

SUSMIT AGRAWAL

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Current Research Interests

NeuroAI, Computer Vision, Multimodal Learning, Interpretability

Education

Max Planck Research School for Intelligent Systems (IMPRS-IS) <i>PhD in NeuroAI</i>	Aug. 2025 – Present <i>Advisor: Prof. Matthias Bethge</i>
Indian Institute of Technology - Hyderabad <i>M.Tech. (3-year RA) in Artificial Intelligence</i>	Aug. 2022 – July 2025 <i>GPA: 9.59/10.0, Advisor: Prof. Vineeth N B</i>

Academic Research Experience

PhD Researcher (Advisor: Prof. Matthias Bethge) <i>Tuebingen AI Center</i>	Aug. 2025 – Present <i>Tuebingen, Germany</i>
• Working on modeling aspects of the visual system and their integration with Deep Learning.	
Research Assistant (Advisor: Prof. Vineeth N. Balasubramanian) <i>ML/CV Lab, IIT Hyderabad</i>	Aug. 2022 – July 2025 <i>Hyderabad, Telangana, India</i>
• Worked on Continual Learning for interpretable models. • Worked on formulation and applications of Neuro-Inspired Memory Networks. • Worked on Spiking Neural Networks for Language Modelling on Neuromorphic Devices, and new SNN and Synapse architectures (Supervisor: Prof. Ayon Borthakur).	
Research Assistant (Advisor: Prof. R. Venkatesh Babu) <i>Video Analytics Lab, Indian Institute of Science. Verisk Analytics</i>	Sept. 2020 – Jan. 2022 <i>Bangalore, Karnataka, India</i>
• Worked on self-supervised learning for image forensics. • Worked on generative model training with very small datasets (1000 images). • Worked on Deep HDR Deghosting with minimal/nonexistent labeled data for supervision.	
Research Intern (Advisor: Prof. R. Venkatesh Babu) <i>Video Analytics Lab, Indian Institute of Science</i>	Jan. 2020 – Aug. 2020 <i>Bangalore, Karnataka, India</i>
• Worked on HDR Deghosting, Multi-Exposure Fusion, Image Segmentation, Few-Shot learning, and Self-Supervised Learning.	
Undergraduate Student Researcher <i>SMVIT</i>	Jan. 2019 – Jan. 2020 <i>Bangalore, Karnataka, India</i>
• Worked with Transformer architectures (BERT and GPT-2) to develop a Medical Question-Answering system. • Worked with custom-built edge devices to develop a distributed irrigation system.	

Publications (* represents equal contribution)

AAAI Conference on Artificial Intelligence 2026

Aanisha Bhattacharya*, **Susmit Agrawal***, Yaman K. Singla*, Nikitha S.R., Tarun Ram Menta, Balaji Krishnamurthy, “ALPHA: Action-Based Learning for Pluralistic Human Alignment in Large Language Models”

Conference on Neural Information Processing Systems (NeurIPS) 2026

Susmit Agrawal*, Krishn Vishwas Kher*, Saksham Mittal, Swarnim Maheshwari, Vineeth N. Balasubramanian, “Memory-Integrated Reconfigurable Adapters: A Unified Framework for Settings with Multiple Tasks”

[Oral] International Conference on Learning Representations (ICLR) 2025 - NFAM Workshop

Susmit Agrawal, Krishn Vishwas Kher, Madhumitha V., Vineeth N. Balasubramanian, “Can memory networks play a role in task-specific modulation of neural circuits?”

[Oral] Association for Computational Linguistics - Nations of the Americas (NAACL) 2025 View

Tarun Ram Menta*, **Susmit Agrawal***, Chirag Agarwal, “Analyzing Memorization in Large Language Models through the Lens of Model Attribution”

AAAI Conference on Artificial Intelligence 2025[View](#)

Susmit Agrawal, Deepika Vemuri, Sri Siddarth Chakravarthy, Vineeth N. Balasubramanian, “Walking the Web of Concept-Class Relationships in Incrementally Trained Interpretable Models”

Association for Computational Linguistics (ACL) 2023[View](#)

Abhinav Joshi, Susmit Agrawal, Ashutosh Modi, “ISLTranslate: Dataset for Translating Indian Sign Language”

European Conference on Computer Vision (ECCV) 2022[View](#)

Tejan Karmali, Rishabh Parihar, Susmit Agrawal, Harsh Rangwani, Varun Jampani, Maneesh Singh, R. Venkatesh Babu, “Hierarchical Semantic Regularization of Latent Spaces in StyleGANs”

Conference on Computer Vision and Pattern Recognition (CVPR) 2022 - WMF Workshop[View](#)

Susmit Agrawal, Prabhat Kumar*, Siddharth Seth*, Toufiq Parag, Maneesh Singh, R. Venkatesh Babu, “SISL: Self-Supervised Image Signature Learning for Splicing Detection and Localization”

Winter Conference on Applications of Computer Vision (WACV) 2022[View](#)

Tejan Karmali*, Abhinav Atrishi*, Sai Sree Harsha, Susmit Agrawal, Varun Jampani, R. Venkatesh Babu, “LEAD: Self-Supervised Landmark Estimation by Aligning Distributions of Feature Similarity”

IEEE Transactions on Computational Imaging[View](#)

K. Ram Prabhakar*, Susmit Agrawal*, R. Venkatesh Babu, “Self-Gated Memory Recurrent Network for Efficient Scalable HDR Deghosting”

Conference on Computer Vision and Pattern Recognition (CVPR) 2021[View](#)

K. Ram Prabhakar, Gowtham Senthil*, Susmit Agrawal*, R. Venkatesh Babu, Rama Krishna Sai S Gorthi, “Labeled From Unlabeled: Exploiting Unlabeled Data for Few-Shot Deep HDR Deghosting”

International Conference on Learning Representations (ICLR) 2021 - AI4PH Workshop[View](#)

Vishal Vinod*, Susmit Agrawal*, Vipul Gaurav*, Pallavi R., Savita Choudhary, “Multilingual Medical Question Answering and Information Retrieval for Rural Health Intelligence Access”

European Conference on Computer Vision (ECCV) 2020[View](#)

K. Ram Prabhakar, Susmit Agrawal, Durgesh Singh, Balraj Ashwath, R. Venkatesh Babu, “Towards Practical and Efficient High-Resolution HDR Deghosting with CNN”

Industry Experience**Research Intern****Apr. 2024 – Oct. 2024**

Adobe Media Data Science and Research (MDSR)

Noida, UP, India

- Worked on alignment of LLMs with Human Opinions using behavioral signals from in-the-wild data.
- Working on Ad content generation with LLMs for targeted audiences.
- Working on prompt-based planning using multiple LLM Agents.

Computer Vision and Display Systems Engineer**Feb. 2022 – July 2022**

Qualcomm

Bangalore, Karnataka, India

- Worked on building Computer Vision models for Image Super Resolution.
- Worked on model architecture optimization for deployment in restricted environments.
- Worked on finding and fixing failure cases of trained models based on performance on real-world validation sets.
- Worked with traditional image processing algorithms for picture quality enhancement.

Deep Learning Intern (remote)**Mar. 2019 – Jun. 2019**

IGM Software LLP.

Mumbai, Maharashtra , India

- Trained YOLO v3 and RNN-based optical character recognition models for detecting license plates and reading their content.
- Deployed the system on edge device (Raspberry Pi) connected to security cameras.
- Deployed the system on AWS servers for access over API calls.

Scholarships and Awards

Reliance Postgraduate Scholar 2023

Reliance Foundation

Aug. 2023

One among 100 national scholars

Chhatra Vishwakarma Award

All India Council for Technical Education (AICTE)

Feb. 2020

Winner

NASA International SpaceApps Challenge

NASA

Oct. 2018

National Winner (India)

Futureskills Hackathon

NASSCOM

Sept. 2018

Winner

Projects

DeepDream on Android | *Java, Python, Tensorflow*

[View code](#)

- Implemented DeepDream for InceptionV3, VGG16, VGG19, ResNet-50.
- Used models pre-trained on ImageNet to perform DeepDream on Android devices, without involvement of online server.

Style Transfer with CycleGAN | *Python, Tensorflow*

[View code](#)

- Used CycleGAN with modifications in training method for Style Transfer.
- Trained network on a set of 2000 filtered images taken from a large set of images scraped from the web.

Open-source code editor, ported to Android | *Java, JavaScript*

[View code](#)

- Ported the web-based Ace Editor to Android.
- Mapped keyboard-based controls and shortcuts to on-screen options for better user experience on touchscreen devices.

A basic x86 kernel | *C, C++, x86 assembly*

[View code](#)

- Built to understand how bare-metal programs work.
- Implemented core kernel features - interrupts and display driver.

Teaching

TA: Explainable Machine Learning

Fall 2024 Semester

Instructor: Prof. Konda Reddy Mopuri

Head TA: Deep Learning

Spring 2024 Semester

Instructor: Prof. Konda Reddy Mopuri

TA: Operating Systems

Fall 2023 Semester

Instructor: Prof. Sathya Peri

Volunteering and Community Involvement

Volunteer: ACML 2022, AAAI 2025

Reviewer

NeurIPS 2024, CVPR 2024, ICLR 2024, WACV 2023, IJCAI 2023, CVPR 2022, ECCV 2022, CVPR 2021, IEEE TPAMI

Administrator for Lab 1055 Servers

Jan. 2023 – May 2025