Michael (Jiahe) Pan

⌂ Personal Homepage   in LinkedIn   ○ GitHub   ♆ Google Scholar   ✉ michael.pan31415@gmail.com

Education

ETH Zürich   *Zürich, Switzerland*
MSc. Robotics, Systems and Control   *Sep 2024 – Aug 2026*
- **Current Grade**: 5.85/6.0 (Distinction)
- **Focus**: Reinforcement learning, Probabilistic AI, Computer vision, Deep learning, Motion planning
- **Thesis supervisors**: Prof. Jitendra Malik (UC Berkeley, Meta), Prof. Stelian Coros (ETH Zürich)

The University of Melbourne   *Melbourne, Australia*
BSc. Mechatronics Engineering   *Mar 2021 - Nov 2023*
- **Grade**: 87.7/100 (First Class Honors)
- **Dean's Honors List 2023** (top 3% of all BSc students)
- **Thesis supervisors**: Dr. Jonathan Eden, Prof. Wafa Johal, Prof. Denny Oetomo

Experience

Berkeley AI Research (BAIR), UC Berkeley   *Berkeley, United States*
Visiting Researcher   *Sep 2025 – Apr 2026*
- **Supervisor**: Prof. Jitendra Malik
- Working on robot manipulation and whole-body control, with a focus on learning dexterous and agile low-level skills from a mixture of real-world and simulator data.

Robotics and Perception Group (RPG), The University of Zürich   *Zürich, Switzerland*
Graduate Student Researcher   *Mar 2025 – Aug 2025*
- **Supervisor**: Prof. Davide Scaramuzza
- Developed a novel real-world policy adaptation paradigm unifying online residual dynamics learning from real-time flight measurements and rapid policy adaptation using differentiable simulation.

Computational HRI Lab (CHRI), The University of Melbourne   *Melbourne, Australia*
Research Assistant   *Jan 2024 - Jul 2024*
- **Supervisors**: Dr. Jonathan Eden, Prof. Wafa Johal, Prof. Denny Oetomo
- Developed haptic and motion capture-based teleoperation interfaces (with AR visualizations) for shared control of robotic arms, and novel evaluation frameworks including modeling task performance with Fitts' Law and analyzing user's cognitive load and trust.

Monash Robotics Lab, Monash University   *Melbourne, Australia*
Research Assistant   *Nov 2022 - Jun 2023*
- **Supervisor**: Prof. Akansel Cosgun
- Developed a unified grasp and trajectory optimization framework for robotic arms combining Bayesian optimization for grasp selection and receding-horizon SQP for trajectory refinement.

Awards

Best Project Award, Probabilistic AI (ETH, Prof. Andreas Krause, 2025)

1st-place in the **Office Assistant Robot Competition**, HRI'24 (Boulder, Colorado, 2024)

The Dean's Honors List, University of Melbourne (top 3% of all BSc students, 2023)

Summer Research Scholarship, Monash University (2022)

U21 Global Citizens, Common Purpose (2022)

Publications

[1] Learning on the Fly: Rapid Policy Adaptation via Differentiable Simulation
Jiahe Pan*, Jiaxu Xing*, Rudolf Rieter, Daniel Zhai, Elie Aljalbout, Davide Scaramuzza.
[In review] IEEE Robotics and Automation Letters (RA-L), 2025.

[2] Mediating User Experience in MoCap-Based Teleoperation of a 7-DOF Robot Arm Through the Assistance of Augmented-Reality Visualisations
Qiushi Zhou, Antony Chacon Salas, **Jiahe Pan**, Wafa Johal.
[In review] ACM CHI Conference on Human Factors in Computing Systems (CHI), 2026.

[3] Learning on the Fly: Rapid Policy Adaptation via Differentiable Simulation
Jiahe Pan*, Jiaxu Xing*, Rudolf Rieter, Daniel Zhai, Elie Aljalbout, Davide Scaramuzza.
[In review] Resource-Rational Robot Learning Workshop, 9th Annual Conference on Robot Learning (CoRL), 2025.

[4] Using Fitts' Law to Benchmark Assisted Human-Robot Performance
Jiahe Pan, Jonathan Eden, Denny Oetomo, Wafa Johal.
IEEE/ACM International Conference on Human-Robot Interaction (HRI), 2025.

[5] OfficeMate: Design and Evaluation of an Office Assistant Robot
Jiahe Pan, Sarah Schömbs, Yan Zhang, Ramtin Tabatabaei, Muhammad Bilal, Wafa Johal.
IEEE/ACM International Conference on Human-Robot Interaction (HRI), 2025.

[6] Assisting MoCap-Based Teleoperation of Robot Arm using Augmented-Reality Visualisations
Qiushi Zhou, Antony Chacon Salas, **Jiahe Pan**, Wafa Johal.
IEEE/ACM International Conference on Human-Robot Interaction (HRI), 2025.

[7] Effects of Shared Control on Cognitive Load and Trust in Teleoperated Trajectory Tracking
Jiahe Pan, Jonathan Eden, Denny Oetomo, Wafa Johal.
IEEE Robotics and Automation Letters (RA-L), 2024. (Presented at IROS 2024)

[8] A Review of Differentiable Simulators
Rhys Newbury, Jack Collins, Kerry He, **Jiahe Pan**, Ingmar Posner, David Howard, Akansel Cosgun.
IEEE Access, 2024.

[9] FaceVis: Exploring a Robot's Face for Affective Visualisation Design
Sarah Schömbs, **Jiahe Pan**, Yan Zhang, Jorge Goncalves, Wafa Johal.
ACM Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI), 2024.

[10] Variable Grasp Pose and Commitment for Trajectory Optimization
Jiahe Pan, Kerry He, Jia Ming Ong, Akansel Cosgun.
IEEE 5th International Congress on Human-Computer Interaction, Optimization and Robotic Applications, 2023.

Skills

- Real-world robot operation: Franka Panda, Fetch, TIAGo, agile quadrotors, UR3, Furhat.
- Physics simulation: MuJoCo, IsaacGym, Gazebo, JAX (differentiable simulation).
- Robotics & machine learning software/tools: Linux (Ubuntu), ROS, ROS2, Python, C++, PyTorch, JAX, Git, Docker, Conda, Cvxpy, CasADi.
- Learning-based (reinforcement learning, imitation learning, learning through differentiable simulation) and classical (PID, MPC) control methods for robotics.
- Understanding of Unity, Hololens 2, Meta Quest 2, and OptiTrack motion-capture systems for integrating with real-world robotic systems.