# Emily M. Hand

*Curriculum Vitae*

## Education

2013–2018 **Doctor of Philosophy**, *University of Maryland*, College Park.

2013–2015 **Master of Science**, *University of Maryland*, College Park.

2009–2013 **Bachelor of Science in Computer Science and Engineering**, *University of Nevada*, Reno.

2009–2013 **Bachelor of Science**, *University of Nevada*, Reno, Applied Mathematics.

## Ph.D. Thesis

Title *Beyond Identity: What Your Face Says About You*

Supervisor Professor Rama Chellappa

Description This thesis explores what is needed to build robust models for human describable features of faces.

## Experience

### Research

May 2017 – Present **Research Intern**, Diffbot Inc., Mountain View, CA.
Use semantic segmentation to localize facial attributes for accurate face descriptions and improved face detections.

2013 – Present **Graduate Research Assistant**, University of Maryland, College Park, MD.
Improve attribute prediction for face verification in unconstrained face images using deep learning methods.

April 2015 – August 2015 **Research Intern**, Naval Research Laboratory, Washington, DC.
Developed a method for neural networks, regularizing the network, and facilitating training of deeper networks.

Summer 2014 **Research Intern**, NASA Jet Propulsion Laboratory, Pasadena, CA.
Incorporated stereo data into Random Forest classification of geologic types.

Summer 2012, 2013 **Research Intern**, NASA AMES, Moffett Field, CA.
Developed a structure from motion framework compatible with other localization techniques for use on low-resolution rover and high-resolution planetary images with the Advanced Navigation subgroup of the Intelligent Robotics Group.

Nov. 2010 – Dec. 2012 **Undergraduate Research Assistant**, University of Nevada, Reno, NV.
Improved performance of template tracking system using Random Projections in place of Principal Component Analysis for dimensionality reduction.

Summer 2011 **NSF REU Participant**, University of Central Florida, Orlando, FL.
Developed a template-based tracking framework for use in a larger human tracking system.

*4438 AV Williams University of Maryland – College Park, MD 20742*
*(775) 313 4139 • emhand@cs.umd.edu • cs.umd.edu/∼emhand*

### Teaching

Fall 2017 **Co-Instructor**, Machine Learning, University of Maryland.
Gave lectures, created and graded homework, programming projects, and exams, and held office hours for undergraduate Machine Learning class.

August 2013 – May 2014 **Graduate Teaching Assistant**, Artificial Intelligence, University of Maryland.
Created and graded homework, quizzes, programming projects, and exams for undergraduate Artificial Intelligence class.

Fall 2012 **Undergraduate Teaching Assistant**, Analysis of Algorithms, University of Nevada.
Graded homework and programming projects, and held office hours for undergraduate Algorithms class.

## Service

August 2017–Present **Chair**, UMD Computer Science Graduate Organization.

Feb. 2017 – Present **Facilitator (Instructor)**, Girls Who Code.

2016–Present **Student Member**, AAAI.

2014–Present **Student Member**, ACM.

2014–Present **Student Member**, IEEE.

2013–Present **Student Member**, SIAM.

Jan. 2011 – May 2013 **UNR Student Member**, ACM.

Nov. 2010 – May 2013 **UNR Student Member and Chair**, Women into Computer Science and Engineering (WiCSE).

## Awards and Honors

2017-Present University of Maryland Future Faculty Fellow

2013-2015 University of Maryland Dean's Fellowship

2014 NSF Graduate Research Fellowship Program, Honorable Mention

## Competitions

2016 "Attributes for Improved Attributes: A Multi-Task Network for Attribute Recognition" abstract accepted into the University of Maryland Graduate Research Appreciation Day.

2014 "Higher-Order Contract Counterexamples" abstract accepted into the ACM Student Research Competition of the International Conference on Functional Programming.

## Conference Publications

2018 **Emily M. Hand**, Carlos Castillo, Rama Chellappa, *"Predicting Facial Attributes in Video using Temporal Coherence and Motion-Attention,"* Winter Conference on Applications of Computer Vision, 2018.

**Emily M. Hand**, Carlos Castillo, Rama Chellappa. *"Doing the Best We Can with What We Have: Multi-Label Balancing with Selective Learning for Attribute Prediction,"* in AAAI Conference on Artificial Intelligence, 2018.

2017 **Emily M. Hand** and Rama Chellappa. *"Attributes for Improved Attributes: A Multi-Task Network Utilizing Implicit and Explicit Relationships for Facial Attribute Classification,"* in AAAI Conference on Artificial Intelligence, 2017.

2016 Maya Kabkab, **Emily M. Hand**, Rama Chellappa, *"On the Size of Convolutional Neural Networks and Generalization Performance,"* in International Conference on Pattern Recognition, 2016.

Leslie N. Smith, **Emily M. Hand**, Timothy Doster, *"Gradual DropIn of Layers to Train Very Deep Neural Networks,"* in Computer Vision and Pattern Recognition, 2016.

2014 A.V. Nefian, X. Bouyssounouse, L. Edwards, T. Kim, **E. M. Hand**, J. Rhizor, M. Deans, G. Bebis, T. Fong, *"Planetary Rover Localization within Orbital Maps,"* in the International Conference on Image Processing, 2014

**Emily M. Hand**, Darsana Josyula, Matthew Paisner, Elizabeth McNany, Michael T. Cox and Don Perlis, *"Two Approaches to Implementing Metacognition,"* in The Sixth International Conference on Advanced Cognitive Technologies and Applications, COGNITIVE 2014.

2013 Don Perlis, Mike Cox, Michael Maynord, Elizabeth McNany, Matthew Paisner, Vika Shivashankar, **Emily M. Hand**, Jared Shamwell, Tim Oates, Tongchun Du, Darsana Josyula and Manual Caro, *"A Broad Vision for Intelligent Behavior: Perceptual Real-World Cognitive Agents,"* in Advances in Cognitive Systems, Workshop on Metacognition and Artificial Situated Agents 2013.

2012 Guang Shu, Afshin Dehghan, Omar Oreifej, **Emily M. Hand**, Mubarak Shah, *"Part-based Multiple-Person Tracking with Partial Occlusion Handling,"* in Computer Vision and Pattern Recognition, 2012.

## Book Chapters

2017 Pouya Samangouei, **Emily M. Hand**, Vishal M. Patel, Rama Chellappa (2017). *"Active Authentication Using Facial Attributes,"* in Guodong Guo and Harry Wechsler (Eds.) Mobile Biometrics (pp. 131-153), London, UK, The Institution of Engineering and Technology.