

Mobina Jamali

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SKILLS: PyTorch, TensorFlow, ROS, Linux, GIT, Reinforcement Learning, OpenCV, Pandas, SQL, Gazebo, OOP, TDD
LANGUAGES/ ENVS: Python, C++, HTML/CSS

SUMMARY

I am a roboticist and AI researcher working on Multi-Agent Reinforcement Learning. My research focuses on developing autonomous agents capable of collaborating with human in executing complex, multi-step tasks by integrating learning and planning strategies.

EDUCATION

University of Calgary 2018 - 2023
Bachelor of Science, Physics
· Thesis: “*Advancing the Control for a Highly Maneuverable Autonomous Underwater Vehicle (HM-AUV)*”, advised by Dr. Alex Ramirez-Serrano.

EXPERIENCE

Intelligent Robot Learning Lab (IRL), University of Alberta July 2024 - Present
Research Intern Supervisor: Matthew Taylor
· Working on agent interactions and peer-to-peer knowledge exchange techniques in Multi Agent System (MAS), especially on how to enable RL agents learn effectively through various teacher-student interaction modalities.
· Developing and integrating pessimistic advising in MAS, focusing on guiding agents away from suboptimal actions.
· Implementing the Upper Confidence Bound (UCB) algorithm to measure uncertainty in agent decision-making to identify optimal moments for seeking guidance.

Unmanned Vehicles Robotarium Lab, University of Calgary September 2022 - April 2023
Undergraduate Research Assistant Supervisor: Alex Ramirez-Serrano
· Developed a dynamic model and control scheme for a three-thruster configuration AUV, enabling the vehicle to have full autonomy over its 6 DOF.
· Performed comprehensive simulations to validate the AUV’s capability for precise navigation, achieving 83% success in complex maneuvering across diverse scenarios.

Quantum Cloud Lab, University of Calgary April 2022 - September 2022
Undergraduate Research Assistant Supervisors: Daniel Oblak, Vahid Salari
· Utilized Photo-Multiplier Tube (PMT), and Superconducting Nanowire Single-Photon Detector (SNSPD) to detect Ultra-weak Photon Emission (UPE) in tadpole models.
· Co-authored a review paper, *Advances in Sensing and Imaging Biological Ultra-weak Photon Emission*, currently under review at *Optica* journal.

TEACHING

Faculty of Physics and Astronomy, University of Calgary January 2022 - April 2022
Undergraduate Teaching Assistant
· Collaborated with professors to create organized and engaging course materials for PHYS 229 (Modern Physics) and PHYS 259 (Electricity and Magnetism).
· Assisted more than 120 students with course content and answering their questions.

PUBLICATION

Advances in Sensing and Imaging Biological Ultraweak Photon Emission

Vahid Salari, Mobina Jamali, Daniel Oblak

Under Review

Optica Journal

SCHOLARSHIP AND AWARD

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| - Program for Undergraduate Research Experience (PURE) - \$7500 | March 2022 |
| - University of Calgary Summer Research Funding, NSRS - \$6000 | April 2019 |
| - President's Admission Scholarship - \$5000 | August 2018 |

PROFESSIONAL DEVELOPEMENT

University of California San Diego

MicroMaster's Program, Data Science

2023 - 2024

EXTRA-CURRICULAR ACTIVITY

Calgary To Space Organization, University of Calgary

Orbit Determination Lead

May 2021 - April 2023

- Led University of Calgary's first 3U CubeSat design, operations, and mission planning.
- Organized "Women in Space" sessions and spearheaded outreach campaigns to inspire high school students about satellites and space technology.