MORITZ SIMON VANDENHIRTZ

PhD Student focusing on Generative AI & Interpretability
mvandenhi@ethz.ch | Website | Google Scholar | LinkedIn | GitHub

EDUCATION

ETH ZURICH . . . . . ZURICH, SWITZERLAND

2022 – 2026 **PhD Student in Machine Learning**
Research Focus: Generative AI, Interpretable ML, Computer Vision
Supervisors: Prof. Julia E. Vogt, Prof. Bjoern H. Menze
Affiliation: Institute of Machine Learning, ETH Zurich, Associated PhD Student at ETH AI Center

2022 **Master of Science in Statistics**
GPA: 5.98/6 (Class Rank 1)
Thesis: Interpretable Approach to Discover and Remove Hidden Biases in Medical Datasets
Supervisor: Prof. Julia E. Vogt

UNIVERSITY OF ZURICH . . . . . ZURICH, SWITZERLAND

2020 **Bachelor of Arts in Business and Economics**
GPA: 5.84/6 (Class Rank 2)
Thesis: Additive, High Dimensional Models for Predicting Stock Returns
Supervisor: Prof. Michael Wolf

HONORS & AWARDS

2024 Oral and 6 Posters at ICML Workshops
2023 Spotlight Poster at NeurIPS
2022 Willi Studer Prize by ETH Zurich for the best master's degree in Statistics (D-MATH)
2021 Swiss Study Foundation (2021-2023)
2020 Summa cum Laude distinction by University of Zurich for B.A. in Business and Economics

TECHNICAL SKILLS

Computer Vision, Deep Learning, Foundation Models, Generative AI, Image Processing, Multimodality, NLP
Python, PyTorch, Tensorflow, R, Git, LaTeX, Microsoft Office**,** Slurm, MATLAB, SQL

PUBLICATIONS

2024 **Stochastic Concept Bottleneck Models**
Vandenhirtz*, M., Laguna*, S., Marcinkevičs, R., & Vogt, J. E.
Neural Information Processing Systems (2024)

2024 **Beyond Concept Bottleneck Models: How to Make Black Boxes Intervenable?**
Laguna*, S., Marcinkevičs*, R., **Vandenhirtz, M.**, & Vogt, J. E.
Neural Information Processing Systems (2024)

2023 **Tree Variational Autoencoders**
Manduchi*, L., **Vandenhirtz*, M.**, Ryser, A., & Vogt, J. E.
Spotlight at *Neural Information Processing Systems (2023)*

2023 **This Reads Like That: Deep Learning for Interpretable Natural Language Processing**
Fanconi*, C., **Vandenhirtz*, M.**, Husmann, S., & Vogt, J. E.
Empirical Methods in Natural Language Processing (2023)

2022 **Two Decades of Active Surveillance for Prostate Cancer in a Single-Center Cohort: Favorable Outcomes after Transurethral Resection of the Prostate**
Hagmann, Sarah, **et al**.
Cancers 14.2 (2022)

WORKSHOP PRESENTATIONS

2024 **scTree: Discovering Cellular Hierarchies in the Presence of Batch Effects in scRNA-seq Data**
Vandenhirtz*, M., Barkmann*, F., Manduchi, L., Boeva, V., & Vogt, J. E.
Oral at *Efficient Foundation Models for Biological Discovery Workshop at ICML (2024)*

2024 **Structured Generations: Using Hierarchical Clusters to Guide Diffusion Models**
Gonçalves, J., Manduchi, L., **Vandenhirtz, M.**, & Vogt, J. E.
Structured Probabilistic Inference & Generative Modeling Workshop at ICML (2024)

2023 **Signal Is Harder To Learn Than Bias: Debiasing with Focal Loss**
Vandenhirtz, M., Manduchi, L., Marcinkevičs, R., & Vogt, J. E.
Spotlight at *Domain Generalization Workshop at ICLR (2023)*

PROFESSIONAL EXPERIENCE

ALLIANZ SUISSE . . . . . ZURICH, SWITZERLAND

2019 **Data Science and Central Controlling Intern**
Learnings: forecasting, implementation of new statistical methods,
communication of statistical results, critical thinking, problem-solving

ACADEMIC SERVICE

PEER REVIEWING

2024 Neural Information Processing Systems
2024 Models of Human Feedback for AI Alignment Workshop at ICML
2023 Deep Generative Models for Health Workshop at NeurIPS

THESES SUPERVISION

2024* Bernold, N. "Generative B-Cos Networks" *(*current)*
2024* Hoffmann, W. "Post-Hoc Stochastic Concept Bottleneck Models" *(*current)*
2024* Ebeling, N. "Time and Spectral Diffusion Models for Cardiac Time-Series" *(*current)*
2024* Makonnen, M. "Measuring Leakage in Concept Bottleneck Models" *(*current)*
2024 Carballo, A. "Interpretable Capabilities of Concept-Enhanced Diffusion and Prototype Networks"
2024 Dekas, D. "Clinical Evaluation of Antibiotic Reducing ML Method"
2024 Gonçalves, J. "Enhancing TreeVAE with Diffusion Models"
2023 Scherrer, D. "DREAM: Detecting and Reducing Excessive Antibiotic Medication using ML"

TEACHING ASSISTANTSHIP

2024 Advanced Machine Learning (252-0535-00)
2023 – 2024 Machine Learning for Healthcare (261-5120-00)
2023 Foundations of Computer Science (252-0852-00)
2019 – 2022 Statistics (03SM22AOEC10)
2019 – 2022 Introductory Econometrics (BOEC0004)

LANGUAGES

German (native), English (Cambridge C2 Proficiency Level), French (B1)

HOBBIES

Renting billboards; playing games (top 1% in chess, hearthstone, rocket league, s4 league), guitar, salsa, handball

REFERENCES

References are available upon request