

EDOUARD LEURENT | RESUME



- › **Generative models:** language models, diffusion models
- › **Reinforcement learning:** for combinatorial optimisation, from human feedback
- › **Real world:** systems optimisation, robotics

»»» Experience

2021 – present **Senior Research Scientist** DeepMind

- › GEMINI DIFFUSION, a blazing fast state-of-the-art diffusion language model
- › RLHF for Gemini and AI Overviews
- › Reinforcement Learning for real-world systems (e.g. ALPHADEV)

2014 – 2017 **Control Systems Engineer and Technical Leader** Parrot Drones

- › Developed flight control and estimation algorithms in C++, running on consumer drones
- › Led four engineers and four interns, filed three patents

2013 **Software Engineering Intern** Twitter

- › Worked in the Mobile team on the performances and stability of the iOS app
- › Integrated a complete redesign of the app for the release of iOS 7

»»» Education

2017 – 2020 **PhD in Computer Science** Inria & Renault Group

- › At Inria (Sequel and Valse teams), in collaboration with Renault
- › Research on Safe and Efficient Reinforcement Learning for Autonomous Driving

2011 – 2014 **Master's Degree in Science and Executive Engineering** Mines Paris

- › Highly-ranked French engineering school
- › Specializations: Applied Maths, Robotics, Control Theory, Computer Vision

»»» Achievements

2019–2020 **Seminars**

- › Invited Speaker: Amazon (2019), ITSC (2020), Toyota Research Institute (2022)
- › Organizing Committee & Teaching Assistant at RLSS 2019
- › Science popularization events: Inria 13:45, and the Inria-Industry Meetings

2020–2021 **Honours and Awards**

- › Awarded the *Best Doctoral Thesis Prize* by the Abertis Chair, 2021
- › Awarded the *Best PhD Award* by the CNRS (GdR MACS) and the Club EEA, 2021
- › Received the second prize at the "AI and the 3rd industrial revolution" challenge, 2020

Publications

2022–2025

Tech reports and blog posts

- » Gemini Team. *Gemini 2.5: Pushing the Frontier with Advanced Reasoning, Multimodality, Long Context, and Next Generation Agentic Capabilities*. 2025
- » Google DeepMind. "Gemini Diffusion: Google DeepMind's experimental research model". In: *The Keyword (Google Blog)* (May 2025). URL: <https://blog.google/technology/google-deepmind/gemini-diffusion/>
- » Gemini Team et al. *Gemini: A Family of Highly Capable Multimodal Models*. 2023. arXiv: 2312.11805 [cs.CL]
- » Google DeepMind. "MuZero, AlphaZero, and AlphaDev: Optimizing computer systems". In: *Google DeepMind Blog* (June 2023). URL: <https://deepmind.google/discover/blog/muzero-alphazero-and-alphadev-optimizing-computer-systems/>
- » Tom Zahavy, Vivek Veeriah, Shaobo Hou, Kevin Waugh, Matthew Lai, **Eduard Leurent**, Nenad Tomasev, Lisa Schut, Demis Hassabis, and Satinder Singh. *Diversifying AI: Towards Creative Chess with AlphaZero*. 2023. arXiv: 2308.09175 [cs.AI]
- » Pengming Wang et al. *Optimizing Memory Mapping Using Deep Reinforcement Learning*. 2023. arXiv: 2305.07440 [cs.PF]

2023

Journals

- » Daniel J. Mankowitz*, Andrea Michi*, Anton Zhernov*, Marco Gelmi*, Marco Selvi*, Cosmin Paduraru*, **Eduard Leurent***, and al. "Faster sorting algorithms discovered using deep reinforcement learning". In: *Nature* 618.7964 (June 2023), pp. 257–263. ISSN: 1476-4687. DOI: 10.1038/s41586-023-06004-9. URL: <https://doi.org/10.1038/s41586-023-06004-9>

2019–2024

Conferences

- » Kaiwen Wang, Rahul Kidambi, Ryan Sullivan, Alekh Agarwal, Christoph Dann, Andrea Michi, Marco Gelmi et al., and **Eduard Leurent**. "Conditional Language Policy: A General Framework For Steerable Multi-Objective Finetuning". In: *Findings of the Association for Computational Linguistics: EMNLP 2024*. 2024, pp. 2153–2186.
- » Pierre Schegg, Jérémie Dequidt, Eulalie Coevoet, **Eduard Leurent**, Rémi Sabatier, Philippe Preux, and Christian Duriez. "Automated Planning for Robotic Guidewire Navigation in the Coronary Arteries". In: *2022 IEEE 5th International Conference on Soft Robotics (RoboSoft)*. 2022, pp. 239–246. DOI: 10.1109/RoboSoft54090.2022.9762096
- » **Eduard Leurent**, Denis Efimov, and Odalric-Ambrym Maillard. "Robust-Adaptive Control of Linear Systems: beyond Quadratic Costs". In: *Advances in Neural Information Processing Systems 33 (NeurIPS)*. Virtual, Dec. 2020. **Oral (1.1% acceptance rate)**.
- » **Eduard Leurent**, Denis Efimov, and Odalric-Ambrym Maillard. "Robust-Adaptive Interval Predictive Control for Linear Uncertain Systems". In: *2020 IEEE 59th Conference on Decision and Control (CDC)*. Virtual, Dec. 2020
- » Pierre Ménard, Omar Darwiche Domingues, Anders Jonsson, Emilie Kaufmann, **Eduard Leurent**, and Michal Valko. "Fast active learning for pure exploration in reinforcement learning". In: *International Conference on Machine Learning*. PMLR. 2021, pp. 7599–7608
- » Emilie Kaufmann, Pierre Ménard, Omar Darwiche Domingues, Anders Jonsson, **Eduard Leurent**, and Michal Valko. "Adaptive Reward-Free Exploration". In: *The 32nd International Conference on Algorithmic Learning Theory (ALT 2021)*. Paris, France, Mar. 2021
- » **Eduard Leurent** and Odalric-Ambrym Maillard. "Monte-Carlo Graph Search: the Value of Merging Similar States". In: *Asian Conference on Machine Learning (ACML)*. Virtual, Nov. 2020, pp. 577–592
- » Anders Jonsson, Emilie Kaufmann, Pierre Ménard, Omar Darwiche Domingues, **Eduard Leurent**, and Michal Valko. "Planning in Markov Decision Processes with Gap-Dependent Sample Complexity". In: *Advances in Neural Information Processing Systems 33 (NeurIPS)*. Virtual, Dec. 2020

» Nicolas Carrara*, **Edouard Leurent***, Romain Laroche, Tanguy Urvoy, Odalric-Ambrym Maillard, and Olivier Pietquin. "Budgeted Reinforcement Learning in Continuous State Space". In: *Advances in Neural Information Processing Systems 32 (NeurIPS)*. Vancouver, Canada, Dec. 2019. *equal contribution.

» **Edouard Leurent**, Denis Efimov, Tarek Raissi, and Wilfrid Perruquetti. "Interval Prediction for Continuous-Time Systems with Parametric Uncertainties". In: *2019 IEEE 58th Conference on Decision and Control (CDC)*. Nice, France, Dec. 2019, pp. 7049–7054

» **Edouard Leurent** and Odalric-Ambrym Maillard. "Practical Open-Loop Optimistic Planning". In: *19th European Conference on Machine Learning and Principles and Practice (ECML-PKDD)*. Würzburg, Germany, Sept. 2019

2018 – 2019

Workshops

» **Edouard Leurent** and Jean Mercat. "Social Attention for Autonomous Decision-Making in Dense Traffic". In: *Machine Learning for Autonomous Driving Workshop at NeurIPS*. Vancouver, Canada, Dec. 2019

» **Edouard Leurent**, Yann Blanco, Denis Efimov, and Odalric-Ambrym Maillard. "Approximate Robust Control of Uncertain Dynamical Systems". In: *Machine Learning for Intelligent Transportation Systems Workshop at NeurIPS*. Montreal, Canada, Dec. 2018

2018 – 2019

Patents

» **Edouard Leurent**. "Autonomous system for taking moving images from a drone, with target tracking and improved target location". U.S. pat. US10322819B2. Parrot Drones. June 18, 2019

2018

Software

» **Edouard Leurent**. *An Environment for Autonomous Driving Decision-Making*. <https://github.com/eleurent/highway-env>. 2018