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Education

**Ph.D. Candidate, Electrical and Computer Engineering,
University of California, Riverside (UCR).**
CGPA: **4.00/4.00**, Sep 2013- Feb 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.

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 (accepted).
- A. Flenner, J. Bunk, T.M. Mohammed, L. Nataraj, **J. H. Bappy**, L. Peterson, B.S. Manjunath, S. Chandrasekaran, A.K. Roy-Chowdhury, ‘*Resampling Forgery Detection using Deep Learning and A-contrario analysis*’, IS&T International Symposium on Electronic Imaging, 2018 (accepted).

- 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.

Academic Honors and Awards	<ul style="list-style-type: none"> • Dissertation Year Program (DYP) Fellowship Award, UCR. (Fall'17) • Doctoral Consortium Award, ICCV Conference'17. • Dean's Distinguished Fellowship Award, UCR. (Fall'13, Spring'17) • GSA Travel Grant (2016, 2017) for attending ECCV and CVPR. • Bangladesh-Sweden Trust Fund (2013) for higher study abroad. • Best Poster Award in Research Presentation Competition in Signal Processing and Communications field organized by IEEE WIE in Bangladesh 2011. • Dean's List Scholar (2011) at Bangladesh University of Eng. and Tech. • Government Board Scholarship (2004, 2006) for outstanding results in both Secondary and Higher-Secondary School Certificate exams.
Professional Services	<p>Reviewer:</p> <ul style="list-style-type: none"> • <i>Journal</i>: TCSVT, TIP. • <i>Conference</i>: ICCV, CVPR, ECCV, ICIP, ICPR. <p>Affiliation: IEEE, CVF.</p>
Technical Skills	<p>Programming Skill. Matlab, Python, C++ (OpenCV), x86 Assembly language, Java.</p> <p>Deep Learning Tools. TensorFlow and Caffe.</p> <p>Operating System. Windows, Linux.</p> <p>Other Skills. MS Office, Latex, HTML, Shell Script.</p>
Invited Talks	<ul style="list-style-type: none"> • Research Talk, CVPR Workshop on Continuous and Open-set Learning, Honolulu, Hawaii (July 2017). • Real Estate Image Classification, WACV, Santa Rosa, CA (March 2017). • Active Learning for Scene classification, ICIP Conference, Phoenix (Sep 2016).
Teaching Experience	<p>Graduate Teaching Assistant (TA), Dept. of Electrical and Computer Engineering, UCR.</p> <ul style="list-style-type: none"> • Course. EE 236: State and Parameter Estimation (Winter 2015) • Course. EE 236: State and Parameter Estimation (Winter 2016) <p>Lecturer, Dept. of Electrical and Electronic Eng., Green University of Bangladesh (Aug 2012-Aug 2013)</p> <ul style="list-style-type: none"> • Courses Instructed: Digital Signal Processing I, Communication Theory, Wireless and Mobile Communication. • Laboratory: Communication Lab, Digital Signal Processing I Lab, Power Electronics Lab.
Related Coursework	<p>Advanced Computer Vision, Machine Learning, Stochastic Process, Probabilistic Graphical Model, Information Theory.</p> <p>Independent Study: Deep Learning, and Reinforcement Learning.</p>
References	Available upon request.