Avi Gupta

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Summary

I am a fifth-year PhD student at IIIT Delhi, advised by Dr. Koteswar Rao Jerripothula and Dr. Tammam Tillo. My research interests include Computer Vision and Deep Learning. In particular, I work in Semantic Understanding of Multimodal Foundational Models, Continual Learning, and Camouflaged Scene Understanding.

Education

Indraprastha Institute of Information Technology, Delhi **Aug. 2022 – Present**
Doctoral Student (Ph.D.) in Computer Science *Delhi, Delhi*

Dr. Akhilesh Das Gupta Institute of Technology & Management, Delhi **Aug. 2017 – Jul. 2021**
Bachelor of Technology in Information Technology (8.56/10) *Delhi, Delhi*

Relevant Coursework

- Machine Learning
- Advanced Machine Learning
- Advances in Deep Learning
- Artificial Intelligence
- Computer Vision
- Digital Image Processing

Teaching Experience

- Meta-Learning
- Database Management System
- Introduction to Programming
- Digital Image Processing
- Data Structures and Algorithms
- Artificial Intelligence

Industry Experience

Dolby Laboratories **Jan 2026 – Apr 2026**
Research Intern *Bangalore, Karnataka*
Worked on efficient Class-Incremental Learning in Audio-Visual Multimodality to deploy on edge devices.

GE Aerospace **Aug 2025 – Dec 2025**
Research Intern *Bangalore, Karnataka*
1) Built an LLM-powered pipeline (via AWS Bedrock) to extract and structure unstructured aircraft engine data (via AWS S3), storing results in a SQL database for downstream processing.
2) Leveraged X-ray images of engine blades to detect and localize the patterns of scratches, dents, etc.

Tata Consultancy Services **Jul 2021 – Aug 2022**
Cloud Developer (SME) *Delhi, Delhi*
NFV OpenStack technology to deploy cloud services (Python, OpenStack, Shell Scripting, OpenSource Mano)

Digital Green **Jun 2019 – Aug 2019**
Backend Developer Intern *Delhi, Delhi*
Script Development for Automation of the Monitoring mailer for Data and Revenue reconciliation.

Research Projects

Relational context, from inter-object relationships **Sept 2026 – Present**
Ongoing
Relation-faithful customization. Given personalized subjects, generate scenes in which the specified relations hold.

Toward Genuine Forgetting: Selective Unlearning in Large Language Models **Aug 2026 – Present**
Ongoing
Working on understanding how to unlearn requested knowledge in LLMs in a continual setting.

Referring Camouflaged Object Discovery **Sept 2025 – Present**
Extension Ongoing for Journal *TIP*
Working on extending the published work to incorporate videos and other scenarios.

Publications

Avi Gupta, Nilotpal Sinha, Vishnu Raj, Sambuddha Saha, Pratik Joshi, Koteswar Rao Jerripothula, and Tammam Tillo. "Generalizing Multimodal Foundational models for Context-Driven Class-Incremental Learning", in Proceedings of the *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2027.*

Avi Gupta, Trasha Gupta, "Seeing the Unseen: Camouflaged Object Detection Beyond the Visible Spectrum", in *Fortieth Annual Conference on Neural Information Processing Systems Workshop (NeurIPSw), 2026*

Avi Gupta, Saurabh Yadav, Koteswar Rao Jerripothula, and Tammam Tillo, "SELECT: SELEctive Context Transfer in Class-Incremental Semantic Segmentation," in *Proceedings of British Machine Vision Conference (BMVC), 2026*

Avi Gupta, Nilotpal Sinha, Vishnu Raj, Sambuddha Saha, Pratik Joshi, Koteswar Rao Jerripothula, and Tammam Tillo. "Listen, Look, and Learn: Learning Without Forgetting through SAM-Audio", in *International Conference on Machine Learning Workshops (ICMLw), 2026.*

Saurabh Yadav[1], **Avi Gupta**[1] and Koteswar Rao Jerripothula, "SAMWave: Adapting Segment Anything Model to Difficult Tasks," in *Proceedings of British Machine Vision Conference (BMVC), 2025* **(Oral)**

Avi Gupta, Koteswar Rao Jerripothula and Tammam Tillo, "CIRCOD: Co-saliency Inspired Referring Camouflaged Object Discovery," in Proceedings of the *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2025.*

Shyama Sastha, **Avi Gupta**, and Pankaj Jalote. "An Experience Report on Teaching a Large Introductory Programming Course in Hybrid Mode." In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2, pp. 1704-1705. 2024.*

Under-Review

Camouflaged Object Detection *via* Multispectral Imaging **2026**
Introduce a novel approach that detects camouflaged objects from the corresponding multispectral inputs and predict corresponding binary mask.

SAMwave: Wavelet-Driven Feature Enrichment for Effective Adaptation of Segment Anything Model **IJCV**
Proposed real and complex-wavelet transformation for SAM, SAM2 and SAM3 on low-level vision tasks. **2026**
Saurabh Yadav[1], **Avi Gupta**[1] and Koteswar Rao Jerripothula

Reviewer

- NeurIPS
- ECCV
- TCSVT
- ICASSP
- CVPRW
- CVPR
- TMLR
- BMVC
- ICPR
- ICMLW

Achievements

Travel grant *(ACM IKDD CODS)* **2026**
Recognised among India's Top 100 AI/ML Researchers *(Identified by Amazon)* **2026**
Travel grant *(IndoML IIT Kharagpur)* **2026**
Doctoral Consortium *(BMVC 2026)* **2026**
DEI Grant *(BMVC 2026)* **2026**
Anveshan Setu Fellowship **2025**
Travel grant *(IndoML BITS Goa)* **2024**
GATE *(Qualified)* **2021, 2022**

References

Dr Tammam Tillo (TYUST, China) — *PhD Supervisor*
Dr Koteswar Rao Jerripothula (IIT, Kanpur) — *PhD Supervisor*
Dr Gautam Shroff (IIIT, Delhi) — *Academic Mentor*

[1]Equal Contribution