

# Aruni RoyChowdhury

---

CONTACT	<a href="mailto:arunirc@cs.umass.edu">arunirc@cs.umass.edu</a> <a href="https://github.com/arunirc">arunirc.github.io</a>
RESEARCH INTERESTS	Semi-supervised learning, domain adaptation, document understanding, object detection, fine-grained recognition.
EDUCATION	<p><b>University of Massachusetts, Amherst (2013–2020)</b></p> <ul style="list-style-type: none"><li>– MS-PhD in Computer Science</li><li>Thesis: Improving Visual Recognition With Unlabeled Data.</li><li>Advisor: Erik Learned-Miller.</li><li>Committee: Liangliang Cao, Subhransu Maji, David Huber.</li></ul> <p><b>West Bengal University of Technology, India (2009–2013)</b></p> <ul style="list-style-type: none"><li>– B.Tech from Heritage Institute of Technology, Kolkata</li></ul>
PROJECTS & EXPERIENCE	<p><b>Amazon Web Services (AWS), Applied Scientist II</b></p> <ul style="list-style-type: none"><li>– <i>Apr. 2020 – current:</i> researcher in the Textract team.</li></ul> <p><b>University of Massachusetts, Amherst, Graduate Research Assistant</b></p> <ul style="list-style-type: none"><li>– <i>Sep. 2018 – Dec. 2019:</i> DARPA Lifelong Learning Machines (L2M) project.</li><li>– <i>Sep. 2014 – Aug. 2018:</i> Face recognition project under IARPA’s Janus program.</li></ul> <p><b>Media Analytics, NEC Labs America, Summer Research Assistant</b></p> <ul style="list-style-type: none"><li>– <i>May–Aug., 2019:</i> Deep face recognition using unlabeled data. Mentors: Xiang Yu, Kihyuk Sohn and Manmohan Chandraker.</li></ul> <p><b>The Mathworks, Inc., Computer Vision Intern</b></p> <ul style="list-style-type: none"><li>– <i>May–Aug., 2017:</i> Developing object detection modules for the Computer Vision Toolbox. Mentor: Birju Patel.</li><li>– <i>Jun.–Aug., 2014:</i> Face recognition in MATLAB. Mentor: Dima Lisin.</li></ul> <p><b>Indian Statistical Institute, Kolkata, Research Intern</b></p> <ul style="list-style-type: none"><li>– <i>Dec., 2011 – Jul., 2013:</i> Scene text detection and online handwriting recognition. Mentors: Ujjwal Bhattacharya and Swapan K Parui.</li></ul> <p><b>Variable Energy Cyclotron Center, Dept. of Atomic Energy (India), Intern</b></p> <ul style="list-style-type: none"><li>– <i>Jun.–Jul., 2012:</i> Analysis of event data using Map-Reduce. Mentor: Amitava Ray.</li></ul>
PUBLICATIONS	<p>According to Google Scholar, as of Dec 2, 2020 my papers have been cited 1846 times with an h-index of 10. Please check <a href="#">Google Scholar</a> for the latest numbers.</p> <ol style="list-style-type: none"><li>1. Matheus Gadelha*, <a href="#">Aruni RoyChowdhury</a>*, Gopal Sharma, Subhransu Maji, Rui Wang, Evangelos Kalogerakis, Liangliang Cao and Erik Learned-Miller. <b><i>Label-efficient Learning on Point Clouds using Approximate Convex Decompositions.</i></b> European Conference on Computer Vision (ECCV), 2020.</li><li>2. <a href="#">Aruni RoyChowdhury</a>, Xiang Yu, Kihyuk Sohn, Erik Learned-Miller and Manmohan Chandraker. <b><i>Improving Face Recognition by Clustering Unlabeled Faces in the Wild.</i></b> European Conference on Computer Vision (ECCV), 2020.</li></ol>

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

*Students mentored at UMass:* Ashish Singh (now PhD at UMass), Prithvijit Chakraborty (now at Amazon AWS), Mikayla Timm (now at STR), Unnat Jain (now PhD at UIUC), Kundan Kumar (now PhD at MILA, Montreal) .

SOFTWARE  
LIBRARIES

*Proficient:* PyTorch, MatConvNet.  
*Intermediate:* Caffe.