





Vincent Stimper

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 VincentStimper

 @VStimper

I'm a fourth-year PhD student in machine learning with a research focus on probabilistic and generative modeling, AI for science, representation learning, and computer vision. My joint work has been featured as spotlight papers at major machine learning conferences [2, 3] and I am the lead developer of popular software packages [4, 11].

Education

- Jan '20 – **PhD in Machine Learning, University of Cambridge**, United Kingdom, and **Max Planck Institute for Intelligent Systems**, Tübingen, Germany. Supervised by Prof. José Miguel Hernández-Lobato and Prof. Bernhard Schölkopf.
- Oct '17 – Sep '19 **M.Sc. in Physics, Technical University of Munich**, Germany. Passed with high distinction, grade 1.0 (highest possible). Thesis supervised by Prof. Bernhard Schölkopf: *Inferring the Band Structure from Band Mapping Data through Machine Learning*.
- Oct '14 – Sep '17 **B.Sc. in Physics, Technical University of Munich**, Germany. Passed with high distinction, grade 1.0 (highest possible). Thesis supervised by Prof. Ulrich Gerland: *Optimal Dynamic Adaptation of Microorganism in Changing Environments*.

Internships & Employment

- Jul '23 – Sep '23 **Research Intern, Microsoft**, Berlin, Germany. Sampling molecular configurations with diffusion models in Prof. Noé's AI4Science group.
- Jun '21 – Sep '21 **Applied Science Intern, Amazon**, Berlin, Germany. Item identification in Amazon warehouses in the AI Robotics Group supervised by Dr. Milan.
- Oct '19 – Dec '19 **Applied Science Intern, Amazon**, Tübingen, Germany. Domain adaptation for the vision system of the autonomous Amazon Scout delivery robot in the Computer Vision Group of Dr. Hirsch.
- Dec '17 – May '18 **Research Assistant, Ludwig Maximilian University**, Munich, Germany. Segmentation of AFM images using Neural Networks at the Biophysics chair of Prof. Lipfert.
- Jul '17 – Sep '17 **Research Intern, Ontario Institute for Cancer Research**, Toronto, Canada. Prediction of the survival of cancer patients with machine learning methods using genetic data in the Biocomputing lab of Prof. Boutros.

Scholarships

- Jan '20 – **Cambridge-Tübingen PhD Fellowship** funded by Amazon. Fellowship for a joint PhD at the University of Cambridge and the Max Planck Institute for Intelligent Systems.
- Apr '17 – Sep '19 **Max-Weber program** of the German Academic Merit Foundation. Scholarship for studying at the Technical University of Munich.
- Jul '17 – Sep '17 **DAAD RISE Scholarship** from the German Academic Exchange Service. Scholarship for a 12 week internship at the Ontario Institute for Cancer Research in Toronto.
- Oct '15 – Mar '17 **German Scholarship (Deutschlandstipendium)** from the German Government. Scholarship for studying at the Technical University of Munich.

Awards

- Mar '22 **Best Master's degree in Physics** of the year 2019 at the Technical University Munich. Awarded by the Friends' Association of the Technical University of Munich.
- Mar '18 **Best Bachelor's degree in Physics** of the year 2017 at the Technical University Munich. Awarded by the Friends' Association of the Technical University of Munich.

Awards (continued)

May '14 **First place in Physics** at Jugend forscht (national youth research competition).
Furthermore won the special award to visit the Nobel Prize Ceremony 2014.

Research Publications

- [1] Xian, R. P.*, **Stimper, V.***, Zacharias, M., Dong, S., Dendzik, M., Beaulieu, S., ... Ernstorfer, R. (2023). A machine learning route between band mapping and band structure. *Nature Computational Science*, 3, 101–114.
- [2] Midgley, L. I.*, **Stimper, V.***, Antorán, J.*, Mathieu, E.*, Schölkopf, B., & Hernández-Lobato, J. M. (2023). SE(3) Equivariant Augmented Coupling Flows. *Advances in Neural Information Processing Systems* 36.
- [3] Midgley, L. I.*, **Stimper, V.***, Simm, G. N. C., Schölkopf, B., & Hernández-Lobato, J. M. (2023). Flow Annealed Importance Sampling Bootstrap. *International Conference for Learning Representations*.
- [4] **Stimper, V.**, Liu, D., Campbell, A., Berenz, V., Ryll, L., Schölkopf, B., & Hernández-Lobato, J. M. (2023). Normflows: A pytorch package for normalizing flows. *Journal of Open Source Software*, 8(86), 5361.
- [5] Sliwa, J., Ghosh, S., **Stimper, V.**, Gresele, L., & Schölkopf, B. (2022). Probing the Robustness of Independent Mechanism Analysis for Representation Learning. *First Workshop on Causal Representation Learning, UAI 2022*.
- [6] **Stimper, V.**, Schölkopf, B., & Hernández-Lobato, J. M. (2022). Resampling Base Distributions of Normalizing Flows. In *Proceedings of the 25th International Conference on Artificial Intelligence and Statistics (AISTATS)*.
- [7] Kübler, J. M., **Stimper, V.**, Buchholz, S., Muandet, K., & Schölkopf, B. (2022). AutoML Two-Sample Test. In *Advances in Neural Information Processing Systems* 35.
- [8] Midgley, L. I., **Stimper, V.**, Simm, G. N. C., & Hernández-Lobato, J. M. (2021). Bootstrap Your Flow. *ELLIS Machine Learning for Molecule Discovery Workshop, NeurIPS 2021*.
- [9] Gresele, L.*, von Kügelgen, J.*, **Stimper, V.**, Schölkopf, B., & Besserve, M. (2021). Independent mechanism analysis, a new concept? In *Advances in Neural Information Processing Systems* 34.
- [10] Campbell, A.*, Chen, W.*, **Stimper, V.***, Hernández-Lobato, J. M., & Zhang, Y. (2021). A Gradient Based Strategy for Hamiltonian Monte Carlo Hyperparameter Optimization. In *Proceedings of the 38th International Conference on Machine Learning* (pp. 1238–1248). PMLR.
- [11] **Stimper, V.**, Bauer, S., Ernstorfer, R., Schölkopf, B., & Xian, R. P. (2019). Multidimensional Contrast Limited Adaptive Histogram Equalization. *IEEE Access*, 7, 165437–165447.
- [12] Haider, S., Yao, C. Q., Sabine, V. S., Grzadkowski, M., **Stimper, V.**, Starmans, M. H. W., ... Boutros, P. C. (2018). Pathway-based subnetworks enable cross-disease biomarker discovery. *Nature Communications*, 9(1), 1–12.

* indicates equal contributions.

Charitable Commitments

Oct '14 – **Supervisor and Jury member** of several high school student competitions, among them Jugend forscht, Physics Olympiad, and the German Young Physicists' Tournament.

Mar '20 – Apr '21 **IT Officer** of the German Society in Cambridge, United Kingdom.

Miscellaneous

Languages German (native), English (C2), French (B2), Russian (A2).

Coding Python (PyTorch, JAX, Tensorflow), Java, R, C, \LaTeX , Matlab, JavaScript, HTML.

Hobbies Cycling, running, hiking, reading, playing piano.