Thaddäus Wiedemer

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Education

Max Planck Institute for Intelligent Systems & University of Tübingen — *PhD Candidate* *04/2022 – 01/2026 (expected)*
- Supervised by Wieland Brendel and Matthias Bethge in the Max Planck Research School (IMPRS-IS)

Karlsruhe Institute of Technology — *M. Sc. Electrical Engineering and Information Technology* *10/2018 – 11/2021*
- Grade Average: 4.0 / 4.0 (top 1%)
- Thesis: Few-Shot Supervised Domain-Adaptive Object Detection
- 2-year exchange at Tsinghua University Beijing, Department of Computer Science

Karlsruhe Institute of Technology — *B. Sc. Electrical Engineering and Information Technology* *10/2015 – 08/2018*
- Grade Average: 3.8 / 4.0 (top 3 of ~250 students)
- Thesis: Host-Based Anomaly Detection in Automotive Control Units with Operating System Information

Professional Experience

Google Deepmind — *Student Researcher* *06/2025 – 11/2025*
- Benchmark emergent capabilities of generative video models; advised by Robert Geirhos and Priyank Jaini

Fraunhofer Institute IOSB & Tsingua University IIIS — *Visiting Researcher* *04/2021 – 12/2021*
- Developed a domain adaptation method for fisheye camera data; advised by Stefan Wolf and Kaisheng Ma

Xilinx AI Algorithm Group — *Research Intern* *02/2020 – 07/2020*
- Developed improvements to neural network quantization methods; advised by Dong Li

Tsinghua University Center for Brain-Inspired Computing Research — *Visiting Researcher* *09/2019 – 09/2020*
- Worked on invariance to affine transformations in convolutional neural networks; advised by Xiaolin Hu

Bosch Center for Artificial Intelligence — *Research Intern* *04/2018 – 07/2018*
- Developed a new approach to saliency computation in image classification; advised by Jan Köhler

Selected Publications

[1] **Video Models are Zero-Shot Learners and Reasoners** *Under Review*
T Wiedemer, Y Li, P Vicol, S Gu, N Matarese, K Swersky, B Kim, P Jaini*, R Geirhos**

[2] **VGGSounder: Audio-Visual Evaluations for Foundation Models** *ICCV 2025*
D Zverev, T Wiedemer*, A Prabhu, M Bethge, W Brendel, AS Koepke*

[3] **LLMs on the Line: Data Determines Loss-to-Loss Scaling Laws** *ICML 2025*
P Mayilvahanan, T Wiedemer*, S Mallick, M Bethge, W Brendel*

[4] **In Search of Forgotten Domain Generalization** *Spotlight: ICLR 2025*
P Mayilvahanan, RS Zimmermann, T Wiedemer, E Rusak, A Juhos, M Bethge, W Brendel

[5] **Provable Compositional Generalization for Object-Centric Learning** *Oral: ICLR 2024*
T Wiedemer, J Brady*, A Panfilov*, A Juhos*, M Bethge, W Brendel*

[6] **Compositional Generalization From First Principles** *NeurIPS 2023*
T Wiedemer, P Mayilvahanan*, M Bethge, W Brendel*

** equal contribution*

Awards & Honors

Outstanding Reviewer — ECCV 2024
Scholarship of the German Academic Scholarship Foundation — Awarded to <0.5% of German students based on academic merit
Scholarship of the Gunther Schroff Foundation — Awarded to top 2 Electrical Engineering students at KIT in each cohort
Faculty 'IPP-Prize' — Awarded to top 3 Electrical Engineering bachelor graduates at KIT

Community Engagement

Tübingen City Museum — Set up an exhibition piece on neural style transfer for an exhibition on AI targeted at the general public
Children University Tübingen — Prepared a lecture on modern AI tools for school kids from grades 1 to 7
German Academic Scholarship Representative — Organized talks, excursions, and internal events for ~300 students
German Academic Scholarship Ambassador — Supported students in overcoming obstacles to promote educational equality

Skills

Languages German (native), English (fluent, TOEFL 120/120), Chinese (intermediate, >HSK 4), French (intermediate)
Coding Python, JavaScript, C#

All Publications

[1] **Video Models are Zero-Shot Learners and Reasoners** *Under Review*
T Wiedemer, Y Li, P Vicol, S Gu, N Matarese, K Swersky, B Kim, P Jaini*, R Geirhos**

[2] **MATH-Beyond: A Benchmark for RL to Expand Beyond the Base Model** *Under Review*
A Mayilvahanan, R Olmedo, T Wiedemer, W Brendel

[3] **OVid: Open Large-Scale Video Dataset as a Novel Source for Image-Text Data** *Under Review*
A Hochlehnert, M Nezhurina, T Wiedemer, C Schumann, M Cherti, R Beaumont, A Matiuk, A Radonjic, B Schölkopf, W Brendel, AS Koepke, J Jitsev, M Bethge

[4] **VGGSounder: Audio-Visual Evaluations for Foundation Models** *ICCV 2025*
D Zverev, T Wiedemer*, A Prabhu, M Bethge, W Brendel, AS Koepke*

[5] **LLMs on the Line: Data Determines Loss-to-Loss Scaling Laws** *ICML 2025*
P Mayilvahanan, T Wiedemer*, S Mallick, M Bethge, W Brendel*

[6] **In Search of Forgotten Domain Generalization** *Spotlight: ICLR 2025*
P Mayilvahanan, RS Zimmermann, T Wiedemer, E Rusak, A Juhos, M Bethge, W Brendel

[7] **Pretraining Frequency Predicts Compositional Generalization of CLIP on Real-World Tasks** *NeurIPS Workshop 2024*
T Wiedemer, Y Sharma*, A Prabhu, W Brendel, M Bethge*

[8] **Provable Compositional Generalization for Object-Centric Learning** *Oral: ICLR 2024*
T Wiedemer, J Brady*, A Panfilov*, A Juhos*, M Bethge, W Brendel*

[9] **Does CLIP's Generalization Performance Mainly Stem from High Train-Test Similarity?** *ICLR 2024*
P Mayilvahanan, T Wiedemer*, E Rusak, M Bethge, W Brendel*

[10] **Scale Learning in Scale-Equivariant Convolutional Networks** *VISAPP 2024*
M Basting, RJ Bruintjes, T Wiedemer, M Kümmerer, M Bethge, J van Gemert

[11] **Compositional Generalization From First Principles** *NeurIPS 2023*
T Wiedemer, P Mayilvahanan*, M Bethge, W Brendel*

[12] **Few-shot Supervised Prototype Alignment for Pedestrian Detection on Fisheye Images** *CVPR Workshop 2022*
T Wiedemer, S Wolf, A Schumann, K Ma, J Beyerer

[13] **Interpretable and Fine-Grained Visual Explanations for Convolutional Neural Networks** *CVPR 2019*
J Wagner, JM Kohler, T Gindele, L Hetzel*, T Wiedemer*, S Behnke*

** equal contribution*