

Adway Mitra

CONTACT INFORMATION

CSA Department
Indian Institute of Science *E-mail:* adway.cse@gmail.com
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RESEARCH INTERESTS

- **Machine Learning** - Bayesian Nonparametrics, Modeling Spatio-Temporal Processes, Data-driven modeling of Complex Systems
- **Climate Sciences** - Climate Modeling and Simulation, Causality Analysis
- **Computer Vision** - Video Modeling and Segmentation

EDUCATION

- **Doctor of Philosophy in Computer Science**
Indian Institute of Science, Bangalore *Aug 2010 - Aug 2015*
CGPA - 7.0/8.0
Doctoral Thesis: Bayesian Nonparametric Modeling of Temporal Coherence for Entity-driven Video Analytics
Doctoral Advisor: Prof. Chiranjib Bhattacharyya
- **Master of Engineering in Computer Science & Engineering (First Class with Distinction)**
Indian Institute of Science, Bangalore *Aug 2008 - Jul 2010*
CGPA - 6.8/8.0 (Course), 8.0/8.0 (Project), 7.3/8.0 (combined)
M.E. Thesis: Efficient Covariance-based Algorithms for Appearance Modeling in Computer Vision
M.E. Thesis Advisor: Prof. Chiranjib Bhattacharyya
- **Bachelor of Engineering in Computer Science (First Class Honours, Department Rank 3)**
Jadavpur University, Kolkata *Jul 2004 - Jun 2008*
CGPA - 9.0/10.0 (84.04%)

Other Research Experience

- Research Associate, Divecha Center for Climate Change, Indian Institute of Science, Bangalore *Oct 2015 - June, 2016*

INTERNSHIPS

- **Yahoo! Labs - Bangalore, India** *May - July, 2011*
Summer Intern (under Dhruv Mahajan and Rajeev Rastogi)
- **IBM India Research Lab - Bangalore, India** *August-October, 2012*
Summer Intern (under Srujana Merugu)

TEACHING EXPERIENCE

- Teaching Assistant for Machine Learning course in IISc *Jan -April, 2012*
- Teaching Assistant for Linear Algebra course in IISc *Aug-Dec, 2012*
- Teaching Assistant for Machine Learning course in IISc *Jan -April, 2013*
- Teaching Assistant for Linear Algebra course in IISc *Aug-Dec, 2014*
- Teaching Assistant for Machine Learning course in IISc *Jan -April, 2016*

HONORS AND AWARDS

- **Runners-up in International World Wide Web (WWW) 2011 Novel Web Software Contest** for the software "Web-based Image Recognizer" (joint work with Himabindu Lakkaraju)
- **All India Rank 58** (99.67%ile) in Graduate Aptitude Test in Engineering (GATE), 2008, entrance exam of the IISc & IITs, in Computer Science & Engineering, out of 18,224 candidates
- **Department Rank 3**, Bachelor of Engineering, Computer Science (out of 60 students)
- **State Rank 5** in West Bengal Joint Entrance Examination, 2004 for Engineering Entrance (out of over 50000 candidates)
- Jagadis Bose National Science Talent Search (JBNSTS) Senior Scholarship, 2004-08
- **State Rank 20** in Regional Mathematical Olympiad (for West Bengal), 2002

MAJOR RESEARCH PROJECTS

- Discovery of spatio-temporal patterns in rainfall over India (Ongoing, 2015-)
- Causality analysis of Indian monsoon rainfall and El Nino Southern Oscillation in Pacific Ocean (Ongoing, 2015-)
- Nonparametric Models for Hierarchical Segmentation of Structured Sequential Data (videos and text) (Completed 2014)
- Nonparametric Semi-Markov Models for Hierarchical Segmentation of Sequential Data (Completed 2014-15)
- Bayesian nonparametric approach to Discovering Frequent Entities in Videos (Completed 2013-14)
- Nonparametric Markov Models for Hierarchical Segmentation of Sequential Data (Completed 2012-13)
- Integration of opinions from multiple sources using Bayesian Models (Completed 2012-13)
- Low Rank Matrix Estimation for Video Denoising, Summarization and Segmentation (Completed 2011-14)
- Explore-Exploit methods for recommendation of user comments on online news portals (Completed 2011)
- Fast Covariance-based Methods for Robust, illumination-invariant Tracking (Completed 2010-11)
- Summarization of Image Families for Classification and Clustering (Completed 2009-10)
- Design of Routing and Collaboration Protocols for Sensor Networks (Completed 2006-07)

PUBLICATIONS

- **Journals**
 - Adway Mitra, Soma Biswas, Chiranjib Bhattacharyya. **Temporally Coherent Chinese Restaurant Process for Discovery of Persons and Corresponding Tracklets from User-generated Videos.** *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 2016
- **Refereed Conferences & Workshops**

- Adway Mitra, Chiranjib Bhattacharyya and Soma Biswas. **EntScene: Nonparametric Bayesian Temporal Segmentation of Videos aimed at Entity-driven Scene Detection** *International Joint Conference on Artificial Intelligence (IJCAI), Buenos Aires, Argentina, 2015*
- Adway Mitra, Soma Biswas and Chiranjib Bhattacharyya. **Temporally Coherent CRP: A Bayesian Non-Parametric Approach for Clustering Tracklets with applications to Person Discovery in Videos.** *SIAM Conference on Data Mining (SDM), Vancouver, Canada, 2015* (To appear)
- Adway Mitra and Srujana Merugu. **Reconciliation of Categorical Opinions from Multiple Sources.** *ACM Conference on Information and Knowledge Management (CIKM), San Francisco, USA, 2013*
- Adway Mitra, Ranganath B.N. and Indrajit Bhattacharyya. **A Layered Dirichlet Process for Hierarchical Segmentation of Sequential Grouped Data.** *European Conference on Machine Learning (ECML-PKDD), Prague, 2013*
- Dhruv Mahajan, Rajeev Rastogi, Charu Tiwari and Adway Mitra. **LogUCB: An Explore-Exploit Algorithm for Comments Recommendation.** *ACM Conference on Information and Knowledge Management (CIKM), Hawaii, 2012*
- Anoop K.R., Adway Mitra, Ujwal Bonde, Chiranjib Bhattacharyya and K.R.Ramakrishnan. **Covariance Profiles: A Signature Representation For Object Sets.** *International Conference on Pattern Recognition (ICPR), Japan, 2012*
- Adway Mitra, Anoop K.R., Ujwal Bonde, Chiranjib Bhattacharyya and K.R.Ramakrishnan. **Eigen-profiles of Spatio-Temporal Fragments for Adaptive Region-based Tracking.** *International Conference on Acoustics, Speech and Signal Processing (ICASSP), Kyoto, Japan, 2012*
- Adway Mitra, Arpan Roy, Arijit Khan, Debasis Saha. **An Informed Lane-Based Target Search Strategy for Random-Walking Mobile Sensors.** (*International Conference on Sensing Technology, 2008, Tainan, Taiwan*)
- Arpan Roy, Haimasree Bhattacharyya, Adway Mitra, Shibasis Biswas, Pradip K. Das. **A Distributed Approach to GIS systems and Location-based Service for Internet-enabled Handheld Mobile Devices.** (*IET International Conference on Wireless Mobile and Multimedia Networks, 2008, Mumbai*)
- Arpan Roy, Adway Mitra, Arijit Khan and Debasis Saha. **LSDC: A Lossless Approach to Lifetime Maximization in Wireless Sensor Networks.** (*IEEE Sensor Application Symposium, 2008, Atlanta, USA*)
- Adway Mitra, Arpan Roy, Arijit Khan, Debasis Saha. **EMOBSPIN: An Energy-aware Negotiation-based Information Dispersal Protocol for Mobile Sensor Networks.** (*International Symposium on Wireless Personal Multimedia Communications, 2007, Jaipur, India*)

INVITED TALKS

- Bayesian Nonparametric Modeling of Temporal Coherence for Entity-driven Video Analytics - at Amazon, India (Feb 2016)
- Bayesian Nonparametric Modeling of Temporal Coherence for Entity-driven Video Analytics - at Xerox Research Center India (Feb 2016)

- **Invited Paper:** EntScene: Nonparametric Bayesian Temporal Segmentation of Videos aimed at Entity-driven Scene Detection - at CODS-IKDD conference, Pune, India (March 2016)

COMPUTER SKILLS

- Languages: Java,C,C++
- Software: Matlab
- Platforms: Linux, Microsoft Windows XP and 7

EXTRA CURRICULAR

- Departmental Curriculam Committee Representative for Masters Students, IISc CSA department, 2009-10
- Volunteer for IISc Open Day for CSA Department, 2010
- Volunteer for Undergraduate Summer School organized by CSA Department, IISc, 2012
- Member, organizing team of *Twitminer*, online machine learning contest organized by CSA, IISc in March 2013.
- Volunteer for Note Book Drive, an organization to teach and mentor underprivileged children, 2012
- Volunteer for Note Book Drive, an organization to teach and mentor underprivileged children, 2014
- Volunteer for Undergraduate Summer School organized by CSA Department, IISc, 2014
- Member, IISc Students' Council Academic Committee, 2014-15
- Intern in IISc Science Media Center for writing popular science articles based on research done in IISc, 2015
- Other interests include drama and blogging/creative writing