Lars C.P.M. Quaedvlieg

Lausanne, Switzerland e-mail website lars-quaedvlieg

Research Projects	Foundation Models, Sequential Decision-Making (RL), Multi-Task Learning https://lars-quaedvlieg.github.io/projects/
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

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 highest *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 program 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, Algorithm Distillation, World Models, RL
- Working on foundation models for decision-making problems, specifically on efficient RL for long-horizon problems with algorithm distillation. *(In progress)*

Jun 2023 – Jan 2024
InstaDeep — Paris, France
Research Intern

- Skills: Transformers, Auto-Encoders, HDF5, Offline RL, Google Cloud Platform.
- Pre-training Transformer models on a large offline reinforcement learning dataset (1+ billion transitions) of the Atari benchmark. The goal is to efficiently fine-tune RL agents for downstream tasks using this pre-trained model. *(In progress)*

Nov 2022 – Oct 2024
Laboratory for Information and Inference Systems — Lausanne, Switzerland
Research Assistant (Unofficial)

- 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.

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 ± 10% increase over classical approaches in a simulated environment.

Awards & Honors

Feb 2024 **Talent Bursary, Albert Machine Intelligence Institute**
Bursary, valued at 2,750 CAD, awarded to talented (upcoming) academics for travelling to Edmonton, Alberta for the Upper Bound conference.

Feb 2024 **Research Scholar Assistant**
Participant in year-long highly competitive research program, valued at 19,500 CHF. Part-time researcher at the Caglar Gulcerhe's Lab for AI Research (CLAIRE).

Dec 2023 **Scholar Award, NeurIPS 2023**
Travel award, valued at approximately 2,500 USD, covering registration and hotel costs to come to NeurIPS 2023 in-person.

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

Jan 2023 **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.

Sep 2022 **Master's Excellence Fellowship, EPFL**
Two-year fellowship, valued at 40,000 CHF, awarded to ~3% of EPFL master students based on outstanding academic records.

Feb 2021 **Honors Student, Maastricht University**
Participation in the KE@Work honours programme, a part-time research internship in industry alongside the bachelor's programme.

Publications *(* = equal contributions)*

Review Boige, R., Flet-Berliac, Y., Flajolet, A., Richard, G., & Pierrot, T. (2023). PASTA: Pretrained Action-State Transformer Agents. *arXiv preprint arXiv:2307.10936*.
(Will be submitted to ICML 2024, I will be added to the list of authors)

Dec 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, on my website)*

Upcoming

- Research project on algorithm distillation for in-context reinforcement learning in collaboration with Caglar Gulcehre.

References

Prof. Dr. Karl Tuyls	Research Director, Google DeepMind karltuyls@deepmind.com
Dr. Stratis Skoulakis	Postdoctoral Researcher, EPFL efstratios.skoulakis@epfl.ch
Prof. Dr. Rico Möckel	Associate Professor, Maastricht University rico.mockel@maastrichtuniversity.nl