

Juan Agustin Duque

Mila – Québec AI Institute
809 Bloomfield Avenue, Montréal, Québec H2V 3S5
juanduquevan@gmail.com

EDUCATION

Mila – Québec AI Institute, Université de Montréal
Advisor: Aaron Courville
Ph.D. in Computer Science

Aug 2022 – Present

Princeton University
Advisor: Karthik Narasimhan
M.S.E. in Computer Science

Sept 2020 – May 2022

Georgia Institute of Technology
Advisors: Charles Isbell, Michael Loss
B.S. in Computer Science

Aug 2014 – Dec 2018

PUBLICATIONS

Peer-reviewed

1. **Juan Agustin Duque***, Milad Aghajohari*, Tim Cooijmans, Razvan Ciuca, Tianyu Zhang, Gauthier Gidel, Aaron Courville. *Advantage Alignment Algorithms*. ICLR 2025 (Oral). [pdf]
2. Quentin Bertrand, **Juan Agustin Duque**, Emilio Calvano, Gauthier Gidel. *Q-learners Can Provably Collude in the Iterated Prisoner's Dilemma*. ICML 2025. [pdf]
3. Milad Aghajohari*, **Juan Agustin Duque***, Tim Cooijmans, Aaron Courville. *LOQA: Learning with Opponent Q-Learning Awareness*. ICLR 2024. [pdf]
4. Milad Aghajohari, Tim Cooijmans, **Juan Agustin Duque**, Shunichi Akatsuka, Aaron Courville. *Best Response Shaping*. Reinforcement Learning Conference (RLC) 2024. [pdf]

Workshops

1. **Juan Agustin Duque***, **Razvan Ciuca***, Ayoub Eschchahed, Hugo Larochelle, Aaron Courville. *Towards Sustainable Investment Policies Informed by Opponent Shaping*. CoCoMARL Workshop at RLC 2025. [pdf]

*Equal contribution indicated by *.*

INVITED TALKS

- *Advantage Alignment Algorithms*. IVADO Multi-Agent Systems Regroupment, March 2025.
- *Advantage Alignment Algorithms*. ICLR Oral Presentation, April 2025.
- *Multi-Agent Reinforcement Learning in the Era of LLMs*. Michael Wooldridge's Group, University of Oxford, August 2025.
- *Towards Sustainable Investment Policies Informed by Opponent Shaping*. IVADO McGill Workshop, August 2025.

HONORS AND AWARDS

- ICLR 2025 Oral Presentation, 2025
- St-Pierre-Larochelle Scholarship, Université de Montréal, 2024
- International Scholarship, Université de Montréal, 2022
- Cornell–Maryland–Max Planck Pre-Doctoral Research School (CMMRS), 2021
- Graduate Studentship, Princeton University, 2020
- Colfuturo Scholarship, 2020
- Highest Honors, Rank 1/6409, Georgia Institute of Technology, 2018
- Rank 11/600,000 in Colombia’s national high school exit examination (ICFES), 2013

RESEARCH EXPERIENCE

Mila – Québec AI Institute, Université de Montréal *Sept 2022 – Present*
Advisor: Aaron Courville. *Montréal, QC*
Designing multi-agent reinforcement learning algorithms that learn cooperative and non-exploitable behavior in general-sum games.

Princeton NLP Group, Princeton University *Aug 2020 – May 2022*
Advisors: Karthik Narasimhan, Elad Hazan. *Princeton, NJ*
Pre-trained transformers with self-supervision for rapid fine-tuning in Atari. Developed exploration strategies that leverage simple heuristics to accelerate convergence.

Institute for Robotics and Intelligent Machines, Georgia Tech *Aug 2017 – Dec 2018*
Advisors: Charles Isbell, Michael Loss. *Atlanta, GA*
Designed hierarchical RL methods using spectral graph partitioning for programmatic goal selection.

INDUSTRY EXPERIENCE

LinkedIn *May 2021 – Aug 2021*
Mentors: Zhoutong Fu, Michael Kazi. *Sunnyvale, CA*
Pre-trained a multi-task BERT encoder for downstream NLP. Contributed to LLM data collection pipelines.

Microsoft *Apr 2019 – Jul 2020*
Mentor: Rong Fang. *Redmond, WA*
Built title generation for news articles, slideshows, and videos. Developed cloud micro-services for news processing and ingestion.

Microsoft *May 2018 – Jul 2018*
Mentor: Ying Qiao. *Redmond, WA*
Developed a neural recommendation system based on users’ reading history. Deployed a live traffic experiment via REST API and client.

Google *May 2017 – Aug 2017*
Mentor: Ali Ayyash. *San Francisco, CA*
Designed, implemented and tested an API to improve latency of concurrent moves in Google’s cloud resource hierarchy.

TEACHING

Princeton University

Graduate Student Preceptor.

Fall 2020 – Spring 2022

Princeton, NJ

Introduction to Machine Learning, Introduction to Programming Systems. Led biweekly sections, held office hours, graded, and wrote exam questions.

PROFESSIONAL SERVICE

- Reviewer: ICLR, NeurIPS, TMLR

SKILLS

C, C++, C#, Java, Wolfram, Python, NumPy, PyTorch, JAX, Git, \LaTeX .

LANGUAGES

Spanish (Native), English (Native), German (Proficient)

CITIZENSHIP

Colombia, Belgium