

Jindou Jia

Postdoctoral Researcher in Robot Learning, Nanyang Technological University

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Robot-learning researcher trained in control theory, building robots that transfer reliably from training to environments they have never seen.

23 Papers · **18** First / co-first author · **5** Corresponding author · **14** Robot platforms

T-RO · IJRR · NeurIPS · ICLR Oral · RSS · CoRL · ICRA · Nature npj Robotics · R-AL

Control and learning, both ways

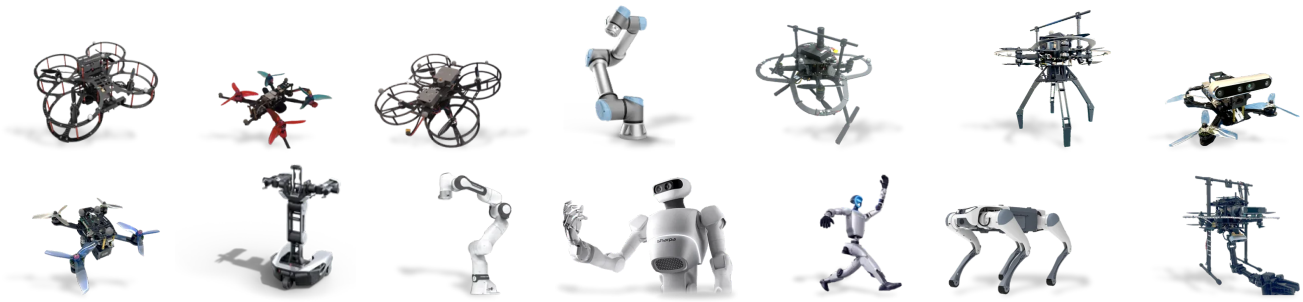
Learning for control: EVOLVER (T-RO), FORESEER (IJRR).
Control for learning: feedback neural ODEs (ICLR Oral), PhyFilter (Nature npj Robotics), ODE policy.

Efficient policies and world models

Real-time generative policies: FLASH (NeurIPS), A2A (RSS), Δ-Flow, MARS. Feedback world models (NeurIPS) and a world-model survey (IJRR).

Robot learning imitation and reinforcement learning, flow matching and diffusion policies, world models, sim-to-real
Control and planning disturbance observers, agile flight control, uncertainty prediction, trajectory optimization

Research Robots



Experience

Nanyang Technological University Nov 2025 - now
Postdoc in the School of Mechanical and Aerospace Engineering, working with Prof. Jianfei Yang at the MARS Lab.

Hangzhou Innovation Institute, Beihang University Jun 2025 - Nov 2025
Research Fellow.

Shenzhen Taiyi Technology (SKYMAGIC) Aug 2021 & Aug 2022
Drone control intern.

Education

Beihang University Fall 2020 - Spring 2025
Ph.D. in Control Science and Control Engineering, advised by Prof. Lei Guo, Prof. Xiang Yu, and Prof. Kexin Guo.
Shenyuan Honors College (≤3%).

Beihang University Fall 2019 - Spring 2020
M.S. in Control Science and Control Engineering.

Harbin Engineering University Fall 2015 - Spring 2019
B.S. in Automation.

Publications

* Equal contribution † Corresponding author

Selected Publications

Physics filtering favors the generalization of robot learning — Nature npj Robotics'26
Jindou Jia*, Shixuan Han*, Meng Wang*, G. Li, Z. Yang, S. Zhou, K. Guo†, J. Yang†, X. Yu, W. Wang, L. Guo

Action-to-action flow matching — RSS'26
Jindou Jia*, Gen Li*, X. Chen, T. An, Y. Hu, J. Li, X. Guo, J. Yang

FORESEER: Recognize and utilize uncertainties by integrating data-based learning and symbolic feedback — IJRR'25
Jindou Jia, K. Guo, Y. Wang, S. Zhou, J. Zhang, Y. Liu, X. Yu, Y. Shi, L. Guo

Feedback favors the generalization of neural ODEs — ICLR'25 Oral Presentation
Jindou Jia*, Zihan Yang*, M. Wang, K. Guo, J. Yang, X. Yu, L. Guo

EVOLVER: Online learning and prediction of disturbances for robot control — T-RO'24
Jindou Jia, W. Zhang, K. Guo, J. Wang, X. Yu, Y. Shi, L. Guo

Accurate high-maneuvering trajectory tracking for quadrotors: A drag utilization method R-AL'22
Jindou Jia, K. Guo, X. Yu, W. Zhao, L. Guo

Other Peer-Reviewed Publications

ADAPT: Analytical disturbance-aware policy training for humanoid locomotion CoRL'26
Bofan Lyu*, **Jindou Jia*,** K. Zuo, Y. Lu, S. Han, G. Li, B. Ma, J. Li, G. Li, J. Yang

Feedback world model enables precise guidance of diffusion policy NeurIPS'26
Tuo An*, **Jindou Jia*,** G. Li, J. Li, C. Zhou, P. Liu, B. Lyu, J. Bai, X. Guo, G. Li, J. Yang

FLASH: Efficient visuomotor policy via sparse sampling NeurIPS'26
Jiaqi Bai*, **Jindou Jia*,** Y. Hu, G. Li, X. Chen, T. An, K. Zuo, J. Yang

World model for robot learning: A comprehensive survey IJRR'26
Bohan Hou*, Gen Li*, **Jindou Jia*,** Tuo An*, Xinying Guo*, S. Leng, H. Geng, Y. Ze, T. Harada, P. Torr, O. Mees, M. Pollefeys, Z. Liu, J. Wu, P. Abbeel, J. Malik, Y. Du, J. Yang

Learning-based observer for coupled disturbance ICRA'26
Jindou Jia*, Meng Wang*, Z. Yang, B. Yang, Y. Liu, K. Guo, X. Yu

Agile flight control under multiple disturbances for quadrotor: Algorithms and evaluation T-AES'22
Jindou Jia, K. Guo, X. Yu, L. Guo, L. Xie

Flight control for quadrotor safety in the presence of CoG shift and loss of motor efficiency ICUAS'22
Jindou Jia, K. Guo, C. Wang, N. Shen, W. Jia, X. Yu
Oral Presentation

Multiple observers-based anti-disturbance control for a quadrotor UAV against payload and wind disturbance CEP'20
Kexin Guo*, **Jindou Jia*,** X. Yu, L. Guo, L. Xie

Dual-disturbance observers-based control of UAV subject to internal and external disturbances CAC'19
Kexin Guo*, **Jindou Jia*,** X. Yu, L. Guo
First Prize of Outstanding Paper

Preprints

ODE policy: Robot learning via action dynamics, not actions arXiv'26
Jindou Jia*, Jingliang Li*, Kuangji Zuo*, Tuo An*, Y. Hu, M. Zhao, B. Lyu, J. Bai, D. Zhu, H. Dai, J. Zhang, J. Yang†

MARS policy: Multimodality only when it matters arXiv'26
Jindou Jia*, Tuo An*, Yuxuan Hu*, G. Li, J. Li, B. Hou, X. Chen, J. Bai, B. Lyu, J. Yang

MOSS: Mode-oriented source shaping for robot flow matching policies arXiv'26
Zirun Ma*, **Jindou Jia*,** T. An, J. Bai, J. Dong, J. Yang

Δ-Flow matching for robot foundation models arXiv'26
K. Zuo, T. An, X. Guo, G. Li, M. Zhao, J. Bai, B. Lyu, Z. Yu, J. Yang, J. Li, **Jindou Jia†,** J. Yang†

TOPS: Reshaping flow source and transport for multi-task robot manipulation arXiv'26
T. An, C. Zhou, J. Dong, J. Li, J. Bai, **Jindou Jia†,** J. Yang†

TUCO: Curating simulation demonstrations for sim-to-real robot policy co-training arXiv'26
N. Zhu, M. Zhao, Y. Tang, Z. Sun, P. Li, D. Ni, **Jindou Jia†,** J. Yang†

APEX: Adaptive policy execution for precise manipulation arXiv'26
M. Zhao, C. Jiang, T. An, **Jindou Jia†,** J. Yang†

Optimizing control-friendly trajectories with self-supervised residual learning arXiv'26
K. Guo, Z. Yang, Y. Liu, **Jindou Jia†,** X. Yu

Main Awards and Honors

2024 ICCA Best Student Paper Award 2024
Title: *TRACE - Trajectory refinement with control error enables safe and accurate maneuvers.* IEEE International Conference on Control and Automation

2019 CAC First Prize of Outstanding Paper 2019
Title: *Dual-disturbance observers-based control of UAV subject to internal and external disturbances.* IEEE Chinese Automation Conference

Outstanding graduate of Beihang University 2025
Beihang, China

National Scholarship — 2016, China

Academic Excellence Fund for Doctoral Candidate — 2024 - 2025, Beihang, China
Funds, ≤1%, Project leader

Outstanding Research Project of Shenyuan Honors College — 2022 - 2024, Beihang, China
Funds, Project leader

Four-times Outstanding Academic Innovation Award — 2022 - 2023, Beihang, China

Two-times First-class Scholarship — 2021 - 2022, Beihang, China

China Classification Society Scholarship — 2017, China Classification Society

First prize in Mathematical Contest in Modeling — 2016, Heilongjiang Province

First prize in the Chinese Mathematics Competitions — 2016, China

Talks and Media

Classical Control and Planning Meet Modern Learning — Nov 2026, Guest Lecture
CEG5304 Deep Learning for Digitalization Technologies · National University of Singapore (NUS)

Classical Control and Planning Meet Modern Learning — Oct 2026, Invited Talk
Hosted by Prof. Shangke Lyu · Nanjing University (NJU)

Robopapers Podcast — Aug 2026, Interview
Guest interview on A2A policy

Seminar on Embodied AI Robotics — Jun 2026, Invited Talk
Efficient robot policy learning · SIMTech & ARTC, Singapore

TechBeat — Mar 2025, Invited Talk
Invited technical talk on feedback neural ODE

Professional Service

Associate Editor, IEEE Robotics and Automation Letters (RA-L)

Reviewer, T-RO, IJRR, RA-L, ICRA, and other robotics venues