

Claas Beger

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Education

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| Cornell University <i>MEng in Computer Science</i> | Aug 2024 – May 2025 GPA: 4.21/4.3 |
| Hong Kong University of Science and Technology <i>Exchange - Computer Science</i> | Jan 2022 – May 2022 GPA: 4.1/4.3 |
| Technical University of Munich <i>BS in Information Systems</i> | Oct 2019 – Mar 2024 GPA: 3.7/4.0 |

Experience

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| Post-baccalaureate Research Fellow <i>Santa Fe Institute</i> | <i>Santa Fe, New Mexico</i> June 2025 – Present |
| ○ Conducting research on multimodal abstract reasoning in large AI models under the supervision of Professor Melanie Mitchell. | |
| ○ Designing and implementing evaluation benchmarks and analysis pipelines on scientific reasoning in collaboration with Sandia National Laboratories. | |
| Graduate Teaching and Research Specialist <i>Cornell University</i> | <i>Ithaca, New York</i> Jan 2025 – May 2025 |
| ○ Co-designed and revised homework, projects, and exams for <i>Introduction to Machine Learning</i> . | |
| ○ Graded assignments and provided detailed feedback on students' implementations and written analyses. | |
| ○ Held office hours and Q&A sessions to clarify core ML concepts and support students with course logistics. | |
| Responsible AI Engineering Intern <i>PwC</i> | <i>Munich, Bavaria</i> June 2022 – Jan 2023 |
| ○ Integrated SHAP and LIME into a unified explainable AI engine supporting TensorFlow, PyTorch, and scikit-learn models. | |
| ○ Built internal tooling to standardize explanation workflows and visualize feature attributions. | |
| ○ Co-authored and presented a project white paper at the Bitkom Big Data & AI Summit Berlin 2022. | |
| Financial Technologies SWE Intern <i>Deutsche Bank</i> | <i>Frankfurt, Hessia</i> Oct 2021 – Jan 2022 |
| ○ Developed and maintained microservices in Python and Java (Spring Boot) deployed on Red Hat OpenShift (Fabric). | |
| ○ Implemented database migration and analysis workflows using Flywaydb, JDBC, JPA, and PostgreSQL. | |
| ○ Collaborated with engineering and quantitative teams to integrate services into existing trading and risk management systems. | |
| Research Assistant <i>Institute of Computational Biology Munich</i> | <i>Munich, Bavaria</i> Sep 2020 – Jun 2021 |
| ○ Built deep neural networks for classification and clustering of over 20 million single-cell samples using TensorFlow, Keras, and Pandas. | |
| ○ Developed autoencoder architectures for generating synthetic diabetic cell samples to augment sparse datasets. | |
| ○ Cleaned, normalized, and visualized high-dimensional biological data in collaboration with computational biologists. | |

Technologies

Technologies: Python, C++, Java, Swift, SQL, PyTorch, TensorFlow, Numpy, sklearn, Pandas, SpringBoot

Skills: Machine Learning, NLP, Computer Vision, Software Engineering, Neuromorphic Algorithms

Selected Publications

Publications

Investigating Abstraction Capabilities of the o3 Model Using Textual and Visual Modalities. *Claas Beger*, Shuhao Fu, Ryan Yi, Arseny Moskvichev, Melanie Mitchell. NeurIPS 2025 Workshop on Multimodal Algorithmic Reasoning, Nov 2025. [Paper ↗](#)
Spotlight Presentation

Refining Inverse Constitutional AI for Dataset Validation Under the EU AI Act. Carl-Leander Henneking*, *Claas Beger**. Regulatable ML Workshop at NeurIPS, Nov 2025. [Paper ↗](#)

A Neuroscience-Inspired Dual-Process Model of Compositional Generalization. Alex Noviello*, *Claas Beger**, Jacob Groner, Kevin Ellis, Weinan Sun. NeurIPS 2025 Workshop on Interpreting Cognition in Deep Learning Models, Jul 2025. [arXiv ↗](#)

Towards AI Collaborators: Exploring Goal, Value, and Role-Based Alignment in AI. *Claas Beger*. 51st Annual Meeting of the Society for Philosophy and Psychology (SPP), Jun 2025.

Travel Award

CoCoNUT: Structural Code Understanding Does Not Fall Out of a Tree. *Claas Beger*, Saikat Dutta. LLM4Code Workshop at ICSE 2025, Jan 2025. [Paper ↗](#)

Preprints

Citegeist: Automated Generation of Related Work Analysis on the arXiv Corpus. *Claas Beger*, Carl-Leander Henneking*. Preprint, under review, Jun 2025. [arXiv ↗](#)
Statistics and Data Science Faculty Award

Memento: Note-Taking for Your Future Self. Chao Wan, Albert Gong, Mihir Mishra, Carl-Leander Henneking, *Claas Beger*, Kilian Q. Weinberger. Preprint, under review, Jun 2025. [arXiv ↗](#)

Do AI Models Perform Human-Like Abstract Reasoning Across Modalities? *Claas Beger*, Ryan Yi, Shuhao Fu, ..., Melanie Mitchell. Preprint, under review, Feb 2025. [arXiv ↗](#)

Forthcoming Work

Illusions of Abstraction in Contemporary AI. Melanie Mitchell, Jacob G. Foster, *Claas Beger*, Ryan Yi, Shuhao Fu, Alessandro Palmarini. Under review; forthcoming.

Bongards at the Boundary of Perception and Reasoning: Programs or Language? Cassidy Langenfeld, *Claas Beger*, Gloria Geng, Wasu Top Piriyakulkij, Keya Hu, Yewen Pu, Kevin Ellis. Under review; forthcoming.

OmniCode: A Benchmark for Evaluating Software Development Agents. Atharv Sonwane, *Claas Beger*, ... Kevin Ellis, Saikat Dutta. Under review; forthcoming.

* indicates equal contribution