

# Rakib Al-Fahad

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CONTACT INFORMATION	<p>ralfahad@memphis.edu 901-279-4128 <a href="http://cvpia.memphis.edu/lab-members/rakib-al-fahad/">http://cvpia.memphis.edu/lab-members/rakib-al-fahad/</a></p>	<p>631 Patterson st. Apt # 7 Memphis, TN 38111</p>												
EDUCATION	<p><b>Ph.D. in Engineering (Spring 2015 - Present)</b> The University of Memphis, Memphis, TN</p> <ul style="list-style-type: none"><li>• <b>Major Concentration:</b> Computer Engineering</li><li>• Current CGPA : 3.77/4.00</li></ul> <p><b>MS in Electrical &amp; Computer Engineering (May 2016)</b> The University of Memphis, Memphis, TN, USA</p> <p><b>B.Sc in Electronics &amp; Communication Engineering (May 2006)</b> Khulna University of Engineering &amp; Technology Khulna, Bangladesh</p>													
SPECIALIZATION	<ul style="list-style-type: none"><li>• Exploratory data analysis, visualization and pattern analysis</li><li>• Feature selection in higher dimensional data with a limited sample size</li><li>• Classical machine learning, clustering, and regression analysis</li><li>• Connectivity analysis, visualization and graph mining</li><li>• Bayesian non-parametric methods for clustering and time series analysis</li><li>• Recurrent neural network analysis for time series prediction, classification, and forecasting</li><li>• Convolutional neural network, transfer learning, and generative adversarial networks</li><li>• Representations and visualization of visual concepts learned by convnets.</li><li>• Big data analysis in a distributed computing system using Scala and Apache Spark</li></ul>													
TECHNICAL SKILLS	<p><b>Programming Language:</b> Python, R, C++, Matlab, Scala, Shell Scripting, SQL</p> <p><b>Operating Systems:</b> Windows, macOS, Ubuntu</p> <p><b>Publishing:</b> L<sup>A</sup>T<sub>E</sub>X</p> <p><b>Machine Learning tools:</b> Scikit-learn, Tensorflow, Keras, MLlib</p> <p><b>Graph Mining:</b> Gephi, GraphX</p> <p><b>MRI analysis:</b> AFNI, FreeSurfer, FSL</p>													
PROFESSIONAL EXPERIENCE	<table><tr><td><b>Intel Corporation</b></td><td></td></tr><tr><td><b>Machine Learning Intern</b></td><td><b>Feb 2019 – Present</b></td></tr></table> <ul style="list-style-type: none"><li>• Building machine-learning based products/solutions, which provide descriptive, diagnostic, predictive, or prescriptive models based on data.</li><li>• Use or develop machine-learning algorithms, such as supervised and unsupervised learning, deep learning, reinforcement learning, Bayesian analysis and others, to solve applied problems in various disciplines such as Data Analytics, Computer Vision, Robotics, etc.</li><li>• Interact with users to define requirements for breakthrough product/solutions. In either research environments or specific product environments, utilizes current programming methodologies to translate machine learning models and data-processing methods into software.</li><li>• Completes programming, testing, debugging, documentation and/or deployment of the solution/products. Engineers Big Data computing frameworks, data modeling and other relevant software tools.</li></ul> <table><tr><td><b>The University of Memphis</b></td><td></td></tr><tr><td><b>Graduate Teaching Assistant</b></td><td><b>Fall 2013 – Present</b></td></tr></table> <p>Courses Taught: Intro EECE Lab, Electronics I, Signals &amp; Systems II, Image Processing, Pattern Recognition.</p> <table><tr><td><b>Grameenphone Ltd., Bangladesh</b></td><td></td></tr><tr><td><b>Senior System Engineer, Operations, Technology</b></td><td><b>28 Sept 2006 – 22 Sept 2013</b></td></tr></table> <ul style="list-style-type: none"><li>• Handle the Core Node, Transmission(Core-TX, SDH, and PDH) and BTS faults in the network</li><li>• Handle Switch location power fault handling and Core Node</li></ul>		<b>Intel Corporation</b>		<b>Machine Learning Intern</b>	<b>Feb 2019 – Present</b>	<b>The University of Memphis</b>		<b>Graduate Teaching Assistant</b>	<b>Fall 2013 – Present</b>	<b>Grameenphone Ltd., Bangladesh</b>		<b>Senior System Engineer, Operations, Technology</b>	<b>28 Sept 2006 – 22 Sept 2013</b>
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- Carry out preventive maintenance for TX/BTS/Core sites in the network
- Carry-out the Work Requests from other departments
- Improvement/Development/optimization works of existing network
- Assist team leader to carry out day to day work smoothly and reporting
- Quality assurance of new site and optimization work.

## RESEARCH EXPERIENCE

### Computer Vision, Perception, and Image Analysis (CVPIA) Lab, UofM:

**Project:** Neural dynamics underlying the emergence of auditory categorization and learning: PI: Gavin M. Bidelman, Co-I: M. Yeasin, UofM ECE)- NIH-NIDCD R01 - \$1,879,543 - 5/18-4/23 : This project will support our work to better understand not only the neurobiology of normal perception of speech, music and auditory learning, but also inform potential interventions for certain communication problems that impair the fundamental process of categorizing sounds.

**Project:** Neuroimaging based predictive modeling of cognitive events:

This is collaborative project with St. Jude Children's Research Hospital, Memphis, TN led by Dr. Mohammed Yeasin and Dr. Wilburn Reddick, Dr. Madhusudhanan Balasubramanian and Dr. Gavin M. Bidelman. The main goal of this neuroimaging based project is to understand and model of cognitive event, model cognitive event using network description and analyze time-varying network description.

**Project:** Human Connectome Project:

Mapping of the human connectome offers a unique opportunity to understand the complete details of neural connectivity. The main goal is to:

- Find out individual difference from human brain connectivity using deep learning and graph mining approach led by Dr. Mohammed Yeasin and Dr. Abbas Babajani-Feremi.
- Model epistemic state of mind and color of emotion from the electroencephalogram (EEG) and physiological data. This research is integral part of the ongoing blind ambition project led by Dr. Mohammed Yeasin.

## PUBLICATIONS

- Al-Fahad, R., Yeasin, M., Anam, A.I. and Elahian, B., 2017, May. Selection of stable features for modeling 4-D affective space from EEG recording. In Neural Networks (IJCNN), 2017 International Joint Conference on (pp. 1202-1209). IEEE.
- Al-Fahad, R. and Yeasin, M., 2016, December. Robust modeling of continuous 4-d affective space from eeg recording. In Machine Learning and Applications (ICMLA), 2016 15th IEEE International Conference on (pp. 1040-1045). IEEE.
- Ahmed, F., Mahmud, M. S., Al-Fahad, R., Alam, S., and Yeasin, M. 2018, April. Image Captioning for Ambient Awareness on a Sidewalk. In Data Intelligence and Security (ICDIS), 2018 1st International Conference on (pp. 85-91). IEEE.
- Yeasin, Mohammed, Mohsen Maniat, and Rakib Al-Fahad. "Optimal packaging of high value, temperature sensitive, perishable products."

## PRESENTATION

- Rakib Al-Fahad, M.Y, J Glass, H. Conklin, L. Jacola, W. Reddick, 2017. Early Imaging Based Predictive Modeling of Cognitive Performance Following Therapy for Childhood ALL. In OHBM 2017, Poster Number: 3910
- Rakib Al-Fahad, M.Y., 2016. What does Band Frequency Activities Tells us about the 4-D Affect Space? In OHBM 2016, Poster Number: 3395

IMMIGRATION STATUS **F-1** visa holder