Sebastian Stapf

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EDUCATION

University of Bern — **Bern, Switzerland**
PhD in Computer Science (Swiss AI Initiative) — October 2024 - Present

Ludwig Maximilian University — **Munich, Germany**
M.Sc. in Physics — March 2024
- **Grade:** 1.24 / 5.0 (very good)
- **Master Thesis:** RT-Pose-TR: Transformer-Based 6-DoF Pose Estimation for Augmented Reality in Automotive Application

Ludwig Maximilian University — **Munich, Germany**
B.Sc. in Physics — August 2021

PUBLICATIONS

- **Stapf, S.,** et al. **(2025).** GEM: A Generalizable Ego-Vision Multimodal World Model for Fine-Grained Ego-Motion, Object Dynamics, and Scene Composition Control. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition **(CVPR).**

- **Stapf, S.,** et al.**(2026).** Composition of Memory Experts for Diffusion World Models.The Fourteenth International Conference on Learning Representations **(ICLR).**

- **P.Acuavia, S. Stapf,** et al.**(2026).** Rethinking Visual Intelligence: Insights from Video Pretraining. Forty-Third International Conference on Machine Learning **(ICML)**

- **Stapf, S.,** et al.**(2026, Preprint).** World Model Self-Distillation: Training World Models to Solve General Tasks.

WORKSHOPS & SCHOOLS

G-Research - *Spring into Quant Finance* — **Sicily, Italy**
- Selected as one of 82 participants from a pool of over 8,000 applicants. Attended advanced talks and workshops led by researchers and industry professionals in quantitative finance, machine learning, and systematic trading.

ICVSS - *Intl. Computer Vision Summer School* — **Sicily, Italy**
- Attended advanced lectures and workshops on spatial intelligence and machine perception, led by top researchers from academia and industry.

First Joint Egocentric Vision (EgoVis) Workshop — **Nashville, USA**
- Presenter on World Models for autonomous driving

Joint Workshop on Eccentric Vision and Robotics — **Zurich, Switzerland**
- Presenter on World Models for autonomous driving

WORK & PRACTICAL EXPERIENCE

BMW Research and Technology Center, under supervision of Dr. Haberl, Prof. Dr. Riboldi — **Munich, Germany**
Research Internship, Human-Machine Interaction EN-50 — *March 2023 - 6 Months*
- Primary author of 8 patents.
- Technical Report: "PViT-6D: Overclocking Vision Transformers for 6D Pose Estimation with Confidence-Level Prediction and Pose Tokens" (arXiv:2311.17504)

BMW Group — **Munich, Germany**
Internship as Machine Learning Engineer, Human-Machine Interaction EN-50 — *September 2023 - 6 Months*
- Designed and developed an advanced pose estimation network for in-vehicle Augmented Reality applications.
- Created a comprehensive training pipeline and assisted with the integration into a showcase vehicle using TensorRT in C++, which was unveiled at CES 2024. (BMW Press Release: https://t.ly/IBd4N)

ARC-Prize Honorable Mention, ARC Prize Foundation **December 2025**

- *Research identifying Video Diffusion Models (VDMs) as a viable path for visual intelligence. Showed that video pretraining provides strong priors for abstract reasoning on the ARC benchmark.*

SORDI.AI Hackathon - Nvidia, Idealworks, BMW Group, Microsoft

Team leader *November 2022*

- Developed new object detection algorithm for the world's largest industrial AI object recognition challenge.
- Placed 3 globally among 800 teams winning a total of 5000$.

Bavarian Math Olympiad (MOBy e.V.) **Würzburg, Germany**

Bronze Medal Winning Team *2016*

- Winner of school and regional rounds; bronze in state round.

Open Source Contributions

- *Ultralytics*: Improved RT-DETR implementation, resulting in faster inference and reduced memory consumption.
- *Facebook Research*: Implemented an algorithm for visualizing latent features of the Hiera-Transformer.

TEACHING EXPERIENCE

Mathematics I for Physicists (LMU - Winter 2021/22)

Prepared and conducted tutorials, developed coursework and assessments, delivered lectures, and graded exams.

Mathematics III for Physicists (LMU - Winter 2022/23)

Tutor and corrector; covered measure theory, construction of Lebesgue integral, residue theorem, and Cauchy theorem.

Linear Algebra I for Computer Science (LMU - Winter 2023/24)

Tutor and corrector.

Machine Learning (University of Bern - Winter 2024/25/ Winter 2025/26)

Designed and delivered tutorials, developed coursework and exams, and evaluated student performance.

Deep Learning (University of Bern - Summer 2025)

Designed and delivered tutorials, developed coursework, prepared a student hackathon.

SKILLS, ACTIVITIES & INTERESTS

Languages: Native in German; Fluent in English; Basic proficiency in Italian and Greek
Technical Skills: Python, Pytorch, C++, OpenGL, SQL
Certifications & Training: IBM Data Analyst Professional Certificate, DeepLearning.AI TensorFlow Developer Professional Certificate
Interests: Golf, Poker, Rowing, Weight lifting, Final table, Bavarian Student Poker Championship