Roozbeh Razavi Rohani

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Summary

PhD candidate in Computing Science at Simon Fraser University working on decision-making agents under non-stationarity, with research spanning reinforcement learning, credit assignment, continual learning, and meta-RL. First-author work at TMLR, CoLLAs, and IROS. Led the move to an RL-based controller during an industry internship. Experienced in implementing and training deep learning systems (PyTorch, JAX).

Education

Ph.D. in Computing Science Sep 2023 – Present
Simon Fraser University *Burnaby, BC, Canada*
Supervisor: Prof. Mo Chen · GPA: 4.08/4.33

M.Sc. in Computer Engineering (Artificial Intelligence & Robotics) Sep 2019 – Jan 2022
Sharif University of Technology *Tehran, Iran*
Supervisor: Prof. Mahdieh Soleymani Baghshah · GPA: 18.86/20

B.Sc. in Computer Engineering (Software) Sep 2014 – Jul 2019
Shiraz University *Shiraz, Iran*
GPA (last three years): 18.46/20

Research & Industry Experience

Machine Learning Research Intern Sep 2025 – Mar 2026
Human in Motion Robotics Inc. *Vancouver, BC, Canada*

- Led the migration of an exoskeleton platform from model-based control to a learned RL policy, covering framework design, motion-capture data collection, implementation, and sim-to-sim transfer.
- Trained morphology-conditioned policies in Isaac Sim with domain randomization; this work forms the basis of *XoMorph* (under review, IEEE RA-L).

Research Assistant, MARS Lab Sep 2023 – Present
Simon Fraser University *Burnaby, BC, Canada*

- Developed a hybrid credit-assignment method that weights temporal and causal credit by the reliability of learned causal knowledge, improving sample efficiency on long-horizon tasks (under review, ICLR 2027).
- Proposed NeuMoSync, an end-to-end neuromodulatory controller that maintains plasticity in continual learning across class-incremental, domain-incremental, and other non-stationary settings (TMLR 2026).
- Introduced adaptive linearity injection to preserve plasticity, improving both supervised and reinforcement continual learning (CoLLAs 2025).
- Trained an RL follow-ahead agent used as a module within an MCTS-style planner, enabling robots to adapt to frequent human direction changes (IEEE RA-L 2025).

Research Assistant, Machine Learning Laboratory Dec 2019 – Sep 2023
Sharif University of Technology *Tehran, Iran*

- Proposed BIMRL, a brain-inspired meta-RL architecture combining a world model, dynamics-aware value prediction, and hierarchical memory; improved adaptation on long-horizon MiniGrid tasks (IROS 2022).
- Improved zero-shot systematic generalization of language-informed RL agents by adding a neuroscience-inspired memory feedback loop (*Machine Learning*, 2025).

Software Developer (Undergraduate Project) Apr 2017 – Sep 2017
ICT Center, Shiraz University *Shiraz, Iran*

- Built a big-data pipeline with Apache Spark and Spring Boot to extract and visualize insights from the university database; graded 20/20.

Publications

Published

1. **Seyed Roozbeh Razavi Rohani**, Khashayar Khajavi, Wesley Chung, Mandana Samiei, and Mo Chen. NeuMoSync: End-to-end neuromodulatory control for plasticity and adaptability in continual learning. *Transactions on Machine Learning Research (TMLR)*, 2026.
2. **Seyed Roozbeh Razavi Rohani**, Khashayar Khajavi, Wesley Chung, Mo Chen, and Sharan Vaswani. Preserving plasticity in continual learning with adaptive linearity injection. *Conference on Lifelong Learning Agents (CoLLAs)*, 2025.
3. Sahar Leisiazar, **Seyed Roozbeh Razavi Rohani**, Edward J. Park, Angelica Lim, and Mo Chen. Adapting to frequent human direction changes in autonomous frontal following robots. *IEEE Robotics and Automation Letters (RA-L)*, 2025.
4. Negin Hashemi Dijujin, **Seyed Roozbeh Razavi Rohani**, Mohammad Mahdi Samiei, and Mahdieh Soleymani Baghshah. Inductive biases for zero-shot systematic generalization in language-informed reinforcement learning. *Machine Learning*, 114(6):137, 2025.
5. **Seyed Roozbeh Razavi Rohani**, Saeed Hedayatian, and Mahdieh Soleymani Baghshah. BIMRL: Brain inspired meta reinforcement learning. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 9048–9053, 2022.

Under Review

6. **Seyed Roozbeh Razavi Rohani**, Mo Chen, and Adam White. Time and cause: Reliability-adaptive hybrid credit assignment in reinforcement learning. Under review at *ICLR 2027*.
7. **Seyed Roozbeh Razavi Rohani**, Behnam Yazdankhoo, Behzad Peykari, and Edward J. Park. XoMorph: Morphology-adaptive reinforcement learning for human-like exoskeleton locomotion. Under review at *IEEE Robotics and Automation Letters (RA-L)*.

Technical Skills

- **Programming:** Python (primary), C/C++, MATLAB
- **Machine learning:** PyTorch, JAX, TensorFlow, Hugging Face Transformers, Hydra, Pandas, scikit-learn
- **Simulation & robotics:** Isaac Sim, Isaac Gym, MuJoCo, ROS 2
- **Data & engineering:** Apache Spark, Git, Linux, HPC clusters, Weights & Biases, Docker

Honors & Awards

- CMPT Graduate Fellowship and PhD Research Scholarship, SFU (awarded annually for four years)
- 3rd place nationwide (of ∼20,000), Iranian M.Sc. Entrance Exam in AI & Robotics
- Top 20% GPA among M.Sc. graduates (Sharif University of Technology); top 15% among B.Sc. graduates (Shiraz University)

Teaching Experience

Teaching Assistant: Machine Learning (SFU, Fall 2024 and Fall 2025); Reinforcement Learning (Sharif, Spring 2022); Advanced Machine Learning (Sharif, Fall 2022); Deep Learning (Sharif, Spring 2021).