

Amirreza Razmjoo

Research Assistant, École Polytechnique Fédérale de Lausanne (EPFL)/Idiap Research Institute, Martigny, Switzerland
amirreza.razmjoo@gmail.com — +41 (76) 467-7413 — www.linkedin.com/in/amir-razmjoo — Personal Webpage

RESEARCH INTERESTS

Task Representation, Model Predictive Control, Underactuated and Uncertain Systems, Sampling-based Motion-Planning

EDUCATION

École Polytechnique Fédérale de Lausanne (EPFL), Jan. 2021 — present
Lausanne, Switzerland

Doctor of Philosophy, EDEE program

Thesis Topic: Improving Optimization-based Methods for Efficient Physical Robot Interaction

Supervisor: Dr. Sylvain Calinon

Sharif University of Technology, Sep. 2018 — Sep. 2020
Tehran, Iran

Master of Science in Mechanical Engineering

GPA: 18.85/20 (4.0/4.0)

Thesis Title: Teaching to Point at Different Objects as an Interactive Gesture to a Robot by Learning from Demonstration

Supervisors: Prof. Ali Meghdari, Dr. Alireza Taheri

University of Tehran (with honors), Sep. 2014 — Sep. 2018
Tehran, Iran

Bachelor of Science in Mechanical Engineering

GPA: 18.83/20 (3.95/4.0)

Thesis Title: Development of a Health-Monitoring Device for Activity Recognition and Fall Detection

Supervisors: Dr. Sadighi, Dr. Zakerzadeh

EXPERIENCE

Idiap Research Institute Martigny, Switzerland
Research Assistant Jan. 2021 — Present

- Involved in SWITCH project: <https://switch-project.github.io/>
- **Research Keywords:** Optimal Control, Underactuated System, Task Representation

CEDRA (Center of Excellence in Design, Robotics, and Automation) Tehran, Iran
Research Assistant Sep. 2018 — Sep. 2020

- Developing a ROS-based control system for two new robots, Arash2 & Armin
- **Keywords:** Social Robots, ROS, Linux, User Interface

NODET (National Organization for Development of Exceptional Talents) Tehran, Iran
Research Assistant Feb. 2019 — Sep. 2019

- Member of the FallArm project under supervision of Dr. Hoda Mohammadzade.
- **Research Keywords:** Fall Detection in Videos, Computer Vision, and Image processing

Kavosh Mechanizeh Fanavar Tehran, Iran
Intern Jun. 2018 — Sep. 2018

- Designing a pipe inspection robot with CATIA
- **Keywords:** Mechanical Design, CAD design, Component Selection

CAST (Center of Advanced Systems and Technologies) Tehran, Iran
Undergraduate Research Assistant Sep. 2017 — Sep. 2018

- Member of the Dynamic and Control portfolio
- **Keywords:** Mechanical Design, CAD Design, Component Selection

Festo Tehran, Iran
Vocational Trainee Jun. 2017 — Sep. 2017

- Getting familiar with different hydraulic systems

PUBLICATIONS

- T. Xue, A. Razmjoo, and S. Calinon, **D-LGP: Dynamic Logic-Geometric Program for Combined Task and Motion Planning**, 2024, *ICRA*.
- Yiming Li, Yan Zhang, Amirreza Razmjoo, and Sylvain Calinon. **Learning Robot Geometry as Distance Fields: Applications to Whole-body Manipulation.**, 2024, *ICRA*.
- A. Razmjoo, T. Brecej, K. Savevska, A. Ude, T. Petrič, and S. Calinon, **Optimal Latent Manifold for Reliable Physical Interaction: A Sit-to-Stand Assistance Application**, 2023, *6th Ergonomic Physical Human-Robot Collaboration: Harnessing Advancements in Robot Learning (IROS 2023 Workshop)*
- A. Razmjoo, T. Brecej, K. Savevska, A. Ude, T. Petric, and S. Calinon, **Learning Joint Space Reference Manifold for Reliable Physical Assistance**, 2023, *IROS*.
- B. Ti, A. Razmjoo, Y. Gao, J. Zhao, S. Calinon, **A geometric optimal control approach for imitation and generalization of manipulation skills**, 2023, *Robotics and Autonomous Systems (RAS)*.
- A. Razmjoo, T. S. Lembono, S. Calinon, **Optimal Control Combining Emulation and Imitation to Acquire Physical Assistance Skills**, 2021, *ICAR*.
- A. Razmjoo, S. R. Hosseini, A. Taheri, A. Meghdari, **Can learning from demonstration reproduce natural and understandable movements**, 2020, *ICRoM*.
- A. Razmjoo, A. Sadighi, M. Zakerzadeh, S. Saeedi, **Development of a Health-Monitoring Device for Activity Recognition and Fall Detection**, 2019, *ICRoM*.

AWARDS

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| Admission Offer Excellent student M.Sc. admission offer to Sharif University of Technology. | 2018 |
| Summa cum laude Achieved the top rank among 121 students upon graduating from the University of Tehran. | 2018 |
| Dean's list Ranked among the top 10 individuals of the year in that particular program. | 2015-2018 |
| F.O.E prize Recipient of the award given to the top three students of the year. | 2015, 2017 |
| The Foundation of the University of Tehran Scholarship | 2016-2017 |
| Ranked 256 (top 0.2%) Among more than 220,000 people in the nationwide university entrance exam. | 2014 |

SKILLS

- **Research Topics:** Optimal Control, Learning from Demonstrations, (physical-) Human-Robot Interaction, Contact-rich Manipulation,
- **Programming:** Python, MATLAB, ROS, L^AT_EX, Linux, C++ (Basics)
- **Softwares (libraries):** Pybullet, IsaacGym, Gazebo, Pinocchio, Crocoddyl, Pytorch, OpenCV, CasADi, Stable-Baseline 3 (Basics), CAD (CATIA, Solidworks, AutoCAD)
- **Languages:** English (Professional Working Proficiency), Azerbaijani (Native), Persian (Native)