

JAN FREDERIK WENKEL

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EDUCATION

2019 – expected Dec 2023	University of Montreal, Mila – Quebec AI Institute <i>Ph.D. candidate in Applied Mathematics</i> <ul style="list-style-type: none">• Research: Data-driven Graph Neural Network filters for universal pattern recognition on graphs (Prof. Guy Wolf)• Focus: Geometric Deep Learning, Graph Neural Networks, Graph Signal Processing• Excellence scholarships (Fin-ML and J.A. DeSève foundation), full doctoral scholarship (University of Montreal)	Montreal – Canada
2017 – 2019	Technical University of Munich <i>M.Sc. Mathematics</i> <ul style="list-style-type: none">• Thesis: Logarithmic Sobolev Inequality – Euclidean & Riemannian Setting (Prof. Daniel Matthes)• Focus: Machine Learning, Deep Learning, Optimal Transport• Semester abroad at Université du Québec à Trois-Rivières, Canada (Fall 2017)	Munich – Germany
2013 – 2017	Technical University of Munich <i>B.Sc. Mathematics</i> <ul style="list-style-type: none">• Thesis: Proof of the Logarithmic Sobolev Inequality (Prof. Daniel Matthes)• Focus: Probability Theory, Optimization, Minor in Economics• Semester abroad at Université de Bordeaux, France (Fall 2015)	Munich – Germany
2011 – 2013	Gymnasium Landschulheim Kempfenhausen <i>Abitur (university entrance qualification)</i>	Berg – Germany

PUBLICATIONS

Inferring Dynamic Regulatory Interaction Graphs from Time Series Data with Perturbations Dhananjay Bhaskar, [...], Frederik Wenkel , et al.	<i>Preprint (arXiv:2306.07803) 2023</i>
Pretrained Language Models to Solve Graph Tasks in Natural Language Frederik Wenkel , Guy Wolf, Boris Knyazev	<i>SPIGM workshop @ ICML (Poster) 2023</i>
Can Hybrid Geometric Scattering Networks Help Solve the Maximum Clique Problem? Yimeng Min, Frederik Wenkel , Michael Perlmutter, Guy Wolf	<i>NeurIPS (Poster) 2022</i>
Overcoming Oversmoothness in Graph Convolutional Networks via Hybrid Scattering Networks Frederik Wenkel , Yimeng Min, Matthew Hirn, Michael Perlmutter, Guy Wolf	<i>Preprint (arXiv:2201.08932) 2022</i>
Taxonomy of Benchmarks in Graph Representation Learning Renming Liu, Semih Cantürk, Frederik Wenkel , et al.	<i>LoG (Spotlight) 2022</i>
Data-Driven Learning of Geometric Scattering Networks Alexander Tong, Frederik Wenkel , Kincaid MacDonald, Smita Krishnaswamy, Guy Wolf	<i>IEEE MLSP (Poster) 2021</i>
Geometric Scattering Attention Networks Yimeng Min, Frederik Wenkel , Guy Wolf	<i>IEEE ICASSP (Poster) 2021</i>
Scattering GCN: Overcoming Oversmoothness in Graph Convolutional Networks Yimeng Min, Frederik Wenkel , Guy Wolf	<i>NeurIPS (Poster) 2020</i>

WORK EXPERIENCE

Jul 2023 Ongoing	Valence Labs / Recursion <i>Intern – Graph Neural Network Group</i> Scaling and finetuning GNNs for molecular tasks working towards molecular foundational models	Montreal – Canada
Oct 2022 4 months	Morgan Stanley <i>Intern – Machine Learning Research</i> Modeled relations between financial assets as graphs; used graph neural networks for stock market predictions	New York – United States of America
Jan 2018 3 months	Roland Berger <i>Intern – Business Technology</i> Implemented a dashboard for monitoring and optimization of internal business processes	Munich – Germany

Mar 2017 6 months	BMW <i>Intern – Application Management, Cloud-Solutions</i> Coordinated integration of a monitoring platform; analyzed the cloud integration process for 3 cloud providers	Munich – Germany
Aug 2016 6 months	Infineon Technologies – largest German chipmaker <i>Working Student – Processes and Tools</i> Implemented 2 software solutions in Visual Basic; helped to develop a new sales forecasting model	Munich – Germany
Feb 2016 3 months	Gothaer Health Insurance <i>Intern – Actuarial Office</i> Modelled interest scenarios for a pension insurance product; developed company & industry KPIs	Cologne – Germany
Mar 2013 12 months	Deutsche Post <i>Sorter – Logistics</i> Operated and coordinated sorting machines and sorted mail manually	Schorn – Germany

TEACHING EXPERIENCE

Nov 2021 Ongoing	IVADO - Institut de Valorisation des Données, Fin-ML <i>Lecturer – Open online class & annual Machine Learning Applied to Finance and Insurance workshop (2022 & 2023)</i> Recorded 4 lectures for open online class; introduced 20+ participants to graph neural networks applied to finance	Montreal – Canada
2020 – 2021	University of Montreal <i>Teaching assistant – Department of Mathematics and Statistics</i> Spectral Graph Theory (Fall 2021), Theoretical Foundations of Data Science (Winter 2020 & 2021)	Montreal – Canada
Sep 2018 2 months	Technical University of Munich <i>Teaching assistant – TUM School of Management</i> Introduced 20+ management students to the mathematical foundations of management studies	Munich – Germany
Jul 2017 2 months	BMW <i>Programming instructor</i> Organized and taught introductory class in Visual Basic for 15+ BMW employees	Munich – Germany
2011 – 2017	Private Tutor in Mathematics, Physics and Chemistry	Starnberg – Germany

TALKS & RESEARCH ACTIVITIES

April 2023 Ongoing	Mila – Quebec AI Institute <i>Graphium Project</i> Developing molecular foundational models using graph neural networks	Montreal – Canada
July 2022	University of British Columbia <i>BIRS Workshop: Deep Exploration of non-Euclidean Data with Geometric and Topological Representation Learning</i> Talk: Solving Graph Learning Tasks via Hybrid Scattering Models	Kelowna – Canada
May 2022	Laboratoire des Sciences du Numérique de Nantes <i>Kymatio Workshop: Deep Learning meets Wavelet Theory</i> Talk: Solving Graph Learning Tasks via Hybrid Scattering Models	Nantes – France
Apr 2021 3 weeks	Fields Institute <i>Extended Problem Solving Workshop</i> Developed a macro-economic agent-based model based on a Deep Learning framework	Toronto – Canada
Oct 2018 5 months	TUM Data Innovation Lab / Celonis <i>A Company's Digital Twin</i> Developed a prototype of a digital twin of a company based on a Markov model	Munich – Germany

SKILLS & INTERESTS

Languages	Native: German – Fluent: English & French
IT Skills	Very good: Python, LaTeX, MS Office – Good: Linux, VS Code, MATLAB, R, Visual Basic – Basic: JAVA, SQL
Charity	Bandleader at Fairplayed Music Concerts: Organized 40+ rehearsals, 2 concerts, played trombone, raised ca. € 7000 Voluntary tutor at student initiative: Supported a young immigrant during his graduation year at school Co-organizer of junior staff initiative at BMW: Organized social and cultural events for interns
Interests	Music: Trombone, guitar – Sports: Basketball, volleyball, skiing, chess