

Curriculum Vitae

Maxence Faldor

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I am a first year PhD student at Imperial College London in the [Adaptive and Intelligent Robotics](#) lab. I am interested in Artificial Intelligence, Open-endedness, Robotics and Artificial Life, with a particular focus on the ability of intelligence to adapt to unforeseen situations in open-ended environments.

Education

PhD in Computer Science	Imperial College London , London, United Kingdom	2022 – Present
<ul style="list-style-type: none">• PhD studies in Artificial Intelligence, Open-endedness and Robotics• Supervision: Antoine Cully		
MSc in Computer Science	ISAE-SUPAERO , Toulouse, France	2016 – 2020
<ul style="list-style-type: none">• Sector: Artificial Intelligence, Domain: Robotics, degree obtained with honors <i>Very Good</i>, GPA: 4.02• Supervision: Emmanuel Rachelson, Dennis Wilson, Master's thesis graded A+		
MSc in Operations Research	Paul Sabatier University , Toulouse, France	2018 – 2020
<ul style="list-style-type: none">• Double degree program in advanced optimization, degree obtained with honors <i>Very Good</i>• Supervision: Alain Haït		
BSc in Mathematics	Lycée Faidherbe , Lille, France	2014 – 2016
<ul style="list-style-type: none">• Advanced course in Mathematics and Physics for intensive preparation to the national competitive exams for entry into <i>Grandes Écoles</i> (CPGE MPSI/PSI*)• National competitive exam "Mines-Ponts" final rank: 129 / 5,180		

Certificates

Deep Learning	Udacity	2020
A 4-month course by Udacity, AWS and Facebook AI		Credential ID: SX4KP5DM
Machine Learning	Stanford University	2019
A 11-week course by Stanford University earned on May 11, 2019		Credential ID: JMZ4EYACEYTK

Experience

Data Scientist	Amazon , Luxembourg, Luxembourg	Dec 2020 – Aug 2022
<ul style="list-style-type: none">• Improved inventory buying and placement systems driving 3% more one-day deliveries• Built machine learning models to predict core metrics achieving 96% accuracy• Evaluated the impact of perfect inventory placement on network speed by solving linear programming problems with more than 300,000 variables		
Operations Research intern	Amazon , Paris, France	Apr 2020 – Oct 2020
<ul style="list-style-type: none">• Worked in the Delivery Acceleration team to fulfill customers faster across Europe• Integrated the air network in an Operations Research project in Java used for network design, optimizing speed under operational constraints• Increased the air network speed by 5% by implementing optimization and automation scripts using Python and Redshift to fine-tune network configurations• Used ETL and Redshift to automate data analysis, enabling insight on inventory placement opportunities		
Data Scientist intern	elseco Limited , Dubai, United Arab Emirates	Apr 2019 – Aug 2019
<ul style="list-style-type: none">• Leveraged machine learning to build models that help underwriting activities and give insights to the company• Populated databases by web scraping data from multiple sources		
Software Developer intern	Airbus , Toulouse, France	Sep 2018 – Feb 2019
<ul style="list-style-type: none">• Developed tools in Python to spare hundreds of hours of manual work while collaborating with my co-workers using Git in an Agile team with regular scrum meetings• Implemented unit testing and sanity checks for simulation software, ensuring reliability and accuracy in modeling and simulations		

Teaching

Teaching Scholar **Imperial College London**, London, United Kingdom 2022 – Present

Alongside my PhD studies, I teach both undergraduate and postgraduate students, totaling 300 hours/year. My responsibilities include lecturing, conducting tutorials and workshops, developing and grading coursework, and managing modules.

- **Deep Learning** – 70010
 - Run lab sessions and answer questions
 - Manage and mark coursework
- **Mathematical Methods Tutorials** – 40016/40017
 - Lead tutorial sessions for correction of exercises
 - Mark student coursework and exams
- **Principles and Practices of Programming** – 70083
 - Run lab sessions and answer questions
 - Mark student coursework
- **Python Programming** – 70053
 - Course support leader: organise and lead a team of 10 Teaching Assistants
 - Design and improve coursework material
 - Lead tutorial sessions in lab
 - Mark student coursework and exams
 - Give lecture to a large audience on Python deep learning libraries and [PyTorch](#)

Associate Fellow **Advance HE**, London, United Kingdom 2023 – Present

Follow the Supporting Learning and Teaching Pathway to prepare to apply for the Associate Fellowship, recognizing individuals who teach and support in higher education.

Teaching Assistant **Lycée Saliège**, Balma, France 2016 – 2018

- Provided support in Mathematics for CPGE students, preparing the competitive exams for entry into *Grandes Écoles*
- Helped students in optimizing their exam preparation through targeted question resolution
- Guide students through step-by-step corrections of exercises and past exam
- Gave students learning and working methods to study more efficiently

Private Tutoring **Lille**, France 2012 – 2020

Provided private lessons in Mathematics, Physics and Computer Science to high-school students

Awards

Invitation – Invitation to extend a GECCO paper that received Best Paper Award for ACM TELO journal 2023

Award – GECCO conference Best Paper Award 2023

Grant – GECCO conference student grant (\approx \$200) 2023

Award – machine learning hackathon winner organized by Capgemini 2020

Scholarship – tuition fee waiver granted by the French Ministry of Defense 2016 – 2020

Award – fee waiver for competitive exams granted by the French Government 2016

Outreach

Poster at the Agent Learning in Open-Endedness ([ALOE](#)) workshop at NeurIPS 2023

Talk at GECCO conference in Lisbon 2023

Talk at [UCL DARK](#) lab during a workshop on Open-endedness 2023

Academic Activities

Organizer of the Imperial College Autonomous Reasoning & Learning (ICARL) seminar series	2023 – Present
<ul style="list-style-type: none">• Each month, ICARL hosts a seminar series at Imperial College London, where we invite Artificial Intelligence researchers to give a presentation about their work• I am responsible for the setup of the lecture theatre and technical equipment (microphones, video cameras, online meeting and so on) to ensure high-quality recordings for our YouTube channel	
Organizer of the Imperial College Reinforcement Learning reading group	2023 – Present
Contributor of QDax , a Python framework for Accelerated Quality-Diversity algorithms	2023
Volunteer at GECCO conference	2023
Reviewer for the Agent Learning in Open-Endedness (ALOE) workshop at NeurIPS	2023
Reviewer for the ALIFE conference	2023

Skills

- **Languages:** French (native), English (fluent), Spanish (basic)
- **General computer science:**
 - Proficient with Unix-like operating systems and Shells
 - Container platforms Docker, Singularity, Apptainer
- **Programming Languages:** Advanced with Python, C/C++, Java, MATLAB, Git
- **Cloud Computing** with GCP/AWS

Journal Publications

Maxence Faldor*, Luca Grillotti*, Borja G. León, and Antoine Cully. 2023. *Synergizing Quality-Diversity and Descriptor-Conditioned Reinforcement Learning*. Under review at ACM TELO.

Hannah Janmohamed, **Maxence Faldor**, Thomas Pierrot and Antoine Cully. 2023. *Preference-Conditioned Gradient Variations for Multi-Objective Quality-Diversity*. Under review at IEEE TEVC.

Conference Publications

Maxence Faldor, Félix Chalumeau, Manon Flageat, and Antoine Cully. 2023. *MAP-Elites with Descriptor-Conditioned Gradients and Archive Distillation into a Single Policy*. In Proceedings of the Genetic and Evolutionary Computation Conference (GECCO '23). Association for Computing Machinery, New York, NY, USA, 138–146.

[[Paper](#) | [Code](#) | [Best Paper Award](#) | [Kudos](#)]

Maxence Faldor*, Luca Grillotti*, Borja G. León, and Antoine Cully. 2023. *Skill-Conditioned Optimal Policy with Successor Features Representations*. Under review at ICLR.

[[Website](#)]

Workshop Publications & Preprints

Maxence Faldor*, Luca Grillotti*, Borja G. León, and Antoine Cully. 2023. *Skill-Conditioned Optimal Policy with Successor Features Representations*. Poster presentation at ALOE workshop NeurIPS 2023.

[[Paper](#) | [Website](#)]