

SAMUEL OLIVEIRA

SAMUELCCOLIVEIRA@GMAIL.COM | [PERSONAL WEBSITE](#) | [GITHUB](#)

RESEARCH INTERESTS

I am interested in creating Reinforcement Learning agents that can learn continuously throughout their lifetime, much like animals and humans. To this end, I wish to understand how to ensure artificial systems remain able to acquire new knowledge without forgetting previous one, in particular under resource constraints.

EDUCATION

University of Alberta

Sept 2025 – Sept 2030

PhD Computing Science

- Advisor: Rupam Mahmood. Part of RLAI Group (Rich Sutton) and Amii (Alberta Machine Learning Institute).
- Tentative Research Title: Continual Reinforcement Learning under Resource Constraints.
- Courses: Robot Learning, Reinforcement Learning II, Deep Reinforcement Learning.

University College London

Sept 2023 – Sept 2024

MSc Machine Learning

- Classification: Distinction (equivalent to 4.0 GPA).
- Courses include: RL, Multi-Agent AI, Probabilistic & Unsupervised Learning (Gatsby Unit PhD course).
- MSc Thesis: “Inverse RL using Generative Planning Models in Trajectory Space” (Ilija Bogunovic’s Group).

Imperial College London

Sept 2019 – June 2023

MEng Biomedical Engineering (Computational Bioengineering Specialization)

- Dean’s List (top 10% of cohort) in 3rd and 4th years. Classification: First Class Honours (equivalent to 4.0 GPA).
- Courses Include: Optimization, Computational Neuroscience, Information Theory, Artificial Intelligence.
- Undergraduate Thesis: “EczemaPF: An online learning approach to real-time eczema severity prediction”.

RESEARCH AND WORK EXPERIENCE

MSc Thesis Student and Research Assistant

May 2024 – June 2025

Bogunovic Group, University College London

London, UK

- Developing a novel Inverse Reinforcement Learning (IRL) framework using diffusion models.
- Benchmarking the framework against state of the art IRL methods in multiple Gymnasium environments.
- Working towards an ICML 2025 submission (1st author).

Undergraduate Thesis Student and Research Assistant

Oct 2022 – Sept 2023

Tanaka Group, Imperial College London

London, UK

- Led the implementation of a Sequential Monte-Carlo framework to predict eczema severity in under 1 second.
- Organised and taught a Sequential Monte-Carlo tutorial to members of the research group.
- Manuscript in progress: “EczemaPF: an algorithm for predicting the evolution of eczema severity” (1st author).

Software Engineering Intern

June 2022 – Aug 2022

Goldman Sachs

Birmingham, UK

- Implemented a performance testing framework (Python, AWS, Terraform) for a web app hosted on AWS.
- Led the integration of the performance testing framework into QA testing.
- Contributed 10K+ lines of code to an established codebase via Git. Presented my work virtually to 150 colleagues.

TEACHING, OUTREACH & LEADERSHIP

Graduate Teaching Assistant at University of Alberta

- CMPUT 261 - Introduction to Artificial Intelligence

Sept 2025 - Dec 2025

Outreach and Recruitment Ambassador at Imperial College London

Nov 2022 - Jun 2023

- Tutored 8 high school students in mathematics. Created and taught Python workshops to 20 students.
- Mentored 3 students through the university application process. Represented Imperial at recruitment events.

Student Representative at Domingos Sequeira (High school)

Sep 2016 - June 2018

- Held fortnightly meetings with the teaching staff to discuss concerns raised by students.

AWARDS

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| Computing Science Graduate Recruitment Scholarship: 5000 CAD. | University of Alberta |
| Dean's List (4th year): Top 10 % of cohort (150 students) in 4th year. | Imperial College London |
| Dean's List (3rd year): Top 10 % of cohort (150 students) in 3rd year. | Imperial College London |
| Honours Board: Top 5 students at the end of high school. | Domingos Sequeira High School |

PUBLICATIONS

Undergoing Review

1. Ariane Duverdier*, **Samuel Oliveira***, Pierre Le Floch, Robert Moss, Guillem Hurault, Jean François Stalder, Markéta Saint Aroman, Adnan Custovic and Reiko J. Tanaka. EczemaPF: A computational tool to predict the dynamic evolution of eczema severity in real-time. *Computers in Biology and Medicine*.

Under Development

2. **Samuel Oliveira***, William Bankes, Lorenz Wolf, Sangwoong Yoon, Ilija Bogunovic. Inverse Reinforcement Learning using Generative Planning Models in Trajectory Space.

TALKS

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| Inverse Reinforcement Learning using Diffusion Models | July 2025 |
| <i>Eastern European Machine Learning Summer School (Poster)</i> | <i>Sarajevo, Bosnia and Herzegovina</i> |

SERVICE

Organization

- Robotics & Intelligent Systems Expo (Student Volunteer). November 2025. Edmonton, Canada.

Volunteering

- Aston Villa Foundation. July 2022. Birmingham, UK.
- Covid-19 Vaccination Centre Steward. June 2021 - August 2021. Leiria, Portugal.

PERSONAL PROJECTS

Automated Research Assistant | *Python, PyTorch, Hugging Face*

- Created a LLM-based research assistant system, capable of scraping the arXiv API for new papers and generate new research ideas based on the most recent papers.
- Integrated the model into a simple Streamlit web app.

Multi-Task Multi-Agent RL using Shared Distilled Policies | *Python, PyTorch*

- Proposed and implemented an extension of DeepMind's Distal framework to a multi-agent setting.

Impact of the pre-training data distribution on the performance of MAEs | *Python, PyTorch, SQL*.

- Built a pipeline to pre-train and finetune Masked Autoencoders for different pre-training data distributions.
- Evaluated the downstream semantic segmentation performance of Masked Autoencoders.

Language Model and Autoencoder-based Clinical Decision Support System | *Python, PyTorch*.

- Developed a multi-modal pipeline to output diagnostic reports for chest X-rays.
- Collaborated with Third Eye Intelligence, an Imperial College start-up.

SKILLS

Coding Languages: Python, C++, SQL (PostgreSQL), MATLAB.

Developer Tools: Git, AWS, Singularity, Terraform, Linux-based systems.

Machine Learning Tools: PyTorch, JAX, Gym/Gymnasium, MuJoCo, StableBaselines, NumPy.

Languages: Portuguese (Native), English (Bilingual), Spanish (B1), French (A1).