Samuel Oliveira

samuelccoliveira@gmail.com | Personal Website | GitHub

Education

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 – Present

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 (1^{st} 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" (1^{st} 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.

Projects

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

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

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

- 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, Git*

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

Teaching, Outreach & Leadership

Outreach and Recruitment Ambassador at Imperial College London | *2022 - 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 Escola Secundaria Domingos Sequeira (High school) | *2016 - 2018*

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

Awards

Dean's List (4th year) at Imperial College London : Award given to top 10% (10 students) of 4th year cohort.

Dean's List (3rd year) at Imperial College London : Award given to top 10% (10 students) of 3rd year cohort.

Honours Board : Award given to the top 5 performing students in 'Escola Domingos Sequeira' (secondary school).

Publications

- **Samuel Oliveira (1st)**, William Bankes, Lorenz Wolf, Sangwoong Yoon, Ilija Bogunovic . Inverse Reinforcement Lerning using Generative Planning Models in Trajectory Space (Manuscript under development for ICLR 2026 submission).
- Ariane Duverdier (co-1st), **Samuel Oliveira (co-1st)**, 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 (Undergoing journal submission in "Computers in Biology and Medicine").

Talks

July 2025: : Inverse RL using Diffusion Models; Eastern European ML Summer School (Poster), Sarajevo, BA.

Volunteering

July 2022 : Aston Villa Foundation. Birmingham, UK.

June 2021 - August 2021 : Covid-19 Vaccination Centre Steward. Leiria, Portugal.

June 2019 - September 2019 : Local Beach Cleaning. Leiria, Portugal.

Skills

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

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

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

ML/RL: PyTorch, JAX, Gym/Gymnasium, MuJoCo, StableBaselines, NumPy, Pandas, Scikit-learn.