Vishaal Udandarao

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Github: vishaal27

Education

Oct'22 – present **ELLIS / University of Tübingen / University of Cambridge**.
PhD, Machine Learning

Sep'21 – Aug'22 **University of Cambridge**.
MPhil, Machine Learning and Machine Intelligence
Percentage – 77.21/100 (Distinction)

Aug'16 – May'20 **IIIT Delhi**.
BTech, Computer Science and Engineering
GPA – 9.17/10

Featured Publications (google scholar link)

- ***V. Udandarao****, N. Parthasarathy*, M.F. Naeem, T. Evans, S. Albanie, F. Tombari, Y. Xian, A. Tonioni, O. Henaff, "Active Data Curation Effectively Distills Large-Scale Multimodal Models", CVPR 2025 [paper]
- ***V. Udandarao****, S. Dziadzio*, K. Roth*, A. Prabhu, Z. Akata, S. Albanie, M. Bethge, "How to Merge your Multimodal Models Over Time?", CVPR 2025 [paper]
- A. Ghosh*, S. Dziadzio*, A. Prabhu, ***V. Udandarao***, S. Albanie, M. Bethge, "ONEBench to Test Them All: Sample-Level Benchmarking Over Open-Ended Capabilities", arxiv [paper]
- O. Press*, A. Hochlehnert*, A. Prabhu, ***V. Udandarao***, O. Press, M. Bethge, "CiteME: Can Language Models Accurately Cite Scientific Claims?", NeurIPS 2024 [paper][code][benchmark]
- ***V. Udandarao****, K. Roth*, S. Dziadzio, A. Prabhu, M. Cherti, O. Vinyals, O. Henaff, S. Albanie, M. Bethge, Z. Akata, "A Practitioner's Guide to Continual Multimodal Pretraining", NeurIPS 2024 [paper][code]
- ***V. Udandarao****, A. Prabhu*, A. Ghosh, Y. Sharma, P.H.S. Torr, A. Bibi, S. Albanie, M. Bethge, "No "Zero-Shot" Without Exponential Data: Pretraining Concept Frequency Determines Multimodal Model Performance", NeurIPS 2024 [paper][code]
- ***V. Udandarao****, A. Prabhu*, P.H.S. Torr, M. Bethge, A. Bibi, S. Albanie, "Efficient Lifelong Model Evaluation in an Era of Rapid Progress", NeurIPS 2024 [paper][code]
- ***V. Udandarao****, M. Burg, S. Albanie, M. Bethge, "Visual Data-Type Understanding does not emerge from Scaling Vision-Language Models", ICLR 2024 [paper][code]
- ***V. Udandarao***, A. Gupta, S. Albanie, "SuS-X: Training-Free Name-Only Transfer of Vision-Language Models", ICCV 2023 [paper][code]

Research Experience

Oct'22 – present **Computational Neuroscience and Machine Learning Group, University of Tübingen**.
Advisors: Prof Dr Matthias Bethge, Dr Samuel Albanie
- Understanding the generalisation properties of foundation models through a data-centric lens.
- Understand and build strong inductive biases into foundation models to equip them for continual generalisation.

Mar'22 – Dec'22 **Machine Intelligence Lab, University of Cambridge**.
Advisors: Dr Samuel Albanie, Dr Ankush Gupta
- Investigating the visual few-shot performance potential of large scale multi-modal foundation models.
- Understand the abilities of two particular few-shot adaptation techniques – adapters and prompt learning.

Jul'20 – Jul'21 **Rutgers Machine Learning Lab (RUML), Rutgers University**.
Advisor: Dr Sungjin Ahn
- Empirical investigation of slot-based and box-based approaches to object centric representation learning.
- Understand the abilities of slot and box approaches to improve downstream task performance pertaining to different abilities extending to complex morphological scenes.

Mar'20 – Jul'20 **MIDAS Lab, IIIT Delhi**.
Advisors: Dr Rajiv Ratn Shah, Rajesh Kumar
- Discover privacy leaks from behavioural biometric data.
- Understand the extent of privacy leakage factors that can be exposed based on per-user typing/swipe/gait features using machine/deep learning.

Jul'19 – Aug'20 **Infosys Center for Artificial Intelligence (CAI) Lab, IIIT Delhi**.
Advisor: Dr Saket Anand
- Unsupervised learning of disentangled representations.
- Learn well disentangled, statistically independent latent factors of variation helping to reduce sample complexity of downstream tasks and generate high fidelity reconstructions.

Aug'18 – Aug'20 **Signal Processing and Biomedical Imaging (SBI) Lab, IIIT Delhi**.
Advisors: Dr Anubha Gupta, Dr Tanmoy Chakraborty
- Creation of self-learning chatbots for assisting teachers in understanding pedagogical content.
- Proposed an educational-domain QA system using concept-network mapping.

Industry Experience

June'25 – Oct'25 **(incoming) Apple, Seattle, USA**.
Research Intern
- Research on data curation for audio-language models

June'24 – Oct'24 **Google (DeepMind), Zürich, Switzerland**.
Student Researcher
- Research on distillation of vision-language models

July'20 – Aug'21 **Myntra, Bengaluru, India**.
Software Engineer
- Built and deployed scalable APIs to serve a target customer base of around 15m consumers around India.
- Mentored 5 software engineering interns on an end-to-end log anomaly detection project.

May'19 – Jul'19 **Expedia Group, Gurugram, India**.
Software Development Intern
- Created and deployed a scalable image ranking solution for images of destination locations.
- Conducted extensive statistical tests on a dataset of 10k+ images.

Invited Talks and Podcasts

- Best-of-NeurIPS, Voxel51, 02/2025 [link]
- IIIT Delhi, 01/2025
- Keynote Talk, Adaptive Foundation Models Workshop, NeurIPS, 12/2024
- Voxel51, 11/2024
- Google AR, Zürich, 11/2024
- ELLIS Flagship Conference, Helsinki, 06/2024
- University of Washington, 06/2024
- AI'N Stuff Podcast, 04/2024 [link]
- DatologyAI, 04/2024
- Workshop on Scaling Laws, NeurIPS, 12/2023
- Explainable Machine Learning Group, University of Tübingen, 11/2023
- LAION, 08/2023

Honors & Awards

- Google PhD Fellowship for Machine Intelligence, 2024-25
- ELLIS PhD Scholarship, 2022
- Recipient of HRH The Prince of Wales Commonwealth Scholarship from the Cambridge Trust, 2021-22
- IIIT-Delhi Dean's Award for Academic Excellence 2016-17, 2018-19
- Was the topper across all schools in the Gulf region in CBSE AISSCE 2016 exams (All India Rank 7)

Reviewing Experience

- ICCV-2025
- ICML-2025
- ICLR-2025
- NeurIPS-2024 / 2025
- ECCV-2024
- CVPR-2023 / 2024 (Outstanding reviewer) / 2025
- WACV-2020 / 2022 / 2023
- IJCV-2023