

Nishad Singhi

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Education

Present Jul' 2024	TU Darmstadt PhD in Computer Science	Advisors: Dr. Anna Rohrbach, Dr. Marcus Rohrbach, Dr. Bernt Schiele
Mar' 2024 Nov' 2020	University of Tübingen MSc in Neural Information Processing	Advisors: Dr. Zeynep Akata, Dr. Wieland Brendel
Apr' 2020 Aug' 2016	Indian Institute of Technology (IIT) Delhi BTech in Electrical Engineering	Advisor: Dr. Sumeet Agarwal

Select Publications

* = Equal Contribution

- [P.1] **When To Solve, When To Verify: Compute-Optimal Problem-Solving and Generative Verification for LLM Reasoning**
N. Singhi, H. Bansal, A. Hosseini, A. Grover, KW Chang, M. Rohrbach, A. Rohrbach. *Under review at COLM 2025.*
- [J.1] **Centaur: a foundation model of human cognition** [Preprint]
M. Binz, ..., N. Singhi, ..., E. Schulz. *Under review at Nature.*
- [C.1] **Improving Intervention Efficacy via Concept Realignment in Concept Bottleneck Models** [Paper] [Talk] [Code]
N. Singhi, K. Roth, J. Kim, Z. Akata. *ECCV 2024.*
- [C.2] **CleanCLIP: Mitigating Data Poisoning Attacks in Multimodal Contrastive Learning** [Paper] [Talk] [Code]
H. Bansal*, N. Singhi*, Y. Yang, F. Yin, A. Grover, K. Chang. *ICCV 2023. (Oral; Top 1.8%)*
Best Paper Award at the Reliable and Trustworthy ML Workshop at ICLR 2023
- [C.3] **Toward a normative theory of (self-)management by goal-setting** [Paper] [Talk]
N. Singhi, F. Mohnert, B. Prystawski, F. Lieder. *CogSci 2023. (Oral)*
Diversity and Inclusion Award (10 recipients worldwide)
- [C.4] **Using Computational Models to Understand the Role and Nature of Valuation Bias in Mixed Gambles** [Paper]
N. Singhi, S. Agarwal, S. Mukherjee. *CogSci 2023.*

Select Experience

Present Jul 2024	Multimodal AI Lab, TU Darmstadt <i>PhD Student</i> Advisors: Dr. Anna Rohrbach, Dr. Marcus Rohrbach, Dr. Bernt Schiele Working on foundation models for (multimodal) reasoning, planning, and agents. Currently investigating compute-optimal ways to spend test-time compute between scaling solutions and verifications.	Darmstadt, Germany
Jul 2024 May 2024	Better Ed Co. (Backed by Accel) <i>AI Intern</i> Generating cooking content using LLMs via fine-tuning, data curation, and prompt engineering.	Bangalore, India
Mar 2024 Mar 2021	Max Planck Institute for Intelligent Systems <i>Machine Learning Researcher</i> Advisors: Dr. Zeynep Akata, Dr. Wieland Brendel, Dr. Falk Lieder Built deep learning models that are interpretable and can incorporate user feedback after deployment to improve performance by up to 70% [ECCV 2024]. Built a tool to automatically decompose challenging problems into easier subgoals for humans, leading to 3X reduction in human effort [CogSci 2023 Oral].	Tübingen, Germany
Mar 2023 Nov 2022	University of California Los Angeles (UCLA) <i>Machine Learning Researcher</i> Advisors: Dr. Kai-Wei Chang, Dr. Aditya Grover Developed a fine-tuning technique to remove data-poisoning attacks from large vision-language Contrastive models by independently refining image & text features, reducing attack success rates by 80% .	Remote

Skills

Languages: Python (Proficient), Java (Beginner), Shell (Beginner)

Libraries and Tools: PyTorch, Scikit-learn, Numpy, Pandas, Git, High-performance computing (Slurm, Condor)