

Montaser Fathelrhman Hussen Mohammedalamen

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Education:

- Jan 2022- Sep 2027 PhD [Computing Science](#), University of Alberta, Topic: How to make AI systems learn to act safely without human supervision or prior knowledge. Advised by [Prof. Michael Bowling](#).
- Sep 2018- Sep 2019 M.Sc. Machine Intelligence, African Master in Machine Intelligence ([AMMI](#)), African Institute for Mathematical Sciences ([AIMS](#)), Rwanda. (overall score 75%).
- Aug 2013- Sep 2018 B.S.c, Honors Electronics & Computer Engineering with First Class Honors, [University of Khartoum](#), Sudan (ranked 3rd in the Electronics department, CGPA 7.5/10).

Work Experience:

- Jan 2021 - Oct 2022 AI Engineer, [SonyAI](#), Designing a Multi-agent high dynamic environment in a physics simulator, Training robust agents cooperatively and competitively with Self-play and Goal-conditioned RL, transfers learned policies to the world and integrates them with vision systems and robot control methods. Tokyo, Japan.
- Feb 2020 - Dec 2020 Research Associate, [University of Alberta](#), develop an algorithm that automatically behaves cautiously in novel circumstances using robust optimization. Supervised by [Prof Michael Bowling](#). Edmonton, Canada.
- June 2020 - Oct 2020 AI Engineer [SonyAI](#). Develop Reinforcement Learning algorithms for skill acquisition via imitation learning in cooking robots with visual feedback. Tokyo, Japan (remotely).
- July 2019 - Jan 2020 Machine learning Intern, [SonyAI](#). Tokyo, Japan.

Publications:

1. **Montaser Mohammedalamen**, Dustin Morrill, Alexander Sieusahai, Yash Satsangi, and Michael Bowling, “*Learning to Be Cautious Using Counterfactual Regret Minimization*”, (Under review) [arXiv preprint 2110.15907](#), 2025.
2. **Montaser Mohammedalamen**, and Michael Bowling, “*Generalization in Monitored Markov Decision Processes*”, (Under submission) 2025.
3. Simone Parisi, **Montaser Mohammedalamen**, Alireza Kazemipour, Matthew E. Taylor, and Michael Bowling “*Monitored Markov Decision Processes*”, International Conference on Autonomous Agents and Multiagent Systems (AAMAS) Auckland, New Zealand, 2024, [ifaamas P1549](#)
4. **Montaser Mohammedalamen** and Benjamin Rosman, “*Learning Actions Representation In Reinforcement Learning for Safe Exploration*”, Master Thesis. 2019
5. D. Khamies, **Montaser Mohammedalamen**, and Rosman. “*Transfer Learning for Prosthetics Using Imitation Learning*”. *Black in AI workshop, NeurIPS*, arXiv preprint [1901.04772](#), 2018.

Projects:

1. **Monitored Markov Decision Processes:** RL assumes that the reward is observable to the agent all the time, but is often not applicable in some real-world problems, **Mon-MDPs** present a new framework to tackle that by discussing the theoretical and practical consequences of this setting. [Talk](#)
2. **Learning to be Cautious:** An algorithm that automatically behaves cautiously and safely in novel circumstances, without prior knowledge or human supervision. [GitHub](#), [Talk](#)
3. **Cooking Robot:** One of SonyAI's projects in gastronomy, My role is to learn a Robot's policy to acquire cooking skills via RL and Imitation Learning with visual feedback.
4. **Transfer Learning for Prosthetics Using Imitation Learning:** Build a Prosthetics controller with RL that learns to walk like humans, and uses Imitation Learning to accelerate learning. [GitHub](#)
5. **Implement** Behaviour Cloning (BC) and [Behaviour Cloning from Observation \(BCO\)](#) papers [GitHub](#).
6. **Fairness in ML:** Train a classifier with a fair representation that hides sensitive attributes. [GitHub](#)
7. **Wheelchair robot Controlled by Brain Signal:** A wheelchair robot helps disabled people move using EEG signals from the brain. [GitHub](#)

Awards and Accolades:

- Sep 2023 [Graduate Student Engagement Scholarship](#) at the University of Alberta **10,000 CAD**.
- Sep 2022 [Graduate Student Engagement Scholarship](#) at the University of Alberta **10,000 CAD**.
- Sep 2019 [AMMI](#) M.Sc. scholarship, 4% acceptance rate Africa-wide **15,000 USD**.
- Dec 2017 Undergraduate research prize "Wheelchair Robot controlled by Brain" **2,000 USD**, University of Khartoum, Sudan.
- Nov 2017 Audiences Prize, [Falling Walls Lab finals](#) "Wheelchair controlled by Brain". Berlin, Germany
- Nov 2016 Ericsson Scholarship, ICT Professional Foundation Ericsson Middle East University Program.
- Oct 2016 [IEEE Extreme](#) 10.0 programming competition (5th of Sudan, 988 of 2500 teams globally).
- 2015-2016 Patents "Wheelchair Robot controlled by Brain signal" 4254 and "Smart Farm" 3334. Sudan.

Skills:

Programming Languages:

- Python, C++.
- JAX.
- PyTorch, TensorFlow.

Machine Learning:

- Reinforcement Learning (RL).
- Multi-agent RL.
- Imitation Learning.
- Computer Vision.
- Game Theory.
- CNN, RNN, LSTM.
- LLM.

Other:

- Robotics, ROS.
- Physics Simulation.
- Parallel & Distributed computing
- Git.
- AWS, GCD, Slurm.