

Kjartan van Driel

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EDUCATION

- PhD Candidate** 2023 – present
Complexity Science Hub & TU Wien, Vienna
ML methods for dynamic graph-structured data, applied to supply-chain networks to reveal vulnerabilities and support the green economic transition. Supervisor: Stefan Thurner.
- MSc Physics** (9.0/10 GPA; 4.0/4.0 US) 2020 – 2023
Universiteit van Amsterdam — Theoretical Physics track
Thesis: *Approximate Inference in Spiking Neural Networks*, Max Planck Institute for Dynamics and Self-Organization, Göttingen. Supervisors: V. Priesemann, F. Mikulasch, L. Rudelt.
- BSc Physics & BSc Mathematics** (*cum laude*) 2017 – 2020
Radboud Universiteit, Nijmegen
Thesis: *Path-Integral Control Theory Applied to Evolutionary Dynamics*, Donders Institute. Supervisors: H.J. Kappen, A. Nourmohammad.
Honours Programme: funded research at the University of Washington, Seattle.

PUBLICATIONS

- K. van Driel**, L.N. Ialongo, P.A. Astudillo-Estévez, S. Thurner. *Generalized Degrees for Scalable Discrete Time Dynamic Graph Generation*. Learning on Graphs Conference, 2025. **Oral**. [paper] [code]
- K. van Driel**, L. Rudelt, V. Priesemann, F.A. Mikulasch. *Prediction Mismatch Responses Arise as Corrections of a Predictive Spiking Code*. bioRxiv preprint, 2023. [paper] [code]

TALKS & CONFERENCES

- European Forum Alpbach — *Complexity science in the green transition* 2025
Learning on Graphs Conference — Oral presentation 2025
Summer School on Economic Networks, University of Oxford 2024
ICLR — Volunteer 2024
CSH Winter School on Complex Systems 2024
Summer School on Economic Complexity, Maastricht University 2024

EXPERIENCE

- Quantitative Analyst** (part-time) 2021 – 2022
Gimli — Game-theoretic models for Flashbots MEV blind auction bid optimisation.
- Intern Analyst** (part-time) 2020 – 2021
MindHash — Machine learning for object extraction and tracking in LiDAR point cloud data.
- Blommers Coffee Roastery**, Nijmegen 2020 – 2021
- Undergraduate Researcher** 2020
University of Washington, Seattle — Computational research on constrained mutations in genome space.
- Teaching Assistant / Tutor** 2015 – 2020
Radboud Universiteit

ACTIVITIES

- Reading group on EU industrial and economic policy (organiser), CSH 2024
Honours Programme, interdisciplinary research (Radboud) 2017 – 2020
Symposium Committee, study association Marie Curie 2017 – 2019
Physics Bachelor Representative at high schools & universities 2017 – 2019

SKILLS

- Programming** Python (PyTorch, PyTorch Geometric, JAX) · CUDA / Triton · C++ · \LaTeX · Git · Linux / Slurm
Methods Graph neural networks · Normalizing flows · Dynamic graph generation · Spiking neural networks · Variational inference · Network science · Probabilistic generative models
Languages Dutch (native) · English (fluent) · German (B2)