# YAN DING

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## EDUCATION

**State University of New York at Binghamton, USA** Sep 2019 - May 2024 (Expected)
- Ph.D., Department of Computer Science, Majoring in Computer Science and Technology
- Supervised by Associate Prof. Shiqi Zhang [Homepage]
- GPA: 3.93/4.0
- USNews Best National University Rankings: 73 [Link]

**Chongqing University, China** Sep 2016 - Jun 2019
- Master, College of Computer Science, Majoring in Computer Science and Technology
- Supervised by Full Prof. Chao Chen [Homepage]
- 2023 National Science Fund for Excellent Young Scholars
- GPA: 3.03/4.0

**Chongqing University, China** Sep 2012 - Jun 2016
- Bachelor, College of Mechanical Engineering, Majoring in Mechatronic Engineering
- Supervised by Full Prof. Feng Zhu [Homepage]
- GPA: 3.23/4.0, Rank: 9/125

## RESEARCH DIRECTION & GOAL

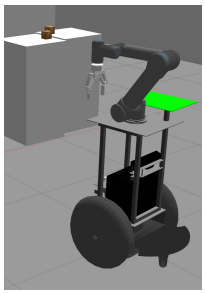
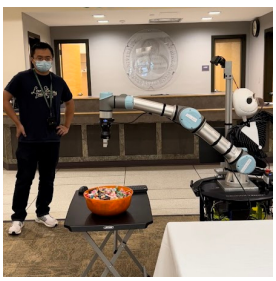
*Direction*: Embodied AI, Robotics, Reinforcement Learning, Mobile Manipulator

*Goal*: I am dedicated to developing a 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 Task and Motion Planning , Large Language Models, Vision-Language Models, Machine Learning, and Reinforcement Learning. To be more specific, *my focus is on addressing the challenge of enabling mobile manipulators to efficiently and successfully complete long-term tasks in open-world environments.*

## RESEARCH EXPERIENCE

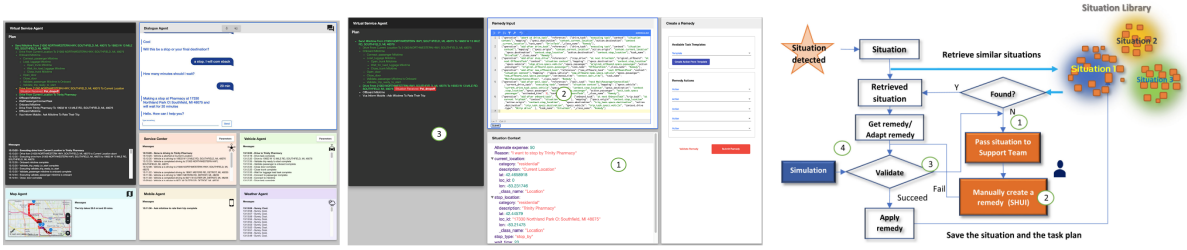
**State University of New York at Binghamton** *Sep 2019 - Present*

- Developed sophisticated algorithms for robotic planning and learning, enabling robots to complete tasks in open-world settings.
- Engineered 'BestMan', a practical mobile manipulator combining a UR5e robotic arm with a Segbot base, to augment functional capabilities..
- Solely created and currently oversee the 'BestMan' open-source simulation project in Gazebo and Pybullet. Project details available at BestMan Project. [Link]


**Ford Motor Company, USA** *Dec 2019 - Present*

- 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.

## PUBLICATIONS

Only Listing First Author, # = Equal Contribution, * = Corresponding Author.

Note that Chao Chen and Shiqi Zhang are both my supervisors.

Table 1: Summary of Paper Levels

| Level | CCF-A | CCF-B | CCF-C | SCI: 1 | SCI: 2 | SCI: 3 | JCR: 1 |
|---|---|---|---|---|---|---|---|
| Number | 0 | 2 | 2 | 1 | 3 | 2 | 6 |

1. *Authors*: Xingchen Wang[#], **Yan Ding**[#], Beichen Shao, Chao Chen[*]
   *Title*: Embodied Visual Navigation for Grasping
   *Accepted by*: Under Review

2. *Authors*: **Yan Ding**[*], Xiaohan Zhang, Bo Liu, Yuqian Jiang, Zainab Altaweel, Nieqing Cao, Peter Stone, Shiqi Zhang
   *Title*: VLM+P: Empowering GPT-4V with Optimal Planning Proficiency through PDDL-Guided Prompts
   *Accepted by*: Under Review

3. *Authors*: **Yan Ding**[*], Xiaohan Zhang, Saeid Amiri, Nieqing Cao, Hao Yang, Chad Esselink, Shiqi Zhang.
   *Title*: Integrating Action Knowledge and LLMs for Task Planning and Situation Handling in Open Worlds
   *Accepted by*: Autonomous Robots Journal (AURO 2023)
   *Note*: Impact Factor: 3.5; JCR: Q1; SCI: 3

   [Paper] [Project] [Code] [Demo]

4. *Authors*: **Yan Ding**[*], Xiaohan Zhang, Chris Paxton, Shiqi Zhang.
   *Title*: Task and Motion Planning with Large Language Models for Object Rearrangements
   *Accepted by*: IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2023).
   *Note*: Top Conference in Robotics; CCF-C

   [Paper] [Project] [Demo]

5. *Authors*: **Yan Ding**[*], Xiaohan Zhang, Xingyue Zhan, Shiqi Zhang
   *Title*: Learning to Ground Objects for Robot Task and Motion Planning
   *Accepted by*: IEEE Robotics and Automation Letters (RAL 2022)
   *Note*: Impact Factor: 5.2; JCR: Q1; SCI: 2

   [Paper] [Project] [Code] [Demo]

6. *Authors*: **Yan Ding**[*], Xiaohan Zhang, Xingyue Zhan, Shiqi Zhang
   *Title*: Task-Motion Planning for Safe and Efficient Urban Driving
   *Accepted by*: IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2020)
   *Note*: Top Conference in Robotics; CCF-C

   [Paper] [Project] [Code] [Demo] [Presentation]

7. *Authors*: **Yan Ding**[*], Cheng Cui, Xiaohan Zhang, Shiqi Zhang
   *Title*: GLAD: Grounded Layered Autonomous Driving for Complex Service Tasks.
   *Accepted by*: Under Review

   [Paper] [Project] [Code] [Demo] [Dataset]

8. *Authors*: Chao Chen[#*], **Yan Ding**[#], Suiming Guo, Yasha Wang
   *Title*: DAVT: an error-bounded vehicle trajectory data representation and compression framework.
   *Accepted by*: IEEE Transactions on Vehicular Technology (TVT) 2019.
   *Note*: Impact Factor: 6.8; JCR: Q1; SCI: 2

   [Paper]

9. *Authors*: Chao Chen[#*], **Yan Ding**[#], Zhu Wang, Junfeng Zhao, Bin Guo, Daqing Zhang
   *Title*: VTracer: When online vehicle trajectory compression meets mobile edge computing.
   *Accepted by*: IEEE Systems Journal, 2019.
   *Note*: Impact Factor: 4.4; JCR: Q1; SCI: 2

   [Paper]

10. *Authors*: Chao Chen[#*], **Yan Ding**[#], Xuefeng Xie, Shu Zhang, Zhu Wang, Liang Feng
    *Title*: TrajCompressor: An Online Map-matching-based Trajectory Compression Framework Leveraging Vehicle Heading Direction and Change.
    *Accepted by*: IEEE Transactions on Intelligent Transportation Systems (TITS), 2019.
    *Note*: Impact Factor: 8.5; CCF-B; JCR: Q1; SCI: 1

    [Paper]

11. *Authors*: **Yan Ding**, Chao Chen[*], Xuefeng Xie, Xuefeng Xie, Zhikai Yang
    *Title*: An online trajectory compression system applied to resource-constrained gps devices in vehicles
    *Accepted by*: Green, Pervasive, and Cloud Computing: 13th International Conference (GPC), 2018.
    *Note*: EI Conference

    [Paper]

12. *Authors*: Chao Chen[#*], **Yan Ding**[#], Xuefeng Xie, Shu Zhang
    *Title*: A three-stage online map-matching algorithm by fully using vehicle heading direction.
    *Accepted by*: Journal of Ambient Intelligence and Humanized Computing, 2018.
    *Note*: Impact Factor: 6.2; JCR: Q1; SCI: 3

13. *Authors*: **Yan Ding**[#], Chao Chen[#*], Shu Zhang, Bin Guo, Zhiwen Yu, Yasha Wang
    *Title*: Greenplanner: Planning personalized fuel-efficient driving routes using multi-sourced urban data.
    *Accepted by*: IEEE International Conference on Pervasive Computing and Communications (PerCom) 2017.
    *Note*: Top conference in Pervasive Computing, CCF-B

[Paper]

## ACADEMIC SERVICES (GOOGLE SCHOLAR CITATIONS $\geq$ 320+)

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

## TALK & LECTURE

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

## WORK REPORTED BY NEWS

- [Spectrum News]
- [Linkin]

## AWARD

- *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

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

**Softwares and Tools:** Gazebo, Pybullet, Unity, GPT-3, ChatGPT, CARLA, Blender, LaTeX