Zeji Yi

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Education

Carnegie Mellon University — *Pittsburgh, PA, USA*
Ph.D. in Electrical and Computer Engineering — *Aug. 2023 – Present*

Tsinghua University — *Beijing, China*
M.S. in Aerospace Engineering — *Aug. 2020 – July 2023*

Tsinghua University — *Beijing, China*
B.E. in Engineering Mechanics — *Aug. 2016 – June 2020*

- Graduated with honors in the Tsien Excellence in Education Program.

Research Interest

I am broadly interested in the intersection **learning**, **control**, and optimization. My research focuses on developing **theoretical tools** to deepen our understanding of the connections between learning and control, with the aim of **inspiring new algorithms**that are more applicable to real-world robotic tasks.

Publications (* equal contribution, † equal advising)

PREPRINTS

FS-MPC: Stabilizing Sampling-Based MPC with Adaptive Feedback Design
Chaoyi Pan*, ***Zeji Yi****, John Zhang, Zachary Manchester, Guannan Qu, Guanya Shi
In Submission to RSS 2025

CONFERENCE PROCEEDINGS

Full-Order Sampling-Based MPC for Torque-Level Locomotion Control via Diffusion-Style Annealing
Haoru Xue*, Chaoyi Pan*, ***Zeji Yi***, Guannan Qu, Guanya Shi
ICRA2025 [Link]

Safe Bayesian Optimization for the Control of High-Dimensional Embodied Systems
Yunyue Wei, ***Zeji Yi***, Hongda Li, Saraswati Soedarmadji, Yanan Sui
CoRL 2024, [Link]

Model Based Diffusion For Trajectory Optimization
Chaoyi Pan*, ***Zeji Yi****, Guanya Shi†, Guannan Qu†
NeurIPS 2024, [Link]

CoVO-MPC: Theoretical Analysis of Sampling-based MPC and Optimal Covariance Design
Zeji Yi*, Chaoyi Pan*, Guanqi He, Guannan Qu†, Guanya Shi†
L4DC 2024, [Link]

Improving Sample Efficiency of High Dimensional Bayesian Optimization with MCMC
Zeji Yi*, Yunyue Wei*, Chuxin Cheng*, Kaibo He, Yanan Sui
L4DC 2024, [Link]

Nonlinear Covariance Control via Differential Dynamic Programming
Zeji Yi, Zhefeng Cao, Evangelos Theodorou, Yongxin Chen
ACC 2020, [Link]

Adaptive Learning based Upper-Limb Rehabilitation Training System with Collaborative Robot
Jun Hong Lim, Kaibo He, ***Zeji Yi***, Chen Hou, Chen Zhang, Yanan Sui, Luming Li
45th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, [Link]

Honors & Awards

2025	**Wei Shen and Xuehong Zhang Presidential Fellowship**, College of Engineering, CMU	*Pittsburgh, PA*
2020	**Graduate with Honor**, Tsien Excellence in Education Program	*Beijing, China*
2018-2019	**Tsinghua Academic Excellence Scholarship**, Top 10%	*Beijing, China*
2017	**Second Class Prize**, China Undergraduate Mathematical Contest in Modeling	*Beijing, China*
2016	**First Class Prize**, Chinese Physics Olympiad (CPHO), Top 2%	*Beijing, China*
2016–2018	**Tsinghua-Xuetang Scholar**, For Excellent Foster Innovative Talent	*Beijing, China*

Invited Talks

Caltech FALCON Simnar *Pasadena, USA*

CoVO-MPC: Theoretical Analysis of Sampling-based MPC and Optimal Covariance Design *Dec. 2023*

INFORMS APS 2025 *Atlanta, USA*

Sampling Based Optimal Control: From theory to application *Jul. 2025*

Skills

Programming	Python, C++, MATLAB/Simulink, LaTeX
Simulation and Modeling	Mujoco, COMSOL, ABAQUS, SolidWorks
Robotics and Operating Systems	ROS, LINUX
Hardware Platforms	Unitree Go2, Unitree H1, Unitree G1
Languages	Mandarin (Native), English (Fluent)

Academic Services

Reviewer	ICML, Nuerips, AISTATS, L4DC, CDC, ACC, CoRL, RAL, 2021-Present
Teaching Assistant	CMU: 18-660 Optimization, Tsinghua: Artificial Intelligence and Human Factor Engineering
Organizer	CMU Learning and Control Seminar Link,2024