Vincent Herrmann

vincent.herrmann@idsia.ch | vincentherrmann.github.io

vincentherrmann

Lugano, Switzerland

Education

- **PhD in Artificial Intelligence** *2020–Present*
  The Swiss AI Lab IDSIA, University of Lugano Lugano, Switzerland
  - Working on Artificial Curiosity, Representation Learning and Reinforcement Learning. Supervised by Prof. Dr. Jürgen Schmidhuber

- **Master of Arts in Music Informatics** *2017–2020*
  University of Music Karlsruhe Karlsruhe, Germany
  - Grade: 1.2

- **Master of Music in Piano Performance** *2017–2019*
  University of Music and Performing Arts Stuttgart Stuttgart, Germany
  - 1.0 with distinction (best possible grade)

- **Bachelor of Music in Piano Performance and Composition** *2010–2015*
  University of Music and Performing Arts Stuttgart Stuttgart, Germany
  - 1.0 with distinction (best possible grade)

Work Experience

- **Research Consultant** *2025–Present*
  King Abdullah University of Science and Technology Thuwal, Saudi-Arabia
  - Supporting the research of Jürgen Schmidhuber's group at KAUST

- **Lecturer** *2022–Present*
  University of Music Karlsruhe Karlsruhe, Germany
  - Teaching courses on deep learning and generative modeling for music

- **Lecturer** *2021–2022*
  University of Music and Performing Arts Stuttgart Stuttgart, Germany
  - Teaching piano performance, substituting for Prof. Michael Hauber

- **Master Student** *2019–2020*
  Bosch Center for Artificial Intelligence Renningen, Germany
  - Research on generative models of symbolic music

- **Research and Teaching Assistant** *2018–2020*
  University of Music Karlsruhe Karlsruhe, Germany
  - Teaching tutorials on music-related AI programming

- **Research Assistant** *2016–2017*
  University of Music and Performing Arts Karlsruhe Stuttgart, Germany
  - Analyzing performance data from a computerized grand piano

- **Freelance Work** *2011–Present*
  - Pianist, composer, arranger, and consultant for interactive live-electronic projects

Academic Guidance

(Co-)supervising the Master theses at the University of Lugano of Joonsu Gha (now PhD student at ETH Zürich), Jacopo di Ventura (now PhD student at Leiden University), and Suuraj Perpeli (expected to graduate early 2026).

Projects

- **Generative Transformer-based Models of Symbolic Polyphonic Music** *2020*
  Master Thesis supervised by Prof. Dr. Christoph Seibert Master Thesis
  ◦ Grade: 1.0

- **Immersions - How Does Music Sound to Artificial Ears?** *2019*
  Project that explores how music is perceived by AI systems
  ◦ Awarded the Outstanding Demonstration Award at NeurIPS 2019

Publications (Selection)

- Vincent Herrmann*, Eric Alcaide*, Michael Wandb, Jürgen Schmidhuber (2025). **Multiple Token Divergence: Measuring and Steering In-Context Computation Density**. Under Review.
- Vincent Herrmann, Róbert Csordás, Jürgen Schmidhuber (2025). **Measuring In-Context Computation Complexity via Hidden State Prediction**. In *ICML 2025*.
- Jacopo Di Ventura, Dylan R Ashley, Vincent Herrmann, Francesco Faccio, Jürgen Schmidhuber (2025). **Upside Down Reinforcement Learning with Policy Generators**. In *EWRL 2025*.
- Dylan R. Ashley*, Vincent Herrmann*, Zachary Friggstad, Jürgen Schmidhuber (2024). **On the Distillation of Stories for Transferring Narrative Arcs in Collections of Independent Media**. In *IEEE TPAMI*.
- Vincent Herrmann, Francesco Faccio, Jürgen Schmidhuber (2024). **Learning useful representations of recurrent neural network weight matrices**. In *ICML 2024* [Oral].
- Francesco Faccio*, Vincent Herrmann*, Aditya Ramesh, Louis Kirsch, Jürgen Schmidhuber (2023). **Goal-Conditioned Generators of Deep Policies**. In *AAAI 2023* [Oral].
- Vincent Herrmann, Louis Kirsch, Jürgen Schmidhuber (2023). **Learning one abstract bit at a time through self-invented experiments encoded as neural networks**. In *IWAI 2023* [Oral].
- Mingchen Zhuge*, Haozhe Liu*, Francesco Faccio*, Dylan R Ashley*, Róbert Csordás, Anand Gopalakrishnan, Abdullah Hamdi, Hasan Abed Al Kader Hammoud, Vincent Herrmann, Kazuki Irie, Louis Kirsch, Bing Li, Guohao Li, Shuming Liu, Jinjie Mai, Piotr Piękos, Aditya Ramesh, Imanol Schlag, Weimin Shi, Aleksandar Stanić, Wenyi Wang, Yuhui Wang, Mengmeng Xu, Deng-Ping Fan, Bernard Ghanem, Jürgen Schmidhuber (2023). **Mindstorms in natural language-based societies of mind**. In *CVM*.
- Joonsu Gha, Vincent Herrmann, Benjamin Grewe, Jürgen Schmidhuber, Anand Gopalakrishnan (2023). **Unsupervised musical object discovery from audio**. In *NeurIPS 2023 Machine Learning for Audio Workshop*.
- Vincent Herrmann (2020). **Visualizing and sonifying how an artificial ear hears music**. In *PMLR post proceedings*, NeurIPS 2019.
- Vincent Herrmann (2019). **Immersions - How Does Music Sound to Artificial Ears?**. In *NeurIPS 2019 Machine Learning for Creativity and Design Workshop*.
- Vincent Herrmann (2017). **Wasserstein GAN and the Kantorovich-Rubinstein Duality**. Blog post.
- Vincent Herrmann (2016). **Wavelets - From Filter Banks to the Dilation Equation**. Published on *dsprelated.com*.
- Vincent Herrmann (2016). **Wavelets - Vanishing Moments and Spectral Factorization**. Published on *dsprelated.com*.

* signifies shared first-authorship

Honors and Awards

- **NeurIPS R0-FoMo Workshop Best Paper Award** *2023*
  For "Mindstorms in natural language-based societies of mind"
- **ICML Decision-aware RL Workshop Award** *2022*
  For "Goal-Conditioned Generators of Deep Policies"
- **KAUST Rising Stars** *2022*
  Speaker at the first KAUST Rising Stars Symposium
- **NeurIPS Outstanding Demonstration Award** *2019*
  For "Immersions - How does Music sound to Artificial Ears?"
- **Finalist at the International Piano Competition Ferruccio Busoni, Bolzano** *2015*

Skills

- **Machine Learning Frameworks:** PyTorch, jax
- **Machine Learning Research:** Experience with training and fine-tuning foundation models, reinforcement learning agents, running large scale experiments, mechanistic interpretability and advanced visualization techniques
- **Programming Languages:** Python, C, Swift, Max/MSP, PureData, JavaScript, Java
- **Music Software:** Logic Pro, Ableton Live, Finale, Dorico
- **Other Tools:** Adobe Photoshop, Illustrator, InDesign

Languages

German: Native
English: Proficient
Italian: Basic
Latin, Ancient Greek: Rusty