Lars C.P.M. Quaedvlieg

Lausanne, Switzerland +3162867393 e-mail website lars-quaedvlieg

Research	Foundation Models (for Decision-Making), Reinforcement Learning (RL), Multi-Task Learning, Graph Neural Networks (GNNs).
Projects	https://lars-quaedvlieg.github.io/projects/

Education

Sep 2022 – Dec 2024 *(Expected)*
École Polytechnique Fédérale de Lausanne (EPFL) — MSc in Data Science
Lausanne, Switzerland — GPA: 5.7/6

- Google Developer Student Club PR Manager: in the founding year of the club, co-organized 15 events with 212+ total attendees, and 163 community members.
- Some relevant coursework: Statistics, Mathematics of Data, Visual Intelligence, Network Machine Learning, Large-scale data science for real-world data.

Sep 2019 – Jul 2022
Maastricht University — BSc in Data Science and AI
Maastricht, The Netherlands — GPA: 9.5/10 | Rank 1/104

- Graduated with a *summa cum laude distinction* with a 9.5/10 for the thesis.
- Student Representative: one of two student representatives among 800 peers, addressing student concerns, and development of the programme curriculum.
- MSV Incognito Board Member: held three board positions for an 800-member study association, orchestrating educational and social events for students.

Work Experience

Oct 2023 – Present
Caglar Gulcehre Lab for AI Research — Lausanne Switzerland
Research Assistant

- Skills: State-Space Models, RL
- Working on foundation models for decision-making problems, specifically on efficient RL for long-horizon problems *(In progress)*

Jun 2023 – Present
InstaDeep — Paris, France
Research Intern

- Skills: Transformers, Auto-Encoders, HDF5, Offline RL, Google Cloud Platform.
- Pre-training large transformers on a 3.07 TB offline reinforcement learning dataset, with the purpose of easily fine-tuning agents for downstream tasks. *(In progress)*

Nov 2022 – Present
Laboratory for Information and Inference Systems — Lausanne, Switzerland
Research Assistant

- Skills: Combinatorial Optimization, Computer Vision, RL, GNNs, Scheduling.
- Co-authored a paper about self-supervised learning for combinatorial optimization.
- Research on the use of machine learning for scheduling problems. *(In progress)*

Jun 2018 – Jun 2020
Aucos AG — Aachen, Germany
Research Intern

- Skills: Multi-Object Tracking, GNNs, Planning, RL.
- Computer Vision: Developed a pipeline for multi-camera multi-object tracking.
- Optimization: Devised a method for optimizing the throughput of production lines, resulting in a $\pm$10% increase over classical approaches in a simulated environment.

Awards & Honours

Jul 2023
CS-503 Visual Intelligence Best Project Award
Best project out of 14 teams (including PhD students). We researched the dynamics between predators and prey using self-play on an asymmetric zero-sum game with RL.

Sep 2022	**Master's Excellence Fellowship, EPFL** Two-year fellowship awarded to ~3% of EPFL master students based on outstanding academic records.
Nov 2022	**Best Bachelor's Thesis Award, Maastricht University** University-wide award for the best bachelor's thesis research among all other students in the cohort, awarded to one student per year.

Languages	English (C2), Dutch (C2), German (B1), French (A2)
Programming	Python, Java, SQL, C, C++
Tools	Jax, Haiku, Optax, Flax, PyTorch, Hydra, Neptune, Google Cloud Platform, HDF5

Publications *(* = equal contributions)*

Sep 2023	Boige, R., Flet-Berliac, Y., Flajolet, A., Richard, G., & Pierrot, T. (2023). PASTA: Pretrained Action-State Transformer Agents. *arXiv preprint arXiv:2307.10936*. *(Submitted an updated version of this paper to ICLR 2024, I will be added to the list of authors)*
Jul 2023	**Quaedvlieg L.C.P.M.***, Brusca L.*, Skoulakis S., Chrysos G., Cevher V. (2023). Maximum Independent Set: Self-Training through Dynamic Programming. *Advances in neural information processing systems (NeurIPS)*.
Jul 2023	**Quaedvlieg L.C.P.M.** (2023). Optimizing Job Allocation using Reinforcement Learning with Graph Neural Networks. *(Preprint)*

Upcoming

- Started a research project on foundation models for decision-making and reinforcement learning in collaboration with Caglar Gulcehre.
- In the process of writing a paper on my research project at InstaDeep.

References

Prof. Dr. Karl Tuyls	Research Director, Google DeepMind karltuyls@deepmind.com
Prof. Dr. Volkan Cevher	Associate Professor, EPFL volkan.cevher@epfl.ch
Prof. Dr. Rico Möckel	Associate Professor, Maastricht University rico.mockel@maastrichtuniversity.nl