Aruni RoyChowdhury

Contact Information

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Research Interests

Semi-supervised learning, object detection, fine-grained recognition.

Education

University of Massachusetts, Amherst *(2013–current)*

– MS-PhD in Computer Science (GPA: 3.9/4).

Advisor: Erik Learned-Miller.
Thesis Committee: Liangliang Cao, Subhransu Maji, David Huber.
Expected graduation: Spring 2020.

West Bengal University of Technology, India *(2009–2013)*

– B.Tech from Heritage Institute of Technology, Kolkata (CGPA: 8.7/10).

Projects & Experience

University of Massachusetts, Amherst, Graduate Research Assistant

– *Sep. 2018 – current:* DARPA Lifelong Learning Machines (L2M) project.
– *Sep. 2014 – Aug. 2018:* Face recognition project under IARPA's Janus program.

Media Analytics, NEC Labs America, Summer Research Assistant

– *May–Aug., 2019:* TBD. Mentors: Xiang Wu and Kihyuk Sohn.

The Mathworks, Inc., Computer Vision Intern

– *May–Aug., 2017:* Developing object detection modules for the Computer Vision Toolbox. Mentor: Birju Patel.
– *Jun.–Aug., 2014:* Face recognition in MATLAB. Mentor: Dima Lisin.

Indian Statistical Institute, Kolkata, Intern

– *Dec., 2011 – Jul., 2013:* Scene text detection and online handwriting recognition. Mentors: Ujjwal Bhattacharya and Swapan K Parui.

Variable Energy Cyclotron Center, Dept. of Atomic Energy (India), Intern

– *Jun.–Jul., 2012:* Analysis of event data using Map-Reduce. Mentor: Amitava Ray

Publications

1. Aruni RoyChowdhury, Prithvijit Chakrabarty, Ashish Singh, SouYoung Jin, Huaizu Jiang, Liangliang Cao and Erik Learned-Miller. ***Automatic adaptation of object detectors to new domains using self-training***. Computer Vision and Pattern Recognition (CVPR), 2019.
2. SouYoung Jin*, Aruni RoyChowdhury*, Huaizu Jiang, Ashish Singh, Aditya Prasad, Deep Chakraborty and Erik Learned-Miller. ***Unsupervised Hard Example Mining from Videos for Improved Object Detection***. European Conference on Computer Vision (ECCV), 2018.
3. Pia Bideau, Aruni RoyChowdhury, Rakesh Menon and Erik Learned-Miller. ***The Best of Both Worlds: Combining CNNs and geometric constraints for***

hierarchical motion segmentation. Computer Vision and Pattern Recognition (CVPR), 2018.

4. Aruni RoyChowdhury, Prakhar Sharma and Erik Learned-Miller. ***Reducing Duplicate Filters in Deep Neural Networks***. NIPS workshop on Deep Learning: Bridging Theory and Practice (DLTP), 2017.
5. Tsung Yu Lin, Aruni RoyChowdhury, Subhransu Maji. ***Bilinear CNNs for Fine-grained Visual Recognition***. IEEE Transactions of Pattern Recognition and Machine Intelligence (PAMI), 2017.
6. Aruni RoyChowdhury, Daniel Sheldon, Subhransu Maji and Erik Learned-Miller. ***Distinguishing Weather Phenomena from Bird Migration Patterns in Radar Imagery***. CVPR workshop on Perception Beyond the Visual Spectrum (PBVS), 2016.
7. Aruni RoyChowdhury, Tsung-Yu Lin, Subhransu Maji and Erik Learned-Miller. ***One-to-many face recognition with bilinear CNNs***. Winter Conference on Applications of Computer Vision (WACV), 2016.
8. E Learned-Miller, G Huang, Aruni RoyChowdhury, H Li, G Hua. ***Labeled Faces in the Wild: A Survey***. Advances in Face Detection and Facial Image Analysis, Springer Heidelberg, 2016 [invited book chapter].
9. Tsung-Yu Lin, Aruni RoyChowdhury and Subhransu Maji. ***Bilinear CNN Models for Fine-grained Visual Recognition***. International Conference on Computer Vision (ICCV), 2015 **[oral]**.
10. D Dutta, A Roy Chowdhury, U Bhattacharya, SK Parui. ***Stroke level user-adaptation for stroke order free online handwriting recognition***. International Conference on Frontiers in Handwriting Recognition (ICFHR), 2014.
11. D Dutta, A Roy Chowdhury, U Bhattacharya, SK Parui. ***Building a Personal Handwriting Recognizer on an Android Device***. International Conference on Frontiers in Handwriting Recognition (ICFHR), 2012.
12. A Roy Chowdhury, U Bhattacharya, SK Parui. ***Scene text detection using sparse stroke information and MLP***. International Conference on Pattern Recognition (ICPR), 2012.
13. A Roy Chowdhury, U Bhattacharya, SK Parui. ***Text detection of two major Indian scripts in natural scene images***. ICDAR Workshop on Camera-Based Document Analysis and Recognition (CBDAR), 2011.

Teaching Experience

Fall	2016	Guest lecture in Computer Vision, Boston College
Summer	2015	Student Mentor, Research Experience for Undergraduates (REU)
Spring	2014	Teaching Assistant, CS 121: Introduction to Computing
Fall	2013	Teaching Assistant, CS 121: Introduction to Computing

Software Libraries

Proficient: PyTorch, MatConvNet.
Intermediate: Caffe.

Professional Service

- Reviewer: CVPR, ICCV, NeurIPS, TPAMI, CVIU.
- Webmaster: Face Detection Data Set and Benchmark (FDDB).
- Organizer: MLFL seminar series at UMass Amherst.
- Organizer: GRiD data science group at UMass Amherst.