Ernst Röell

PERSONAL DETAILS

Date of Birth:	2 September 1993	**Mobile:**	+49 151 41 333 096
Personal Website:	Ernst Röell	**E-mail:**	ernstroell@gmail.com

WORK EXPERIENCE

08.2022 **Doctoral Researcher – Technische Universität München and Helmholtz Zentrum München**
München, Germany
Sparse Representation Learning for High Dimensional Datasets.

02.2020 – 07.2022 **Cloud Solutions Architect – Microsoft**
Amsterdam, Netherlands
Gained deep understanding of data engineering and machine learning at scale with Azure. Client focus was on the high-tech and oil industry.

09.2019 – 12.2019 **Working Student – EY**
Utrecht, Netherlands
Developed prototype for parsing invoices using OCR and ML for classification.

01.2014 – 01.2017 **Student Assistant – Universiteit Utrecht**
Utrecht, Netherlands
Differential equations, Mathematics for Chemistry.

EDUCATION

08.2022 – 07.2025 **PhD Candidate – Technische Universität München**
Sparse Representation Learning for High Dimensional Datasets.

09.2016 – 02.2020 **MSc. Mathematical Sciences – Universiteit Utrecht**
Normal Form for Maps with Nilpotent Linear Part [MRS22].

08.2013 – 08.2016 **BSc. Mathematics – Universiteit Utrecht**
Hypernormal Form for the Hopf Bifurcation.

PUBLICATIONS

Articles

[Bal+24] Rubén Ballester, Ernst Röell, Daniel Bin Schmid, Mathieu Alain, Sergio Escalera, Carles Casacuberta, and Bastian Rieck. "MANTRA: The Manifold Triangulations Assemblage". In: *International Conference on Learning Representations*. 2024. arXiv: 2410.02392 [cs.LG]. In press.

[RR24] Ernst Röell and Bastian Rieck. "Differentiable Euler Characteristic Transforms for Shape Classification". In: *International Conference on Learning Representations*. 2024. arXiv: 2310.07630 [cs.LG]. URL: https://openreview.net/forum?id=MO632iPq3I.

[Wai+23] Dominik J. E. Waibel, Ernst Röell, Bastian Rieck, Raja Giryes, and Carsten Marr. "A Diffusion Model Predicts 3D Shapes from 2D Microscopy Images". In: *IEEE International Symposium on Biomedical Imaging (ISBI)*. 2023. DOI: 10.1109/ISBI53787.2023.10230752. arXiv: 2208.14125 [cs.CV].

[MRS22] Fahimeh Mokhtari, Ernst Röell, and Jan A. Sanders. “Normal Form for Maps with Nilpotent Linear Part”. In: *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences* 478.2261 (May 25, 2022). Authors listed in alphabetical order. All authors have equal contribution, p. 20210908. DOI: 10.1098/rspa.2021.0908.

Preprints

[RR24] Ernst Röell and Bastian Rieck. *Point Cloud Synthesis Using Inner Product Transforms*. 2024. arXiv: 2410.18987 [cs.CV].

SKILLS

Microsoft Azure, Azure Machine Learning, Azure Databricks, Azure DevOps, Github, GitHub Actions, Kubernetes (basics), Docker, Python, Linux.

Languages

Dutch (native language), English, German (B2).