

Abhirama Subramanyam Penamakuri

PMRF PhD Scholar
IIT Jodhpur

January 11, 2025

penamakuri.1@iitj.ac.in

<https://abhiram4572.github.io>

Summary

I'm a PMRF Ph.D. scholar in the [Vision, Language, and Learning Group \(VL2G\)](#) led by [Dr. Anand Mishra](#) at IIT Jodhpur since July 2019. My research focuses on developing open-source retrieval augmented generation (RAG) enabled large multimodal models (LMMs), specifically for knowledge-intensive question-answering tasks over multimodal data. These tasks include variants of visual question answering (VQA) and audio question answering (AQA), which require external knowledge reasoning.

Education

- **Indian Institute of Technology Jodhpur** Jodhpur, India
PhD *Aug 2019 - Present*
Thesis Supervisor: Dr. Anand Mishra
Thesis topic: Retrieval augmented generation for knowledge-intensive visual tasks.
- **IIITDM Kancheepuram** Chennai, India
B.Tech *Aug 2014 - May 2018*
B.Tech Project Supervisor: Dr.B Sivaselvan
B.Tech Project: Fake News Identification on Social Media. [\[Report\]](#)

Patents

1. "SYSTEM AND METHOD FOR INTELLIGENT RECRUITMENT MANAGEMENT"
Granted U.S Patent: US 11410097 B2 - [\[Link\]](#) *09 Aug 2022*

Publications

1. **Abhirama S. Penamakuri***, Kiran Chhatre*, Akshat Jain. *Audiopedia: Audio QA with knowledge*, **ICASSP 2025**. [\[Link\]](#) [*authors contributed equally]
2. **Abhirama S. Penamakuri**, Anand Mishra. *Visual Text Matters: Improving Text-KVQA with Visual Text Entity Knowledge-aware Large Multimodal Assistant*, **EMNLP (Long Main) 2024**. [\[Link\]](#)
3. **Abhirama S. Penamakuri**, Anik De, Anand Mishra, et al.. Bharat Scene Text Dataset: A Novel Dataset and Benchmark for Massively Multilingual Scene Text Understanding across 13 Indian Languages, [\[Dataset link\]](#) [preprint soon] [All authors contributed equally]
4. **Abhirama S. Penamakuri**, Manish Gupta, Mithun Das Gupta, Anand Mishra. *Answer Mining from a Pool of Images: Towards Retrieval-Based Visual Question Answering*, **IJCAI 2023 (Main Track)**. [\[Link\]](#)

5. Prajwal Gatti, **Abhirama S. Penamakuri**, Revant Teotia, Anand Mishra, Shubhashis Sengupta, Roshni Ramnani. *COFAR: Commonsense and Factual Reasoning in image search*, **AAACL-IJCNLP 2022**. [\[Link\]](#)
6. Nakul Sharma, **Abhirama S. Penamakuri**, Anand Mishra. *Contrastive multi-view textual-visual encoding for open-set one-shot logo identification*, **ICVGIP 2022**. [\[Link\]](#)

Work Experience

Programmer Data Analyst (Data Science)

Drive Analytics Pvt. Ltd., Chennai, India

Jun 2018 - July 2019

Collaborated extensively in team of five that built an end to end intelligent recruitment management system. Applied various natural language processing techniques and further heuristics for automatic document parsing of job specifications and candidate resumes and thereby enabling higher productivity for recruitment teams.

Talent Acquisition Lead

Drive Analytics Pvt. Ltd., Chennai, India

Dec 2018 - Feb 2019

Led a four member talent acquisition team that had conducted three different walk-in sessions for junior/intern positions in Data Science.

Internships

Research PhD Intern

Adobe Research, Bengaluru

June 2024 - November 2024

Mentor(s):- Koustava Goswami, Joseph KJ

Working on multimodal multi-doc attribution of large vision-language models.

Machine Learning Intern

Drive Analytics Pvt. Ltd., Chennai

Jan 2018 - May 2018

Independently developed a smart job track monitoring system using traditional Machine Learning techniques.

Machine Learning Research Intern

Ericsson, Chennai

May 2017 - Oct 2017

Mentor:- M Saravanan

Developed machine learning models for classifying real-time twitter feed to alert local users about any emergent tweets in their locality. Worked on implementing Apache Kafka Message Queue for handling real-time data in mobile networks.

Machine Learning Intern

IIITDM Kancheepuram, Chennai

May 2016 - July 2016

Mentor:- SR Pandian

Worked on face recognition module using PCA in matlab.

Awards, Grants & Honours

1. Got accepted into Google Deepmind Research Symposium at Google Bengaluru. *Jan. 2025*

2. Received ACL Travel grant (2500 USD) to attend EMNLP 2024, Miami, FL, USA. *Nov. 2024*
3. Invited to present at AI for Social Good Event at IISc Bengaluru. *Sept. 2024*
4. Invited to present at PMRF Symposium 2024, at IIT Indore. *Mar. 2024*
5. ACM Travel grant to attend ACM ARCS at NISER Bhubaneswar. *Feb. 2024*
6. Invited to present our work RetVQA at AIML Systems'23 Bengaluru, India. *Oct. 2023*
7. Received Microsoft Travel Grant (1800 USD) to attend IJCAI 2023 at Macao, S.A.R. *July 2023*
8. Got 3rd place for work on "Retrieval-based VQA" at Prometeo (IITJ Tech Fest). *Feb. 2023*
9. Received first prize in the "Experiential Interface" track for my ongoing work "Retrieval-based VQA" in Youth Conclave organized by INAE and SERB. *Sept. 2022*
10. Received "Best presentation award" and "Constructive interaction award" in 'Departmental Student Seminar Series' by Department of CSE, IIT Jodhpur. *Mar. 2022*
11. Got selected for "[Prime Minister Research Fellowship](#)" (PMRF, MoE, GoI) *Nov. 2021*
12. We (Dr. Mishra A., Abhirama P., Revanth P., & Tawatia K.) have received "Microsoft Academic Partnership Grant (MAPG) 2021" *July 2021*
13. Received "Good Teaching Assistant Recognition" (for course on NLP). [[certificate](#)] *July 2021*
14. Got accepted into "[CVIT 5th Summer School on AI](#)" (IIIT Hyderabad) *July 2021*
15. Got accepted into "[PRAIRIE/MIAI AI Summer School 2021 \(France\)](#)" [[certificate](#)] *June 2021*

Teaching Assistantship Experience

1. Natural Language Understanding ($\times 4$: Spring '21, '22, '23, '24)
2. Deep Learning ($\times 2$: Fall '20, Summer '22)
3. Machine Learning ($\times 2$: Spring '20, Fall '22)
4. Mathematics for Computer Science ($\times 2$: Spring '20, Fall '21)
5. Introduction to Python Lab (Fall '19)
6. Data Structures and Algorithms (Fall '23)
7. Artificial Intelligence (Fall '24)

Professional Service

- Reviewer: CVPR'25, IEEE TIP, ECCV'24, ICVGIP'22/23.
- Sub-reviewer: ICCV'21/23, CVPR'20/21/22/23, ACL Rolling Review (Jan'24, July'24), ACM MM'24, AAAI'21.

- Challenge Co-Organiser: Summer Challenge on Auto Eval in conjunction with NCVPRIPG 2023.
- Volunteer: NCVPRIPG'23, CSE IITJ Winter School on AI 2022/2024.

Tutorials and Talks

1. Hands-on tutorial to set up and efficiently train LLMs/MLLMs, Winter School on GenAI, IIT Jodhpur. *Dec. 2024*
2. CS101 for school students of Kendriya Vidyalaya, IIT Jodhpur. *May 2024 - July 2024*
3. Lecture series on 'Introduction to Machine Learning' to polytechnic students of Govt. Polytechnic College Jodhpur, as part of PMRF. *Aug 2021 - Dec. 2023*
4. Gave a hands-on tutorial on Faster R-CNN, Seq2Seq models, and Transformers (BERT, GPT, T5, ViT) for Samsung Research India. [\[resources\]](#) *Nov. 2023*
5. ACM Student Chapter invited talk on 'Getting started with ML Research'. *June 2023*
6. Gave a tutorial on Seq2seq models at Winter School on Responsible AI, IITJ. *Dec. 2022*
7. Gave a tutorial on pre and post-transformer-era vision-language research, VL2G Lab, Department of CSE, IIT Jodhpur. [\[slides\]](#). *April, 2022*
8. Gave a talk on "Introduction to Machine Learning" in Summer school, Civil Eng. Dept., IITJ. [\[Slides\]](#), [\[Code\]](#) *June, 2021*

Additional Courses and Certification

1. Fundamentals of Deep Learning* [\[certificate\]](#)
2. Building Transformer-based Natural Language Processing Applications* [\[certificate\]](#)
3. Information Security* [\[certificate\]](#)
4. Introduction to Computing using Python*
5. Introduction to Mobile App and Web Development* [\[certificate\]](#)

[*- online courses]