

## Md Jawadul Hasan Bappy

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### Education

**Ph.D. Candidate, Electrical and Computer Engineering,  
University of California, Riverside (UCR).**  
CGPA: **4.00/4.00**, Sep 2013- Mar 2018(Expected).  
Advisor: Dr. Amit K. Roy-Chowdhury

**B.S. in Electrical and Electronic Engineering, 2012  
Bangladesh University of Engineering and Technology (BUET)**

### Research Interest

Computer Vision, Deep Learning, Advanced Machine Learning, Image and Video analysis, Active Learning, Reinforcement Learning.

### Selected Publications

#### Journal Papers:

- A. T. Kamal, **J. H. Bappy**, J. A. Farrell and A. Roy-Chowdhury, ‘*Distributed Multi-target Tracking and Data Association in Vision Networks*’, IEEE Transactions on Pattern Analysis and Machine Intelligence (**PAMI**), 2016.
- C. Ding, **J. H. Bappy**, J. A. Farrell and A. Roy-Chowdhury, ‘*Opportunistic Image Acquisition of Individual and Group Activities in a Distributed Camera Network*’, IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), 2016.
- **J. H. Bappy**, S. Paul, E. Tuncel and A. Roy-Chowdhury, ‘*Typicality-Based Subset Selection for Visual Recognition*’, IEEE Journal of Selected Topics in Signal Processing, 2018, under review.

#### Conference Papers:

- **J. H. Bappy**, A. Roy-Chowdhury, J. Bunk, L. Nataraj, and B.S. Manjunath, ‘*Exploiting Spatial Structure for Localizing Manipulated Image Regions*’, International Conf. on Computer Vision (**ICCV**), 2017.
- **J. H. Bappy**, S. Paul, E. Tuncel, and A. Roy-Chowdhury, ‘*The Impact of Typicality for Informative Representative Selection*’, IEEE Conf. on Computer Vision and Pattern Recognition (**CVPR**), 2017.
- S. Paul, **J. H. Bappy** and A. Roy-Chowdhury, ‘*Non-Uniform Subset Selection for Active Learning in Structured Data*’, IEEE Conf. on Computer Vision and Pattern Recognition (**CVPR**), 2017.
- T.M. Mohammed, J. Bunk, L. Nataraj, **J. H. Bappy**, A. Flenner, B.S. Manjunath, S. Chandrasekaran, A.K. Roy-Chowdhury, and L. Peterson, ‘*Boosting image forgery detection using resampling features and copy-move analysis*’, IS&T International Symposium on Electronic Imaging, 2018.

- J. Bunk, **J. H. Bappy**, T. Mohammed, L. Nataraj, A. Flenner, B. Manjunath, S. Chandrasekaran, A. Roy-Chowdhury, L. Peterson, ‘*Detection and Localization of Image Forgeries using Resampling Features and Deep Learning*’, **CVPR Workshop** on Media Forensic, 2017.
- **J. H. Bappy**, S. Paul, and A. Roy-Chowdhury, ‘*Online Adaptation for Joint Scene and Object Classification*’, European Conf. on Computer Vision (**ECCV**), 2016.
- **J. H. Bappy**, J. Barr, N Srinivasan, A. Roy-Chowdhury, ‘*Real Estate Image Classification*’, IEEE Winter Conf. on Applications of Computer Vision (**WACV**), 2017.
- **J. H. Bappy** and A. Roy-Chowdhury, ‘*Inter-dependent CNNs for Joint Scene and Object Recognition*’, International Conf. on Pattern Recognition(**ICPR**) (**Oral**), 2016.
- **J. H. Bappy** and A. Roy-Chowdhury, ‘*CNN Based Region Proposals for Efficient Object Detection*’, IEEE International Conf. on Image Processing (**ICIP**), 2016.
- S. Paul, **J. H. Bappy** and A. Roy-Chowdhury, ‘*Efficient Selection of Informative and Diverse Training Samples with Applications in Scene Classification*’, **ICIP (Oral)**, 2016.

## Research Experience

### Research Intern, HomeUnion Inc.

Irvine, CA (Summer **2015**, Summer **2016**)

- **Research Problem.** Scene classification, and Anomaly detection from real estate images.
  - End-to-end training of deep networks such as CNN and LSTM.

### Graduate Research Assistant, UCR (Prof. Amit K. Roy-Chowdhury)

- **Image Forgery Detection:**
  - Exploring CNN and LSTM based models for localizing tampered regions.
- **Active Learning:**
  - Explored information-theoretic approaches for finding the most informative subset of samples to train a recognition model.
  - Applications: scene and object recognition, as well as activity classification.
- **Scene and Object Classification:**
  - Designed the interaction between two Convolutional Neural Networks (CNNs) in order to improve scene and object classification performance.
  - Developed CNN based approach for localizing objects in an image.
- **Other Projects:**
  - *Multi-target Tracking*: Explored information-weighted based algorithm.
  - *Detection of HLB Disease from Citrus Leaves*: Developed a simple, cost-effective system based on computer vision algorithms.

### Undergraduate Research Project, BUET

-*Person Identification using ECG Signal*: Preprocessing of ECG samples, Extraction of features, Classification and identification of feature vectors.

<b>Academic Honors and Awards</b>	<ul style="list-style-type: none"> <li>• <b>Dissertation Year Program (DYP) Fellowship Award</b>, UCR. (F17)</li> <li>• <b>Doctoral Consortium Award</b>, ICCV Conference'17.</li> <li>• <b>Dean's Distinguished Fellowship Award</b>, UCR. (F13, S17, W18)</li> <li>• <b>GSA Travel Grant (2016, 2017)</b> for attending ECCV and CVPR.</li> <li>• <b>Bangladesh-Sweden Trust Fund (2013)</b> for higher study abroad.</li> <li>• <b>Best Poster Award</b> in Research Presentation Competition in Signal Processing and Communications field organized by IEEE WIE in Bangladesh 2011.</li> <li>• <b>Dean's List Scholar (2011)</b> at Bangladesh University of Eng. and Tech.</li> <li>• <b>Government Board Scholarship (2004, 2006)</b> for outstanding results in both Secondary and Higher-Secondary School Certificate exams.</li> </ul>
<b>Professional Services</b>	<p><b>Reviewer:</b></p> <ul style="list-style-type: none"> <li>• <i>Journal</i>: TCSVT, TIP.</li> <li>• <i>Conference</i>: ICCV, CVPR, ECCV, ICIP, ICPR.</li> </ul> <p><b>Affiliation:</b> IEEE, CVF.</p>
<b>Technical Skills</b>	<p><b>Programming Skill.</b> Matlab, Python, C++ (OpenCV), x86 Assembly language, Java.</p> <p><b>Deep Learning Tools.</b> TensorFlow and Caffe.</p> <p><b>Operating System.</b> Windows, Linux.</p> <p><b>Other Skills.</b> MS Office, Latex, HTML, Shell Script.</p>
<b>Invited Talks</b>	<ul style="list-style-type: none"> <li>• Research Talk, <b>CVPR Workshop on Continuous and Open-set Learning</b>, Honolulu, Hawaii (July 2017).</li> <li>• Real Estate Image Classification, <b>WACV</b>, Santa Rosa, CA (March 2017).</li> <li>• Active Learning for Scene classification, <b>ICIP</b> Conference, Phoenix (Sep 2016).</li> </ul>
<b>Teaching Experience</b>	<p><b>Graduate Teaching Assistant (TA)</b>, Dept. of ECE, UCR.</p> <ul style="list-style-type: none"> <li>• <b>Course:</b> EE 236- State and Parameter Estimation (W15, W16)</li> </ul> <p><b>Lecturer</b>, Dept. of EEE, <b>Green University of Bangladesh</b> (Aug'12-Aug'13)</p> <ul style="list-style-type: none"> <li>• <b>Courses Instructed:</b> Digital Signal Processing, Communication Theory, Wireless and Mobile Communication.</li> </ul>
<b>Related Coursework</b>	<p>Advanced Computer Vision, Machine Learning, Stochastic Process, Probabilistic Graphical Model, Information Theory.</p> <p>Independent Study: <b>Deep Learning, and Reinforcement Learning.</b></p>
<b>References</b>	<p>Available upon request.</p>