Anand Mishra, PhD

CSE-201
Department of Computer Science and Engineering
Indian Institute of Technology Jodhpur, India

Contact No.: +91-9160450921
Email: mishra@iitj.ac.in
https://anandmishra22.github.io

Employment

- **Indian Institute of Technology** — Jodhpur, India
  Assistant Professor — *July 2019 - Present*

- **Indian Institute of Science** — Bangalore, India
  Research Associate (postdoctoral fellow) — *August 2017 - July 2019*
  Host: Dr. Partha Pratim Talukdar
  Research focus: Knowledge-aware Computer Vision

- **International Institute of Information Technology** — Hyderabad, India
  Research fellow (postdoctoral fellow) — *January 2017 - July 2017*
  Host: Prof. C. V. Jawahar
  Research focus: Intelligent Image Matching

Education

- **International Institute of Information Technology** — Hyderabad, India
  PhD, Computer Science and Engineering (CGPA: 8.6) — *August 2009 - November 2016*
  - **Thesis:** Understanding Text in Scene Images
  - **Advisers:** Prof. C. V. Jawahar (IIIT-H) and Dr. Karteek Alahari (Inria, France)
  - **PhD committee:** Prof. S. Chaudhury (IIT-D/CEERI Pilani), Dr. A. Sharma (IIIT-H), Dr. P. Chaudhuri (IIT-B) and advisers

- **Birla Institute of Technology Mesra** — Ranchi, India
  M.Tech.,Computer Science (CGPA: 8.2) — *2006-2008*
  - **Thesis:** Image Compression using Weighted Finite Automata
  - **Adviser:** Prof. G. Sahoo
  - **Fellowship:** MHRD GATE Fellowship

- **Guru Ghasidas University (now a central univ.)** — Bilaspur, India
  M.Sc.,Computer Science (Percentage: 68.8) — *2004-2006*

- **Guru Ghasidas University (now a central univ.)** — Bilaspur, India
  B.Sc.,with Mathematics (Percentage: 72.3) — *2001-2004*

- **Govt. boys school (MPBSE)** — Jashpur Nagar, India
  12th. with Physics, Chemistry, Mathematics (Percentage: 76.7) — *2001*

- **Govt. model school (MPBSE)** — Jashpur Nagar, India
  10th. (Percentage: 79.0) — *1999*

Awards/Fellowships/Recognitions

- One of the Outstanding Reviewers at CVPR 2023

- One of the Outstanding Reviewers at ICCV 2021

- IIT Jodhpur Teaching Excellence Award 2020

- Google Gift to support travel for AAAI 2019 (Honolulu)

- First runner-up for the doctoral dissertation award at XRCI Open 2015

- ACM-India Travel Grant to attend ACM-IRISS 2015 (Goa)

- XRCI Travel Grant to attend Xerox Open 2015 (Bengaluru)

- IEEE Student Travel Grant to attend ICCV 2013 (Sydney)

- Microsoft Research India PhD fellowship 2012 Award (One among only four PhD students in the country in year 2012)

- Google India Travel Grant to attend CVPR 2012 (Providence)

- Microsoft Research India Travel Grant to attend ICDAR 2011 (Beijing)

- IIIT Institute Fellowship (2009 – 2012)

- GATE Scholarship (2006 – 2008)

Grants

- **Principle Investigator:** Self-Supervised Learning for Open-set Very-Large-Scale Video Retrieval.
  Funding Agency: Microsoft R&D (Under MAPG 2023)
  Duration: 2023-2024
  Grant Amount: INR 15,00,000

- **Principle Investigator:** Table Detection and Layout Analysis on Clinical Documents.
  Funding Agency: HealthcareNLP
  Duration: 2023-2024
  Grant Amount: INR 13,19,914

- **Principal Investigator:** Analogy Based Visual Relationship Interpretation from Cross-Task Videos and Standard Operating Procedures.
  Funding Agency: Accenture LLC (Gift Grant)
  Duration: 2022-2023
  Grant Amount: USD 20,000 (INR 16,32,791)

- **Principal Investigator:** OCR and Application in Indian Languages.
  Funding Agency: MeITy, Govt of India (Under NLTM Bhashini)
  Duration: 2022-2025
  Grant Amount: INR 1,83,90,000

- **Principal Investigator:** Multimodal Query-guided Natural Scene Retrieval.
  Funding Agency: SERB, Govt of India (Under Start-up Research Grant)
  Duration: 2021-2023
  Grant Amount: INR 29,64,110

- **Principal Investigator:** Seed Grant.
  Funding Agency: IIT Jodhpur
  Duration: 2022-2023
  Grant Amount: INR 16,00,000

- **Principle Investigator:** Inference and Reasoning over Web-Scale Multimodal Knowledge Graph.
  Funding Agency: Microsoft R&D (Under MAPG 2021)
  Duration: 2021-2022
  Grant Amount: INR 14,16,000

- **Principal Investigator:** Knowledge Discovery from Images Containing Text and its Application to Audio-Visual Dialogue.
  Funding Agency: Accenture LLC
  Duration: 2020-2021
  Grant Amount: USD 20,000 (INR 14,64,633)

Publications

Note– Total citations: 1967, h-index: 14, i10-index: 14. *(Source: Google Scholar, December 21, 2023)*

Journals:

1. Aditay Tripathi, Rajath R. Dani, **Anand Mishra**, Anirban Chakraborty, *Multimodal Query-guided Object Localization*, Multimedia Tools and Applications, 2023

2. **Anand Mishra,** *DHFML: Deep Heterogeneous Feature Metric Learning for Matching Photo-Cartoon Pairs*, International Journal of Multimedia Retrieval, pages 1–8, 2018,

3. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Unsupervised refinement of color and stroke features for text binarization*, International Journal on Document Analysis and Recognition, Volume 20(2), pages 105–121, 2017

4. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Enhancing Energy Minimization Framework for Scene Text Recognition with Top-Down Cues*, Computer Vision and Image Understanding, volume 145, pages 30–42, 2016

Conferences/Workshops:

1. Yogesh Kumar, Saswat Mallick, **Anand Mishra**, Sowmya Rasipuram, Anutosh Maitra, Roshni Ramnani, *QDETRv: Query-Guided DETR for One-Shot Object Localization in Videos*, **AAAI 2024**

2. Prajwal Gatti, Kshitij Parikh, Dhriti Paul, Manish Gupta, **Anand Mishra**, Composite Sketch+Text Queries for Retrieving Objects with Elusive Names and Complex Interactions, **AAAI 2024**.

3. Aditay Tripathi, **Anand Mishra**, Anirban Chakraborty, *Query-guided Attention in Vision Transformers for Localizing Objects Using a Single Sketch*, **WACV 2024**.

4. K.V. Jobin, **Anand Mishra**, C. V. Jawahar, *Semantic Labels-Aware Transformer Model for Searching over a Large Collection of Lecture-Slides*, **WACV 2024** (Oral).

5. Abhirama Subramanyam Penamakuri, Manish Gupta, Mithun Das Gupta, **Anand Mishra**, *Answer Mining from a Pool of Images: Towards Retrieval-Based Visual Question Answering*, **IJCAI 2023**.

6. Shreya Shukla, Prajwal Gatti, Yogesh Kumar, Vikash Yadav, **Anand Mishra**, *Towards Making Flowchart Images Machine Interpretable*, **ICDAR 2023**.

7. Yogesh Kumar, **Anand Mishra**, *Few-Shot Referring Relationships in Videos*, CVPR 2023.

8. Aditay Tripathi, **Anand Mishra**, Anirban Chakraborty, *Grounding Scene Graphs on Natural Images via Visio-Lingual Message Passing*, **WACV 2023**.

9. Prajwal Gatti, **Anand Mishra**, Manish Gupta, Mithun Das Gupta, *VISTOT: Vision-Augmented Table-to-Text Generation*, **EMNLP 2022**.

10. Prajwal Gatti, Abhirama Subramanyam Penamakuri, Revant Teotia, **Anand Mishra**, Shubhashis Sengupta, Roshni Ramnani, *COFAR: Commonsense and Factual Reasoning in Image Search*, **AACL-IJCNLP 2022**.

11. Nakul Sharma, Abhirama Subramanyam Penamakuri, Anand Mishra, *Contrastive Multi-View Textual-Visual Encoding: Towards One Hundred Thousand-Scale One-Shot Logo Identification*, **ICVGIP 2022**.

12. Revant Teotia*, Vaibhav Mishra*, Mayank Maheshwari*, **Anand Mishra**, *Few-shot Visual Relationship Co-localization*, **ICCV 2021** (*: equal contribution).

13. Aditay Tripathi, Rajath Dani, **Anand Mishra**, Anirban Chakraborty, *Sketch-guided Object Localization in Natural Images*, **ECCV 2020** (spotlight)

14. Ajeet Kumar Singh, **Anand Mishra**, Shashank Shekhar, Anirban Chakraborty, *From String to Things: Knowledge-enabled VQA Model that can read and reason*, **ICCV 2019** (oral)

15. **Anand Mishra**, Ajeet Kumar Singh, Shashank Shekhar*, Anirban Chakraborty, *OCR-VQA: Visual Question Answering by Reading Text in Images*, **ICDAR 2019**

16. Sanket Shah*, **Anand Mishra***, Naganand Y., Partha Pratim Talukdar, *KVQA: Knowledge-aware Visual Question Answering*, **AAAI 2019**. (*: equal contribution).

17. **Anand Mishra** and Ajeet K. Singh, *Deep Embedding using Bayesian Risk Minimization with Application to Sketch Recognition*, **ACCV 2018**.

18. Ashutosh Mishra, Shyam N. Rai, **Anand Mishra**, C. V. Jawahar, *IIIT-CFW: A benchmark database for Cartoon Faces in the Wild*, **ECCVW 2016** (oral).

19. Ajeet K. Singh, **Anand Mishra**, Pranav Dabaral, C. V. Jawahar, *A Simple and Effective Solution for Script Identification in the Wild*, **DAS 2016**.

20. Swetha Sirnam, **Anand Mishra**, G. M. Hegde, C. V. Jawahar, *Efficient Object Annotation for Surveillance and Automotive Applications*, **WACV Workshop 2016**.

21. Udit Roy, **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Scene Text Recognition and Retrieval for Large Lexicons*, **ACCV 2014**.

22. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Image Retrieval using Textual cues*, **ICCV 2013**.

23. Vibhor Goel, **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Whole is Greater than Sum of Parts: Recognizing Scene Text Words*, **ICDAR 2013**.

24. Vijay Kumar, Amit Bansal, Gautom Hari Tulsiyan, **Anand Mishra**, Anoop Namboodari, C. V. Jawahar, *Sparse Document Image Coding for Restoration*, **ICDAR 2013**.

25. **Anand Mishra**, Naveen T.S., Viresh Ranjan, C. V. Jawahar, *Automatic Localization and Correction of Line Segmentation Errors*, **DAR 2012** (Oral).

26. Deepan Gupta*, Vaidehi Chhajer*, **Anand Mishra**, C. V. Jawahar, *A Non-local MRF model for Heritage Architectural Image Completion*, **ICVGIP 2012** (*: equal contribution).

27. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Scene Text Recognition using Higher Order Language Priors*, **BMVC 2012** (Oral).

28. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Top-down and Bottom-up cues for Scene Text Recognition*, **CVPR 2012**.

29. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *An MRF Model for Binarization of Natural Scene Texts*, **ICDAR 2011** (Oral).

30. Dheeraj Mundhra, **Anand Mishra**, C. V. Jawahar, *Automatic Localization of Page Segmentation Errors*, **J-MOCR-AND 2011** (Oral).

Selected Invited Talks

- ICDAR 2023 Tutorial on Document Intelligence (August 2023)

- ACM-India ARCS 2023, Bhopal (Feb. 2023)

- Search Technology Centre India (STCI), Microsoft (March 2022)

- WADLA, IIIT Sri City (virtual) (Feb. 2022)

- ICMI Pre-Conference Workshop 2022, IIIT Bangalore, (virtual) (Feb. 2022)

- Vision India, ICVGIP 2020, IIT Jodhpur (virtual) (December 2020)

- SPCOM 2020, IISc Bangalore (virtual) (July 2020)

- Department of Computer Science and Engineering, IIT Guwahati (June 2019)

- IIIT Bangalore (March 2019)

- BLIPAR, Bengaluru (May 2017)

- Visual Learning and Intelligence lab, department of CSE, IIT-Hyderabad, India (September 2015)

- ACM-IRISS 2015, Goa, India (February 2015)

- XRCI Open 2015, Bengaluru, India (January 2015)

- Amazon-ML group, Bengaluru, India (December 2014)

- Mysore Workshop on Machine Learning - 2012

Students

PhD:

1. Abhirama P. (2019 - Present)

2. Neelu Verma (MTech-PhD) (2019-Present)

3. Yogesh Kumar (MTech-PhD) (2020-Present)

4. Gyan Prabhat (2021-Present)

MTech (Only full-time):

1. Apoorv Shekhar (2023-present)

2. Dhriti P. Paul (2022-2023)

3. Deepti Gupta (2022-2023)

4. Gaurav Pilankar (2021-2022)

5. Rahul Kumar Chaudhary (2021-2022)
   - Jointly with Dr. G. Bhatnagar

6. Stuti Pathak (2021-2022)

7. Rati Kumari (2021-2022)

8. Ambikesh Kumar Singh (2021-2022)

9. Pratik Somwanshi (2020-2021)
   - Jointly with Dr. G. Bhatnagar

10. Megha Kumari (2020-2021)

11. Kena Hemmani (2020-2021)
    - Jointly with Dr. Suril Shah

Undergraduate:

1. Shreya Shukla (2021 - Present)

2. Nakul Sharma (2021 - Present)

3. Abu Shahid (2021 - Present)

4. Ayush Anand (2023-Present)

5. Vaibhav Mishra (2020-2022)

6. Mayank Maheswari (2020-2022)

Research Assistant/Long-tenure Intern:
At IIT Jodhpur:

1. Prajwal Gatti (2021-2023)

2. Revant Teotia (2020-2021)

At IISc Bangalore:

1. Rajath D. Dani (2020-2022, co-advisor: Dr. Anirban)

2. Shashank Shekhar (2018-2019, co-advisor: Dr. Anirban)

3. Anjali Shenoy (2018-2019, co-advisor: Ayush Bansal)

At IIIT Sri City:

1. Ashutosh Sharma (2015-2016, co-advisor: Prof. Jawahar)

2. Shyam N Rai (2015-2016, co-advisor: Prof. Jawahar)

At IIIT Hyderabad:

1. Vibhor Goel (2013-2014, co-advisor: Prof. Jawahar)

2. Pranab Dabral (2013-2014, co-advisor: Prof. Jawahar)

3. Dheeraj Mundhara (2011-2011, co-advisor: Prof. Jawahar)

Teaching Experience: Recently Taught Courses

- CSL7670: Fundamentals of Machine Learning (Monsoon'23)

- CSL7620: Machine Learning (Fractal-3) (Spring'20/21/22/23)

- CSL7360: Computer Vision (Spring'23)

- CSL2040: Maths for Computing (AY 20-21–Tri-3/Monsoon'21/22)

- CSL7410: Graph Theory and Application (AY 20-21–Tri-1, Spring'22)

- CS222: Theory of Computation (Spring'20)

- CS212: Object-oriented Design and Analysis (Monsoon'19)

- UE101: Algorithms and Programming (Monsoon'18)
  - Co-taught at Indian Institute of Science with Dr. Sathish Govindrajan and Dr. Viraj Kumar.

Professional service

- **Workshop co-organiser:** ScalDoc in conjunction with ICDAR 2023, KBMM in conjunction with AKBC 2019/2020, WDAR in conjunction with ICVGIP 2020/23.

- **Co-Convenor:** NCVPRIPG'23.

- **Challenge Co-Organiser:** Summer Challenge on Writer Verification in conjunction with NCVPRIPG'23.

- **Workshop co-chair:** ICFHR'22.

- **Reviewer:** ICLR'23, ECCV'20/22, CVPR'20/22/23/24, AAAI'20/21/22, ICCV'19/21/23, IJ-CAI'19/20, ICDAR'19, IEEE TPAMI, IJCV, IEEE TKDD, CVIU, IJDAR, Pattern Recognition.

- **PhD Thesis Examiner:** Andres Mafla, UAB, Spain (Jury president).

- **Program Coordinator:** Executive MTech in AI 2019 batch, IIT Jodhpur.

References

Available on request.

Updated on: *December 21, 2023*