

# Jaisidh Singh

## Resume

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🌐 Website    🐙 Github    in LinkedIn    📄 Google Scholar

### Education

- 2024–present **MSc in Machine Learning**, *Eberhard-Karls Universität Tübingen*, Tübingen.  
Researched toy models of generalization and efficient representation learning in foundation models.
- 2020–2024 **B.Tech in AI & Data Science**, *Indian Institute of Technology*, Jodhpur.  
Thesis topic: negation-aware compositional reasoning in multimodal foundation models.

**Awards & fellowships:** Konrad Zuse School (ELIZA) Fellowship for Master's students in Germany 2024-2026.

### Key Publications

- 2026 **Explaining Grokking in Transformers through the Lens of Inductive Bias**, *arXiv preprint*, Jaisidh Singh, Diganta Misra, Antonio Orvieto.
- 2025 **(Almost) Free Modality Stitching of Foundation Models**, *EMNLP 2025, ICLR WSL 2025*, Jaisidh Singh, Diganta Misra, Boris Knyazev, Antonio Orvieto.
- 2025 **Learning the Power of “No”: Foundation Models with Negations**, *WACV 2025*, Jaisidh Singh\*, Ishaan Shrivastava\*, Mayank Vatsa, Richa Singh, Aparna Bharati.

### Work/Research Experience

- Jan 2025 – present **Guest Researcher at Max Planck Institute for Intelligent Systems**, *With Antonio Orvieto*.
  - o Analyzed inductive biases (via architecture & optimization) on transformer generalization dynamics.
  - o Devised novel hypernetworks for multimodal stitching in association with ELLIS Institute Tübingen.
- Sept 2025 – present **Graduate Researcher at Tübingen AI Center**, *With Peter Gehler*.
  - o Delivered a workshop on creating agentic systems via LangGraph at GCPR 2025 as part of Minerva.
  - o Developed computer vision technologies to enhance cultural engagement at Stadtmuseum Tübingen.
- Jan 2025 – **Graduate Researcher at ELLIS Institute Tübingen**, *With Antonio Orvieto*.  
May 2025
  - o Created a hypernetwork-based framework for efficient (10×) modality stitching for CLIP and multimodal LLMs. Published at EMNLP 2025 and ICLR 2025 WSL Workshop in association with MPI-IS Tübingen.
- Winter 2022 & 2023 **Undergraduate Researcher at Trusted AI Lab IITJ**, *With Mayank Vatsa & Richa Singh*.
  - o Researched negation understanding in vision-language models, published at WACV 2025.
  - o Analysed identity leakage in GAN latent space, published at WACV 2024.
- Summer 2022 & 2023 **Research Intern at Bosch Research India**, *With Amit A. Kale & Sonam Singh*.
  - o Developed image retrieval pipelines for internal experiments.
  - o Devised an interpretable failure discovery system (upto 95% accuracy) for segmentation models.

### Key Projects

- o `loracclip`: python library to cleanly wrap adding LoRA to CLIP. (40 ☆ on 🐙)
- o `pytorch-mixtures`: a minimalist library for MoEs in PyTorch. (26 ☆ on 🐙)

### Technical Skills

- o **Languages:** English (Fluent + Professional), Hindi (Native), German (A1)
- o **Machine learning:** PyTorch, JAX/FLAX, Haiku, Huggingface
- o **Distributed training & HPC tools:** Slurm, HTCondor, Data/Model/Tensor Parallel
- o **Agentic tools:** dsPy, LangGraph, LangChain, Claude Code, OpenCode
- o **SWE tools:** Selenium, ReactJS, NodeJS, ExpressJS, Flutter, Git, GraphQL
- o **Programming languages:** Python, L<sup>A</sup>T<sub>E</sub>X, JavaScript, Dart, Bash, C++