

Davood Soleymanzadeh

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Website

J. Mike Walker '66 Department of Mechanical Engineering
Texas A&M University
College Station, United States

EDUCATION

Texas A&M University Ph.D. in Mechanical Engineering, GPA: 4.00	College Station, TX Jan 2024 - Present
University at Buffalo Ph.D. in Mechanical Engineering, GPA: 3.55	Buffalo, NY Aug 2023 - Dec 2023
Amirkabir University of Technology M.Sc. in Mechanical Engineering, GPA: 3.72 Thesis: Low-Frequency Position Control of Cantilevered Piezoelectric Actuators by Self-Sensing. - <i>Selected Coursework:</i> Advanced Robotics; Advanced Automatic Control; Robust Control; Automation in Production; Nonlinear Control.	Tehran, Iran Sep 2016 - Feb 2019
Amirkabir University of Technology B.Sc. in Mechanical Engineering, GPA: 3.68 Thesis: Investigating Frequency Effect on Hysteresis Behavior in Piezoelectric Bending Actuators. - <i>Selected Coursework:</i> Selected coursework: Statics; Measurement Systems; Dynamics; Dynamics of Machinery; Hydraulic Systems; Engineering Probability & Statistics; Mechanical Vibration; Automatic Control.	Tehran, Iran Sep 2012 - Sep 2016

PUBLICATIONS

- PHR-VLA: Planning Horizon Reasoning for Vision-Language-Action Models*
Soleymanzadeh, D.; Zhang, K.; Zhang, Z.; Zhang, B.; Liang, X.; She, Y.; Zheng, M.
2026, *arXiv preprint*, [Webpage](#)
- Imagining the Sense of Touch: Touch-Informed Manipulation via Imagined Tactile Representations*
Zhang, Z.; Desai, A.; Hu, J. C.; Saka, Y.; Luu, Q. K.; Lei, J.; **Soleymanzadeh, D.**; et al.
2026, *arXiv preprint*, [Webpage](#)
- ContactWorld: What Matters in Vision-Tactile World Models for Contact-Rich Manipulation*
Zhang, Z.; Zhou, P.; Zhang, K.; Desai, A.; Amosa, T.; **Soleymanzadeh, D.**; Lei, J.; et al.
2026, *arXiv preprint*, [Webpage](#)
- Flow Motion Policy: Manipulator Motion Planning with Flow Matching Models*
Soleymanzadeh, D.; Liang, X.; Zheng, M.
Under Review, *IEEE Transactions on Robot Learning* [Webpage](#)
- GAIDE: Graph-based Attention Masking for Spatial- and Embodiment-Aware Motion Planning*
Soleymanzadeh, D.; Liang, X.; Zheng, M.
2026, *International Conference on Intelligent Robots and Systems* [Webpage](#)
- Towards Generalist Neural Motion Planners for Robotic Manipulators: Challenges and Opportunities*
Soleymanzadeh, D.; Lopez-Sanchez, I.; Su H.; Li Y.; Liang, X.; Zheng, M.
2026, *IEEE Transactions on Automation Science and Engineering* [Webpage](#)
- Modular Safety Guardrails Are Necessary for Foundation-Model-Enabled Robots in the Real World*
Kim, J.*; Chen, W.*; **Soleymanzadeh, D.***; Ding, Y.; Gao, X.; Tu, Z.; Zhang, R.; et al.
2026, *Forty-third International Conference on Machine Learning, Position Paper Track*,
*indicates equal contribution

PerFACT: Motion Policy with LLM-Powered Dataset Synthesis and Fusion Action-Chunking Transformers

Soleymanzadeh, D.; Liang, X.; Zheng, M.

Under Review, IEEE Transactions on Robotics [Webpage](#)

DeGrip: A Compact Cable-driven Robotic Gripper for Desktop Disassembly

Zhang, B.; **Soleymanzadeh, D.**; Liang, X.; Zheng, M.

2025, *arXiv preprint*,

SIMPNet: Spatial-Informed Motion Planning Network

Soleymanzadeh, D.; Liang, X.; Zheng, M.

2025, *IEEE Robotics and Automation Letters*, [Webpage](#)

A Modified Sensorless Position Estimation Approach for Piezoelectric Bending Actuators

Roshandel, N.; **Soleymanzadeh, D.**; Ghafarirad, H.; Sadri Koupaei, A. M.

2021, *Mechanical Systems and Signal Processing*.

Modeling and Compensation of Charge Leakage in Self-Sensing Based Position Estimation for Piezoelectric Actuators

Sadri Koupaei, A. M.; **Soleymanzadeh, D.**; Ghafarirad, H.

2020, *Modares Mechanical Engineering*.

Sensorless adaptive sliding mode position control of piezoelectric actuators with charge leakage

Soleymanzadeh, D.; Ghafarirad, H.; Zareinejad, M.

2020, *Journal of Intelligent Material Systems and Structures*.

Charge-based robust position estimation for low impedance piezoelectric actuators

Soleymanzadeh, D.; Ghafarirad, H.; Zareinejad, M.

2019, *Measurement*.

RESEARCH EXPERIENCE

Control and Robotics Lab (CtrlRobot-Lab), Texas A&M University

Supervised by Professor Minghui Zheng

College Station, TX

Jan 2024 - Present

- *Motion Planning*: Developing learning-based motion planners for robotic manipulators.
- *Vision-Language-Action Models*: Developing multimodal policies for robotic manipulation.
- *World Models*: Learning predictive world models for contact-rich manipulation.

Control and Automation Lab, University at Buffalo

Supervised by Professor Minghui Zheng

Buffalo, NY

Aug 2023 - Dec 2023

- *Motion Planning*: Developed learning-based motion-planning methods for robotic manipulators.

New Technologies Research Center (NTRC), Amirkabir University of Technology

Supervised by Professor Hamed Ghafarirad, & Professor Mohammad Zareinejad

Tehran, Iran

Sep 2016 - Sep 2021

- *Sensorless Position Control*: Developed fault-tolerant sliding-mode controllers for precision positioning of piezoelectric actuators.
- *Sensorless Position Estimation*: Developed observer-based methods for sensorless position estimation and fault detection and isolation.

INTERNSHIPS

Hydraulic and Pneumatic Laboratory, Amirkabir University of Technology

Advised by Professor Hamed Ghafarirad

Tehran, Iran

Jun 2017 - Sep 2017

- *Duties*: Estimated and compensated nonlinear hysteresis in piezoelectric actuators using a nonlinear PI hysteresis model.

TEACHING

Teaching Assistant

Dynamic Systems (MAE340). Instructor: Professor Minghui Zheng

Fall 2023

University at Buffalo

- Wrote lecture notes, surveyed literature, and designed assignments on the stability and response of linear dynamic systems.
- Held office hours twice per week.
- Assisted with designing and grading midterm and final examinations.

Lab Assistant

Sep 2016 - Sep 2021

Robotics and Automation Research Group, New Technologies Research Center (NTRC) Amirkabir University of Technology

- Prepared experimental test setups for student research projects.
- Developed simulation environments to support research testing and validation.

HONORS & AWARDS

Honorary admission for graduate studies, Mechanical Engineering, Amirkabir University of Technology Sep 2016

3rd highest GPA, among Mechanical Engineering–Manufacturing students, Amirkabir University of Technology Sep 2016

ACADEMIC SERVICE

Reviewer: International Journal of Intelligent Robotics and Applications (IJIRA), IEEE Transactions on Automation Science and Engineering (T-ASE), and Conference on Robot Learning (CoRL).