

Emily Hand

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EDUCATION

Doctor of Philosophy, Computer Science
Master of Science, Computer Science
University of Maryland College Park

Expected August, 2018
2015

Bachelor of Science in Computer Science and Engineering, magna cum laude
Bachelor of Science, Applied Mathematics, magna cum laude
University of Nevada Reno

2013
2013

EXPERIENCE

Graduate Research Assistant

University of Maryland, College Park

August 2014-present

- Improve attribute prediction for face verification in unconstrained face images using deep learning methods.
- Utilize relationships amongst attributes to improve prediction.

Research Intern

Naval Research Laboratory

April 2015-August 2015

- Developed a method for neural networks, regularizing the network, and facilitating training of deeper networks.
- Worked on a team tasked with creating an automatic video surveillance system.

Research Intern

NASA Jet Propulsion Laboratory

May 2014-August 2014

- Incorporated stereo data into Random Forest classification of geologic types.
- Performed exhaustive testing on four new datasets collected from the Mojave Desert.
- Improved classification performance over the original algorithm by as much as 10% on some datasets.

Graduate Research and Teaching Assistant

University of Maryland, College Park

August 2013-May 2014

- Created and graded homework, quizzes, programming projects, and exams for Artificial Intelligence class.
- Integrated internal and external meta-cognition into an artificial dialog agent (ALFRED) used as an interface for a task-oriented domain.

Research Intern

NASA AMES Research Center

May 2012-August 2012, May 2013-August 2013

- 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.

Undergraduate Research Assistant

University of Nevada, Reno

November 2010-December 2012

- Improved performance of template tracking system using Random Projections in place of Principal Component Analysis for dimensionality reduction.
- Integrated Sparse Bundle Adjustment into the Structure from Motion system to improve accuracy.

NSF REU Participant

- Developed a template-based tracking framework for use in a larger human tracking system with a Ph.D. candidate.

SERVICE

WICSE: Women into Computer Science and Engineering UNR Student Member	2010-2013
ACM UNR Student Member	2011-2013
SIAM Student Member	2013-present
IEEE Student Member	2014-present
ACM Student Member	2014-present

AWARDS AND HONORS

Dean's List University of Nevada, Reno	2009-2013
Computer Science and Engineering Senior Service Award	2013
Computer Science Dean's Fellowship University of Maryland, College Park	2013-2015
NSF Graduate Research Fellowship Program, Honorable Mention	2014
University of Maryland Future Faculty Fellow	2017

COMPETITIONS

1. "Higher-Order Contract Counterexamples" abstract accepted into the ACM Student Research Competition of the International Conference on Functional Programming, 2014.
2. "Attributes for Improved Attributes: A Multi-Task Network for Attribute Recognition" abstract accepted into the University of Maryland Graduate Research Appreciation Day, 2016.

CONFERENCE AND WORKSHOP PUBLICATIONS

1. Guang Shu, Afshin Dehghan, Omar Oreifej, **Emily Hand**, Mubarak Shah, "Part-based Multiple-Person Tracking with Partial Occlusion Handling," in Computer Vision and Pattern Recognition, 2012.
2. Don Perlis, Mike Cox, Michael Maynord, Elizabeth McNany, Matthew Paisner, Vika Shivashankar, **Emily 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.
3. **Emily 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.
4. A.V. Nefian, X. Bouysounouse, L. Edwards, T. Kim, **E. Hand**, J. Rhizor, M. Deans, G. Bebis, T. Fong, "Planetary Rover Localization within Orbital Maps," in the International Conference on Image Processing, 2014.
5. 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.
6. Maya Kabkab, **Emily M. Hand**, Rama Chellappa, "On the Size of Convolutional Neural Networks and Generalization Performance," in International Conference on Pattern Recognition, 2016.
7. **Emily M. Hand**, Rama Chellappa. "Attributes for Improved Attributes: A Multi-Task Network Utilizing Implicit and Explicit Relationships for Facial Attribute Classification," AAAI Conference on Artificial Intelligence, 2017.