Aruni RoyChowdhury

CONTACT
INFORMATION

385 South Catalina Avenue
Apt 220
Pasadena, CA 91106, USA.

(413) 345-3903
arunirc@cs.umass.edu
arunirc.github.io

RESEARCH
INTERESTS

Semi-supervised learning, domain adaptation, document understanding, object detection, fine-grained recognition.

EDUCATION

University of Massachusetts, Amherst *(2013–2020)*

– MS-PhD in Computer Science

Thesis: Improving Visual Recognition With Unlabeled Data.
Advisor: Erik Learned-Miller.
Committee: Liangliang Cao, Subhransu Maji, David Huber.

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

– B.Tech from Heritage Institute of Technology, Kolkata

PROJECTS &
EXPERIENCE

Amazon Web Services (AWS), Applied Scientist II

– *Apr. 2020 – current:* researcher in the Textract team.

University of Massachusetts, Amherst, Graduate Research Assistant

– *Sep. 2018 – Dec. 2019:* 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:* Deep face recognition using unlabeled data. Mentors: Xiang Yu, Kihyuk Sohn and Manmohan Chandraker.

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, Research 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

According to Google Scholar, as of Dec 2 2020 my papers have been cited 1846 times with an h-index of 10. Please check Google Scholar for the latest numbers.

1. Matheus Gadelha*, Aruni RoyChowdhury*, Gopal Sharma, Subhransu Maji, Rui Wang, Evangelos Kalogerakis, Liangliang Cao and Erik Learned-Miller. ***Label-efficient Learning on Point Clouds using Approximate Convex Decompositions.*** European Conference on Computer Vision (ECCV), 2020.

2. Aruni RoyChowdhury, Xiang Yu, Kihyuk Sohn, Erik Learned-Miller and Manmohan Chandraker. ***Improving Face Recognition by Clustering Unlabeled Faces in the Wild.*** European Conference on Computer Vision (ECCV), 2020.

3. 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.

4. 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.

5. 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.

6. 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.

7. Tsung Yu Lin, Aruni RoyChowdhury, Subhransu Maji. ***Bilinear CNNs for Fine-grained Visual Recognition.*** IEEE Transactions of Pattern Recognition and Machine Intelligence (PAMI), 2017.

8. 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.

9. 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.

10. 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].

11. Tsung-Yu Lin, Aruni RoyChowdhury and Subhransu Maji. ***Bilinear CNN Models for Fine-grained Visual Recognition.*** International Conference on Computer Vision (ICCV), 2015 [**oral**].

12. 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.

13. 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.

14. A Roy Chowdhury, U Bhattacharya, SK Parui. ***Scene text detection using sparse stroke information and MLP.*** International Conference on Pattern Recognition (ICPR), 2012.

15. 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.

PATENTS	1. Xiang Yu, Manmohan Chandraker, Kihyuk Sohn, Aruni RoyChowdhury. ***Deep Face Recognition based on Clustering over Unlabeled Face Data.*** *(pending)*

PROFESSIONAL SERVICE

– **Reviewing:**
  – Computer Vision and Pattern Recognition (CVPR) 2018, 2019, 2020, 2021.
  – International Conference on Computer Vision (ICCV) 2019.
  – European Conference on Computer Vision (ECCV) 2020.
  – Neural Information Processing Systems (NeurIPS) 2018.
  – Winter Conference on Applications of Computer Vision (WACV) 2021.
  – IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).
  – IEEE Transactions on Image Processing (TIP).
  – Computer Vision and Image Understanding (CVIU).
  – The Visual Computer (TVC), Springer.
  – IEEE Access.
– **Public benchmark:**
  – Maintaining the Face Detection Data Set and Benchmark (FDDB), used as a standard dataset for face detection by the computer vision research community.

MISC. AWARDS & GRANTS

– Outstanding Reviewer Award (CVPR 2019)
– Doctoral Consortium and travel award for the International Conference on Computer Vision (ICCV) 2019 in Seoul, Korea.
– UMass CICS Departmental travel grants for ICCV 2019 and CVPR 2019.

TEACHING & MENTORSHIP

Fall	2019	Teaching Assistant, CS 670: Graduate Computer Vision
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.