Pervasive, and Cloud Computing: 13th International Conference (GPC), 2018.
  - EI Conference
  - [Paper]
14. A three-stage online map-matching algorithm by fully using vehicle heading direction.
- Chao Chen<sup>#†</sup>, Yan Ding<sup>#</sup>, Xuefeng Xie, Shu Zhang
  - Journal of Ambient Intelligence and Humanized Computing, 2018.
  - Impact Factor: 6.2; JCR: Q1; SCI: 3
15. Greenplanner: Planning personalized fuel-efficient driving routes using multi-sourced urban data.
- Yan Ding<sup>#</sup>, Chao Chen<sup>#†</sup>, Shu Zhang, Bin Guo, Zhiwen Yu, Yasha Wang
  - IEEE International Conference on Pervasive Computing and Communications (PerCom) 2017.
  - Top conference in Pervasive Computing, CCF-B
  - [Paper]

#### ACADEMIC SERVICES (GOOGLE SCHOLAR CITATIONS $\geq 570+$ )

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- Program Committee Member of IJCAI (2024)
- Program Committee Member of AAAI (2021, 2022, 2023)
- Journal Reviewer of IEEE RA-L (2022, 2023)

- Conference Reviewer of IEEE IROS (2021, 2022, 2023, 2024, 2025)
- Conference Reviewer of ICRA (2021, 2022, 2023, 2024, 2025)
- Conference Reviewer of IEEE IV (2022, 2023)

## TALK & LECTURE

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1. *Avenue:* ROSCon China  
*Title:* Introduction to FastUMI  
*Year:* 2024
2. *Avenue:* TechBeat / Shanghai AI LAB / Beijing Academy of Artificial Intelligence / Chongqing University  
*Title:* Task and Motion Planning in Open Worlds  
*Year:* 2023
3. *Avenue:* First-Year Research Immersion (FRI)  
*Title:* Introduction to GPT  
*Year:* 2021, 2022, 2023
4. *Avenue:* (CS 465/565) Introduction to Artificial Intelligence  
*Title:* Task and Motion Planning in Open Worlds  
*Year:* 2023
5. *Avenue:* (CS 465/565) Introduction to Artificial Intelligence  
*Title:* Introduction to GPT  
*Year:* 2021, 2022

## WORK REPORTED BY NEWS

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- [FastUMI was reported by JulyEdu, 2024]
- [AlignBot was reported by ShenLan AI, 2024]
- [LLM-GROP was reported by Spectrum News, 2023]
- [BestMan was reported by Linkin, 2022]

## AWARD

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- *Title:* Chongqing City Outstanding Master's Thesis  
*Note:* Only **two** spots available per college each year
- *Title:* Chongqing University Huawei First-Class Scholarship  
*Note:* Only **one** spot available per college each year

## TECHNICAL SKILLS & ABILITIES

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**Programming Languages (as seen on Github):** Python, ROS, PDDL, ASP

**Softwares and Tools:** Pybullet, Gazebo, Unity, CARLA, Blender, LaTeX