Martin Trapp *June 28, 1984, Germany*

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Address: Penzingerstrasse 19/17, 1140 Vienna, Austria

Academic Positions

Graz University of Technology — May 2017 – July 2020
Project Assistant
Intelligent System Group
Signal Processing and Speech Communication Lab
Research Topics: Sum-product networks, Bayesian learning, Bayesian nonparametrics

University of Cambridge — Aug. 2018 – Sep. 2018
Research Assistant
Machine Learning Group, Computational and Biological Learning Lab
Research Topics: Probabilistic programming, Bayesian nonparametrics

Austrian Research Institute for Artificial Intelligence (OFAI) — Apr. 2015 – May 2019
Research Assistant
Language and Interaction Technologies Group & Applied Cognitive Science Group
Research Topics: Statistical modelling, Applied machine learning

VRVis Research Center — Jan. 2009 – Feb. 2015
Research Assistant
Biomedical Image Informatics Group
Research Topics: Biomedical Image Processing

Education

PhD, Machine Learning — Nov. 2015 – Aug. 2020 (EXPECTED)
Graz University of Technology
Signal Processing and Speech Communication Lab
Thesis Supervisors: Prof. Franz Pernkopf, and Asst. Prof. Robert Peharz (TU Eindhoven)
Thesis Topic:

Master of Science, Computational Intelligence — Oct. 2009 – Jan. 2014
Vienna University of Technology
Thesis Supervisors: Prof. Robert Sablatnig, Dr. Katja Bühler
Thesis Topics: Fast and Accurate Localisation of Anatomical Landmarks on Medical Images

Bachelor of Applied Science, Software Engineering — Oct. 2006 – Jun. 2009
University of Applied Sciences Technikum Wien
Thesis Supervisor: Dr. Katja Bühler

Research Visits

University of Cambridge — Dec. 2017 – Jan. 2018
Machine Learning Group, Computational and Biological Learning Lab
Hosts: Prof. Zoubin Ghahramani & Dr. Robert Peharz
Research Topics: Sum-product networks, Bayesian nonparametrics

Selected Publications

- **M. Trapp**, R. Peharz, F. Pernkopf, C.E. Rasmussen. "Deep Structured Mixtures of Gaussian Processes." International Conference on Artificial Intelligence and Statistics (AISTATS), 2020.

- R. Peharz, S. Lang, A. Vergari, K. Stelzner, A. Molina, **M. Trapp**, G. Van den Broeck, K. Kersting, Z. Ghahramani. "Einsum Networks: Fast and Scalable Learning of Tractable Probabilistic Circuits." International Conference on Machine Learning (ICML), 2020.

- **M. Trapp**, R. Peharz, H. Ge, F. Pernkopf, Z. Ghahramani. "Bayesian Learning of Sum-Product Networks." Advances in Neural Information Processing Systems (NeurIPS), 2019 **(21% acceptance)**.

- R. Peharz, A. Vergari, K. Stelzner, A. Molina, **M. Trapp**, X. Shao, K. Kersting, Z. Ghahramani. "Random Sum-Product Networks: A Simple and Effective Approach to Probabilistic Deep Learning." Uncertainty in Artificial Intelligence (UAI), 2019 **(26% acceptance)**.

- **M. Trapp**, R. Peharz, F. Pernkopf. "Optimisation of Overparametrized Sum-Product Networks." ICML workshop on Tractable Probabilistic Modelling, 2019.

- **M. Trapp**, T. Madl, R. Peharz, F. Pernkopf, R. Trappl. "Safe Semi-Supervised Learning of Sum-Product Networks." Uncertainty in Artificial Intelligence (UAI), 2017 **(31% acceptance)**.

- **M. Trapp**, M. Skowron, D. Schabus. "Retrieving Compositional Documents using Position-Sensitive Word Mover's Distance." International Conference on the Theory of Information Retrieval (ICTIR), 2017.

- **M. Trapp**, R. Peharz, M. Skowron, T. Madl, F. Pernkopf, R. Trappl. "Structure Inference in Sum-Product Networks using Infinite Sum-Product Trees." NeurIPS workshop on Bayesian Nonparametrics, 2016.

- **M. Trapp**, F. Schulze, A.A. Novikov, L. Tirian, B.J. Dickson, K. Bühler. "Adaptive and Background-Aware GAL4 Expression Enhancement of Co-registered Confocal Microscopy Images." Neuroinformatics 14(2), 2016 (**5.1 impact factor**).

Selected Presentations

- Invited talk at NeurIPS workshop on Tractable Probabilistic Models on: Challenges and opportunities in Bayesian nonparametrics for tractable probabilistic models, expected in 2020.

- Invited talk at the Czech Technical University in Prague on: Learning Sum-Product Networks, 2020.

- Invited talk at the University of Cambridge on: Advances in Learning Sum-Product Networks, 2017.

- Contributed talk at the Conference on Bayesian nonparametrics on: Infinite Sum-Product Networks, 2017.

Professional Activities

Organising Committee: Tractable Probabilistic Inference Meeting (T-PRIME), NeurIPS, 2019

Reviewing: Neural Information Processing Systems (NeurIPS) | International Conference on Machine Learning (ICML) | Artificial Intelligence and Statistics (AISTATS) | IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI) | Machine Learning, Springer.

Software Skills

Programming Languages: Julia | Python | Java | C/C++ | Bash

Software Systems: LaTeX | GitHub | SVN | AWS

Awards & Scholarships

Awards: International Communication Funding Award, Austrian Research Association, 2017 | Travel Award from the International Society for Bayesian Analysis, 2017

Scholarships: Vienna Biocenter Scholarshipp, 2015. (I refused the scholarship.)

Languages

English – native proficiency, **German** – native speaker

References

Prof. Franz Pernkopf	Assoc. Prof. Robert Peharz	Prof. Kristian Kersting
PhD Supervisor	PhD Co-Supervisor	PhD Examiner
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