

Anand Mishra, PhD

CDS-317

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Employment

- **Indian Institute of Science** Bangalore, India
Research Associate (postdoctoral fellow) August 2017 - Present
Host: Dr. Partha Pratim Talukdar and Dr. Venkatesh Babu
Research focus: Knowledge-aware Computer Vision
- **International Institute of Information Technology** Hyderabad, India
Research fellow (postdoctoral fellow) December 2016 - 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
 - **Top-tier publications:** ICCV'13, CVPR'12
 - **Total citations:** 649 (source: Google Scholar, November 2018)
 - **Major awards:** XRCI best doctoral dissertation award 2015: first runner-up, Microsoft Research India PhD fellowship Award 2012
- **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

First runner-up for the doctoral dissertation award at XRCI Open 2015 (XRCI Open is organized by Xerox Research Centre India, and five Computer Science PhD students from the country were shortlisted as finalists for this year).	Jan 2015
ACM-India Travel Grant to attend ACM-IRISS 2015 (Goa)	Feb 2015
XRCI Travel Grant to attend Xerox Open 2015 (Bengaluru)	Jan 2015
IEEE Student Travel Grant to attend ICCV 2013 (Sydney)	Dec 2013
Microsoft Research India PhD fellowship 2012 Award (One among only four PhD students in the country in year 2012)	Aug 2012
Google India Travel Grant to attend CVPR 2012 (Providence)	April 2012
Microsoft Research India Travel Grant to attend ICDAR 2011 (Bejing)	July 2011
IIIT Institute Fellowship	2009 - 2012
GATE Scholarship	2006 - 2008

Teaching Experience

Post PhD:

- **Indian Institute of Science** Bangalore, India
Co-Instructor (UE-101: Algorithms and Programming) Monsoon 2018
– Undergraduate introductory course
– Co-taught with Dr. S. Govindrajan and Dr. Viraj Kumar

During PhD:

- **International Institute of Information Technology** Hyderabad, India
Instructor (Computer Problem Solving for M.Tech. in Bio-informatics) Monsoon 2016
- **Indian Institute of Information Technology** Sri City, India
Visiting Instructor (Operating Systems, selected topics in Comp. Archi.) Aug 2014 - April 2015
- **International Institute of Information Technology** Hyderabad, India
Teaching Assistant (Statistical Methods in AI, Computer Vision) Monsoon 2013, Spring 2011/14

During masters:

- **Birla Institute of Technology Mesra** Ranchi, India
Teaching Assistant (Data structure, C programming) Monsoon 2007, Spring 2008

Publications

Note– Total citations: 649, *h-index*: 7, *i10-index*: 6. (Source: Google Scholar, November 2018)

Journals:

1. **Anand Mishra**, *DHFML: Deep Heterogeneous Feature Metric Learning for Matching Photo-Cartoon Pairs*, International Journal of Multimedia Retrieval 2018, (Accepted, in press)
2. **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
3. **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:

1. Sanket Shah*, **Anand Mishra***, Naganand Y., Partha Pratim Talukdar, *KVQA: Knowledge-aware Visual Question Answering*, **AAAI 2019** (*: equal contribution).
2. **Anand Mishra** and Ajeet K. Singh, *Deep Embedding using Bayesian Risk Minimization with Application to Sketch Recognition*, ACCV 2018
3. Ashutosh Mishra, Shyam N. Rai, **Anand Mishra**, C. V. Jawahar, *IIIT-CFW: A benchmark database for Cartoon Faces in the Wild*, ECCVW 2016 (oral)
4. Ajeet K. Singh, **Anand Mishra**, Pranav Dabaral, C. V. Jawahar, *A Simple and Effective Solution for Script Identification in the Wild*, DAS 2016
5. Swetha Sirnam, **Anand Mishra**, G. M. Hegde, C. V. Jawahar, *Efficient Object Annotation for Surveillance and Automotive Applications*, WACV Workshop 2016.
6. Udit Roy, **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Scene Text Recognition and Retrieval for Large Lexicons*, ACCV 2014.
7. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Image Retrieval using Textual cues*, **ICCV 2013. (Citation count: 34)**
8. Vibhor Goel, **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Whole is Greater than Sum of Parts: Recognizing Scene Text Words*, ICDAR 2013. **(Citation count: 77)**
9. Vijay Kumar, Amit Bansal, Gautom Hari Tulsian, **Anand Mishra**, Anoop Namboodari, C. V. Jawahar, *Sparse Document Image Coding for Restoration*, ICDAR 2013.
10. **Anand Mishra**, Naveen T.S., Viresh Ranjan, C. V. Jawahar, *Automatic Localization and Correction of Line Segmentation Errors*, DAR 2012 (Oral).
11. Deepan Gupta*, Vaidehi Chhajer*, **Anand Mishra**, C. V. Jawahar, *A Non-local MRF model for Heritage Architectural Image Completion*, ICVGIP 2012 (*: equal contribution).
12. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Scene Text Recognition using Higher Order Language Priors*, BMVC 2012 (Oral). **(Citation count: 166)**
13. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *Top-down and Bottom-up cues for Scene Text Recognition*, **CVPR 2012. (Citation count: 232)**
14. **Anand Mishra**, Karteek Alahari, C. V. Jawahar, *An MRF Model for Binarization of Natural Scene Texts*, ICDAR 2011 (Oral). **(Citation count: 95)**
15. Dheeraj Mundhra, **Anand Mishra**, C. V. Jawahar, *Automatic Localization of Page Segmentation Errors*, J-MOCR-AND 2011 (Oral).

Selected Academic Projects

- Image Compression using WFA (M.Tech. computer science project)
- Movie search (computer vision course project)
- Large scale image classification (computer vision course project)
- Online character recognition (pattern recognition course project)

- Implementation of back-propagation for neural networks (pattern recognition course project)
- Text detection using image processing techniques (digital image processing project)
- Face recognition using local binary pattern (pattern recognition and image analysis course project at BIT Mesra)

Sponsored Projects (as a research assistant)

Intelligent image matching with Altair India & IIIT-H	2016–2017
Video tracking with Bosch Research & IIIT-H	2015 – 2016
Virtual labs with MHRD & IIIT-H	2011 – 2012
Letter receive and dispatch system with SECL Bilaspur	2005 – 2006

Selected Invited Talks/Poster Presentations

- Scene Text Recognition: Pre and Post Deep Learning, BLIPAR, Bengaluru (May 2017)
- Understanding Text in Scene Images, Visual Learning and Intelligence lab, department of CSE, IIT-Hyderabad, India (September 2015)
- Understanding Text in Scene Images, ACM-IRISS 2015, Goa, India (February 2015)
- Understanding Text in Scene Images, XRCI Open 2015, Bengaluru, India (January 2015)
- Higher Order CRF Model for Scene Text Recognition, Amazon-ML group, Bengaluru, India (December 2014)
- Understanding Text in the Wild, R & D showcase 2013, IIIT Hyderabad
- Image Retrieval using Textual cues, ICCV 2013, Sydney (Australia)
- Probabilistic Model for Scene Text Recognition, Mysore Workshop on Machine Learning - 2012
- Top-down and Bottom-up cues for Scene Text Recognition, CVPR 2012, Providence (USA)
- Scene Text Recognition using Higher Order Language Priors, BMVC 2012, Univ. of Surrey (UK)
- An MRF model for Binarization of Natural Scene Texts, Presented to Prof. Michael Werman (during his visit to IIIT Hyderabad), 2012
- Indian Language OCRs, R & D showcase 2011, IIIT Hyderabad
- An MRF Model for Binarization of Natural Scene Texts, ICDAR 2011, Beijing (China)
- Document Image Analysis Activities at CVIT, Presented to Prof. Koichi Kise (during his visit to IIIT Hyderabad), 2010
- Expert systems in Agriculture, National Conference on IT in agriculture 2008, BAU Ranchi
- Steps towards Green Computing, National Symposium on Green Computing 2008, BIT Mesra, Ranchi

Mentoring.

I am co-mentoring following members at MALL and/or VC lab :

- Anjali Shenoy: Never Ending Scene Understanding [with Dr. Talukdar and Aayush Bansal (CMU)]
- Aditay Tripathi: Web-scale Visual Entity Linking [with Dr. Talukdar and Dr. Chakraborty]
- Shashank: Text-KVQA [with Dr. Chakraborty and Ajeet K. Singh (TCS)]

I have co-supervised following under graduate students with Prof. Jawahar on problems outside my PhD thesis:

- Ashutosh Mishra (B. Tech. student, IIIT Sri city): cartoon understanding
- Shyam N. Rai (B. Tech. student, IIIT Sri city): cartoon understanding
- Dheeraj Mundhra (Summer intern from IIT Kharagpur): Page segmentation errors.
- Vaidehi Chhajra (B.Tech. student, IIIT Hyderabad): Image inpainting.
- Deepan Gupta (B.Tech. student, IIIT Hyderabad): Image inpainting.
- Vibhor Goel (B.Tech. student, IIIT Hyderabad): Holistic word recognition.
- Pranab Dabral (Intern from VIT Vellore): Indian language scene text dataset annotations and script identification.
- Raksha Raghunathan (Summer intern from PESIT Bengluru): Script identification in news videos.

Professional service

- Reviewer: ICCV 2017, IEEE TPAMI, CVIU, IEEE TCSVT, IJDAR, Neuro-computing, ACCV 2016, **ICVGIP 2014/2016/2018**
- **Program committee member: DAR (a workshop under ICVGIP 2018)**
- Hosted a departmental talk in IISc by Aayush Bansal, senior PhD student from CMU in Feb 2018.
- Co-ordinated 2018 Summer Intern Selection Process at MALL lab, IISc. We received 630 applications and selected 5 summer interns.
- Offered tutorial on Python programming at summer school on deep learning for computer vision held during 2017 at IIIT Hyderabad. This event has over 150 participants from Indian academia and industry.
- Co-ordinated reading group activities at summer school on deep learning for computer vision (SS-DLCV) held during July 11 - July 16, 2016 at IIIT Hyderabad. This event has over 150 participants from Indian academia and industry.
- Co-ordinated a tutorial session on usage of libSVM at WRTIPPR organized at IIIT-H in 2013. More than 30 research scholars/faculty members from various colleges of India participated in this workshop.

References

- Prof. C. V. Jawahar
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- Dr. Partha Pratim Talukdar
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