Amirhossein Noohian

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Education

Master of Science in Mechanical Engineering **Sept. 2019 – Mar. 2022**

Sharif University of Technology *Tehran, Iran*

- CGPA: 4.0/4.0 (18.16/20)
- Thesis Title: Robotic Arm Manipulation Learning from Demonstration based on Reinforcement Learning (19.5/20 – Excellent)
- Supervisor: Prof. S. Khodaygan

Bachelor of Science in Mechanical Engineering **Sept. 2015 – Sept. 2019**

Amirkabir University of Technology *Tehran, Iran*

- CGPA: 3.92/4.0 (18.92/20) – 2nd rank

Research Experience

Remote Graduate Research Assistant **Jan. 2022 – Present**

University of Surrey *Guildford, England*

- Developing a Model-Based Reinforcement Learning Algorithm Composed of Model Predictive Path Integral Control and Model-Free Reinforcement Learning.
- Developed a Planner-Estimator Model Predictive Path Integral Controller Robust to Parameter Uncertainties and System Component Failure.
- Supervisor: Prof. S. Fallah

Graduate Research Assistant **Mar. 2020 – Mar. 2022**

Mechanical Engineering Department, Sharif University of Technology *Tehran, Iran*

- Developed a Learning from Demonstration Algorithm Composed of Dynamic Movement Primitives and Deep Reinforcement Learning.
- Developed a Hierarchical Deep Reinforcement Learning Algorithm for Automating the Assembly Process.
- Supervisor: Prof. S. Khodaygan

Research Assistant **Oct. 2018 – Oct. 2019**

Mechanical Engineering Department, Amirkabir University of Technology *Tehran, Iran*

- Numerically Approximated the Effective Thermal Conductivity of the Checkerboard Composites Subjected to Thermal Loads.
- Supervisors: Prof. T. Goudarzi and Prof. H. Naderan

Research Assistant **Sept. 2017 – Oct. 2018**

Mechanical Engineering Department, Amirkabir University of Technology *Tehran, Iran*

- Designed and Fabricated a 4-DoF Wrist Rehabilitation Robot.
- Supervisors: Prof. H. Ghafarirad and Prof. A. Taghvaeipour

Publications

[1] Raisi, M., **Noohian, A.** and Fallah, S. 2022. "A Fault-Tolerant and Robust Controller using Model Predictive Path Integral Control for Free-Flying Space Robots." *Acta Astronautica.* (Submitted)

[2] Raisi, M., **Noohian, A.** and Khodaygan, S. 2022. "Autonomous Robotic Assembly Process based on Hierarchical Reinforcement Learning." *30th Annual International Conference of Iranian Society of Mechanical Engineers (ISME 2022)*, May 10-12, Tehran, Iran.

[3] **Noohian, A.** and Khodaygan, S. 2021. "Learning to Slide Objects from Human Demonstration using Dynamic Movement Primitives." *29th Annual International Conference of the Iranian Society of Mechanical Engineers (ISME 2021)*, May 25-26, Tehran, Iran.

[4] **Noohian, A.**, Khodaygan, S. and Raisi, M. "Learning Dynamic Movement Primitives with Reinforcement Learning." (In Preparation)

Teaching Experience

Online Tutor **Mar. 2022 – Present**
Self Employed *Tehran, Iran*
- Tutoring Students Online in Machine Learning, Deep Learning, and Reinforcement Learning.

Graduate Teaching Assistant **Spring 2021**
Computer Engineering Department, Sharif University of Technology *Tehran, Iran*
- Deep Learning Course Instructed by Prof. H. Beigy

Graduate Teaching Assistant **Fall 2020**
Mechanical Engineering Department, Sharif University of Technology *Tehran, Iran*
- Optimal Design Course Instructed by Prof. S. Khodaygan

Teaching Assistant **Spring 2019**
Mechanical Engineering Department, Amirkabir University of Technology *Tehran, Iran*
- Design of Machine Elements II Course Instructed by Prof. Y. Alizadeh

Working Experience

Summer Intern **Summer 2019**
Neon - Energy Optimization Center *Tehran, Iran*
- Trained in HVAC.

Educational Consultant **Sept. 2015 – Sept. 2018**
ASA Academy *Aran and Bidgol, Iran*
- Advised Students about their Preparation for the Nationwide University Entrance Exam.

Summer Intern **Summer 2017**
SAIPA-Kashan Company *Kashan, Iran*
- Trained in Maintenance Strategies.

Honors and Awards

- Awarded by Iran's National Elite Foundation as an Exceptionally Talented Student. 2018 - 2021
- Exam-Free M.Sc. Admission Offer from Sharif University of Technology to Mechanical Engineering Master Program regarding High CGPA and Ranked among Top 3 Students of the Field. 2019
- Exam-Free M.Sc. Admission Offer from Amirkabir University of Technology to Mechanical Engineering Master Program regarding High CGPA. 2019
- Ranked 2nd among 110 Undergraduate Students of Mechanical Engineering at Amirkabir University of Technology. 2019
- Ranked 1st among 140 Interns of Mechanical Engineering at Amirkabir University of Technology. 2017
- Rank 191 of the Nationwide University Entrance Exam among 181,846 Applicants. 2015

Skills

Computer

- Programming: Python, MATLAB, C
- Python Libraries: PyTorch, OpenCV, Scikit-learn, Stable-Baselines3, Gym
- Robot Simulator: MuJoCo, Webots, Simulink/MATLAB
- Mechanical Software: SolidWorks, Ansys, Abaqus, MSC Adams, EES
- Mechatronic Software: Kinco Builder, Proteus Design Suite
- General: Microsoft Office, LaTeX
- Operating System: Windows, Linux

Language

- English: Advance
  TOEFL iBT Score: 109 (R:30, L:30, S:23, W:26) Nov. 2021
- Persian: Native