

Résumé

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Summary of experience and qualification

- PhD in Computer Science and Biomedical Engineering from the University of Southampton, UK.
- 2 years of Postdoctoral Fellowship in Biomedical and rehabilitation Engineering from the University of Toronto, Canada.
- 7 years of experience in research, with more than 50 articles published as monographs, books sections, international journals, conferences and short papers. Acted as international journal and conference reviewer.
- Research featured in news outlets including New Scientist and BCC.
- 5 years of experience in supervising and examining graduate and undergraduate research, with 3 PhD students, 5 Masters students and 20 Undergraduate students theses, 6 Undergraduate internship/summer students research project supervision.
- 7 years of experience in university teaching in both graduate and undergraduate levels.
- Experience in system analysis and software development, smart systems and mobile applications, computer networks.
- Experience in writing research grant applications.
- Delivered more than 25 presentations as invited speaker, conference, workshop and seminar presenter.
- Experience in working on scientific knowledge translation (from research to commercialization of medical device, Aspirometer).
- Achieved Khanbahadur Ahsanullah Podak (Gold Medal) for securing the highest CGPA (3.931 on a scale of 4.0) in the Bachelor Degree program of the year 2002.

Research Interest

- Intelligent Systems
- Brain Machine Interface (BMI)
- Signal and Image Processing
- Pattern Recognition and Machine learning
- Neurocomputing
- Access communication and Assistive Technologies
- Human Computer Interaction (HCI)
- Feature Extraction and Classification of Biomedical signals
- Mobile Technology for Health Care Applications
- Health Informatics
- Education Quality Management
- Distance learning and technology enhance leaning
- Mobile applications for diagnostics and health management

Teaching Interest

Undergraduate Courses

- Programming Language (C/C++)
- Data Structure and Algorithms
- Discrete Mathematics
- Digital Logic Design
- Digital System Design
- Information System Design
- Artificial Intelligence
- Computer Networks
- Biomedical Engineering
- Data Mining
- Research Methods

Graduate Courses

- Pattern Recognition
- Human Machine Interface Systems
- Biomedical Applications of Signal Processing
- Assistive Technologies
- Bioinformatics
- Intelligent systems
- Advanced Database System
- Research Methods
- Machine Learning
- Rehabilitation Engineering
- Digital Signal Processing

Education

- PhD** Computer Science and Biomedical Engineering, University of Southampton, UK, 2012.
 Dissertation: **Pattern Identification of Movement Related States in Biosignals**
 Supervisor: Prof. Shouyan Wang, University of Southampton, UK
 Examiner: Prof. John Stein, University of Oxford, UK and Chair, Dyslexia Research Trust, UK
 Dr. David Simpson, University of Southampton, UK
- MSc** Computer Science and Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, 2007.
 Dissertation: **Memory Efficient Data Structure for Static Huffman Tree**
 Supervisor: Prof. Md. Mostofa Akbar, Bangladesh University of Engineering and Technology, Bangladesh
- BSc** Computer Science and Engineering, Ahsanullah University of Science and Technology (AUST), Dhaka, Bangladesh, (Ranked First in order of merit), 2002.
 Dissertation: Architecture of Enterprise Resource Planning (ERP) for a Group of Companies
 Supervisor: Dr. Tamjidul Hoque, University of New Orleans, USA.

Work Experience

- Oct 2014 – to date **United International University (UIU), Dhaka, Bangladesh.**
 Associate Professor, Department of Computer Science & Engineering (CSE)
 Director, AIMS Lab (Advance Intelligent Multidisciplinary Systems Lab)
 Associate Director, Center for IT Professionals Development (CIPD)
Duties:
 - Responsible for teaching and tutoring Graduate and Undergraduate courses, supervising student theses/projects, assessing course works and lab reports, course curriculum development, advising students as well as involved in different administrative roles.
 - Responsible for managing the research of AIMS Lab, establishing new research initiatives and knowledge translation.
 - Responsible for organizing training and development program for IT professionals at CIPD and managing the industry and academia collaborations.
Courses Taught:
 • Data Structures and Algorithms, Programming Language (C, C++, Matlab), Pattern Recognition, Software Development Lab, Research Methods, Intelligent Systems.
- May 2012 – Jul 2014 **University of Toronto, Toronto, Ontario, Canada**
 Research Fellow, Institute of Biomaterials and Biomedical Engineering (IBBME),
 Research Fellow (Cross appointment), Holland Bloorview Kids Rehabilitation Hospital
 (Canada's largest children's rehabilitation teaching hospital), Toronto, Canada.
Duties:
 - Responsible for researching on projects related to Intelligent Systems, Medical Diagnostic Devices, Signal Processing, Machine Learning, Assistive Technologies and Brain Machine Interfaces.
 - Teaching and supervising Graduate and Undergraduate students.
 - Writing reports, research papers and developing research grant applications.
Courses Taught:
 • Signal Processing, Pattern Classification, Assistive Technologies, Matlab.
Projects:
 • Development and evaluation of accelerometry based swallowing impairment (dysphagia) detection (healthy vs. pathological) device (Aspirometer).
 • Investigation of handwriting kinetics and kinematics for the application of biometric authentication.
 • Design and development of tongue movement accelerometer based HMI for access Communications.

- Investigation to identify biomarkers based on physiological responses of youth with severe disabilities for defining optimal environments.
- Dynamic topographic visualization and quantification of a multichannel surface EMG grid array for medical diagnostic applications.
- Design and evaluation of a hands-free EMG-controlled pitch modulation for the Electrolarynx.
- Design and evaluation of transcranial doppler (TCD) ultrasonography driven online brain computer interface.
- Design and evaluation of selective auditory attention via transient evoked otoacoustic emissions for developing HMI for access communication device.

Jun 2006 – Oct 2014

Ahsanullah University of Science and Technology (AUST), Dhaka, Bangladesh.

Assistant Professor, Department of Computer Science & Engineering (CSE)

Duties:

- Responsible for teaching and tutoring undergraduate courses, supervising student theses/projects, assessing course works and lab reports, course curriculum development, advising students as well as involved in different administrative roles.

Courses Taught:

- Data Structures and Algorithms, Programming Language (C, C++), Computer Networks, Numerical Methods, Discrete Mathematics, Digital Logic and System Design, Information System Design, Software Development Lab.

Oct 2009 – Jul 2012

University of Southampton, Southampton, Southampton, UK

Par-time Lecturer / Demonstrator, Faculty of Engineering and the Environments

Duties:

- Responsible for teaching, assessing course works and tutoring students for a number of courses.

Courses Taught:

- *Undergraduate level:* Computing using Python, Modelling and Computing, Algorithm
- *PhD level:* Research methods and presentation skills

Oct 2008 – Jul 2012

University of Southampton, Southampton, Southampton, UK

PhD Research Student, Institute of Sound and Vibration Research

Duties:

- Performed research on biomedical signal processing and pattern classification for the development of HMI and BMI.

Projects:

- Developed an efficient algorithm for translating tongue movement ear pressure (TMEP) signals as command to establish communication for the individuals with disabilities (assistive human machine interface).
- Proposed novel neural decoding algorithm for identifying movement related states from deep brain local field potentials (LFPs) recorded through deep brain stimulation (DBS) electrodes in the development of brain machine interface (BMI) to improve therapeutic intervention (for Parkinson's disease) and neuro-rehabilitations.
- Developed an efficient feature selection strategy (Weighted Sequential Feature Selection (WSFS)) to facilitate high dimensional small sample size biomedical signal classification.

Nov 2007 – Jul 2008

King Saud University (KSU), Riyadh, Saudi Arabia.

Researcher, College of Computer and Information Sciences (CCIS)

Duties:

- Responsible for researching on automatic speech recognition.

- Teaching, assessing course works and tutoring undergraduate students.

Courses Taught:

- Control system, Signal processing and pattern classification, Programming language

Projects:

- Investigation of automatic speech recognition for Arabic speech.
- Investigation of automatic Arabic speaker identification system.
- Signal processing for improving automatic speech recognition.

Apr 2003 – Jun 2006

Ahsanullah University of Science and Technology (AUST), Dhaka, Bangladesh.

Lecturer, Department of Computer Science & Engineering (CSE)

Duties:

- Responsible for teaching and tutoring undergraduate courses, supervising student projects, assessing course works and lab reports, course module and laboratory development, advising students as well as involved in different administrative roles.

Courses Taught:

- Programming Language (C, C++), Computer Architecture, Numerical Methods, Discrete Mathematics, Digital Logic and System Design, Information System Design, Software Engineering, Database Management (Lab using Oracle).

Oct 2002 – Apr 2003

Ahsanullah University of Science and Technology (AUST), Dhaka, Bangladesh.

Lecturer (Part-time), Department of Computer Science & Engineering (CSE)

Duties:

- Responsible for teaching, assessing course works and tutoring undergraduate students.

Courses Taught:

- Programming Language (C, C++), Digital System Design

Oct 2004 – Oct 2007

Ahsanullah University of Science and Technology (AUST), Dhaka, Bangladesh.

CCNA Instructor (part-time), Cisco Networking Academy Program (CNAP).

Duties:

- Worked as an instructor for Cisco Certified Network Associate (CCNA) course under Cisco Networking Academy Program (CNAP). Also worked as an active member for establishing Cisco Networking Academy Program and Cisco network laboratory at the AUST in collaboration with Cisco, USAID and the University. Involved in administrative role for CCNA student enrolment, teaching and certification.

Courses Taught:

- Cisco Certified Network Associate (CCNA).

Mar 2007 – Oct 2007

United International University (UIU), Dhaka, Bangladesh.

CCNA Instructor (part-time), Cisco Networking Academy Program (CNAP).

Duties:

- Worked as an instructor for Cisco Certified Network Associate (CCNA) course under Cisco Networking Academy Program (CNAP). Also played key role to establish the Cisco Networking Academy Program at UIU in collaboration with Cisco and the University.

Courses Taught:

- Cisco Certified Network Associate (CCNA).

Publications

Books / Monographs / Book Sections:

1. **K. A. Mamun**, “*Memory Efficient Data Structure for Static Huffman Tree*,” Lambert Academic Publishing (LAP), 88 pages, ISBN: 978-3659135262, Amazon link: <http://www.amazon.ca/Memory-Efficient-Structure-Static-Huffman/dp/3659135267>.

2. B. Ghali, **K. A. Mamun**, T. Chau, “A Comparison of Handwriting Grip Kinetics Associated with Authentic and Well-Practiced Bogus Signatures,” published as book section in Artificial Intelligence Perspectives and Applications, Springer book Series: Advances in Intelligent Systems and Computing, vol. 347, pp. 257-266, 2015.
3. M. Islam, **K. A. Mamun**, M. Khan and H. Deng, “A probabilistic neural network approach for prediction of movement and laterality from deep brain local field potentials,” published as book section in Modern Trends and Techniques in Computer Science (Part I: Artificial Intelligence), Springer book Series: Advances in Intelligent Systems and Computing, vol. 285, pp. 129-142, 2014.
4. F. Anowar, M. A. Helal, S. Afroj, S. Sultana, F. Sarker and **K. A. Mamun**, “A critical review on World University ranking in terms of top four ranking systems,” published as book section in New Trends in Networking, Computing, E-learning, Systems Sciences, and Engineering, K. Elleithy and T. Sobh (eds.), Lecture Notes in Electrical Engineering 312, DOI 10.1007/978-3-319-06764-3_72, Springer International Publishing Switzerland 2014.

Refereed Journal Papers:

1. **K. A. Mamun**, M. Mace, R. Vaidyanathan, M. E. Lutman, J. Stein, X. Liu, T. Aziz, and S. Wang, “Integration of neural synchronisation measures for movement decoding from deep brain local field potentials,” *Accepted to publish in the Journal of Neural Engineering (Impact Factor: 3.282)*.
2. H. Faulkner, A. Myrden, M. Li, **K. A. Mamun**, T. Chau, “Automatic detection of changes in cerebral perfusion accompanying a verbal fluency task using sequential hypothesis testing,” *Accepted to publish in the Journal of Neuroscience Research (Impact Factor: 2.482)*.
3. **K. A. Mamun**, C. M. Steele, T. Chau, “Swallowing accelerometry signal feature variations with sensor displacement,” *Accepted to publish in the Journal of Medical Engineering and Physics (Impact Factor: 2.375)*.
4. W. D. Armas, **K. A. Mamun**, T. Chau, “Vocal Frequency Estimation and Voicing State Prediction with Surface EMG Pattern Recognition,” *Journal of Speech Communication*, vol. 63-64, pp. 15-26, 2014 (*Impact Factor: 1.548*).
5. J. Lu, **K. A. Mamun**, T. Chau, “Online Transcranial Doppler Ultrasonographic control of an onscreen keyboard,” *Frontiers in Human Neuroscience*, 2014, doi: 10.3389/fnhum.2014.00199 (*Impact Factor: 2.91*).
6. B. Ghali, **K. A. Mamun**, T. Chau, “Long Term Stability of Handwriting Grip Kinetics in Adults,” *Journal of Biomechanical Engineering*, vol. 136, no. 4, pp. 1-7, 2014, doi:10.1115/1.4026641, (*Impact Factor: 1.748*).
7. M. Mace, N. Yousif, M. Naushahi, **K. A. Mamun**, S. Wang, D. Nandi, R. Vaidyanathan, “An automated approach towards detecting complex behaviours in deep brain oscillations,” *Journal of Neuroscience Methods*, vol. 224, pp. 66-78, Elsevier, 2014, doi: 10.1016/j.jneumeth.2013.11.019, (*Impact Factor: 2.114*).
8. B. Ghali, **K. A. Mamun**, T. Chau, “Grip Kinetic Profile Variability in Adult Signature Writing,” *Journal of Biometrics & Biostatistics*, vol. 4, no. 4, pp.1-6. 2013, doi:10.4172/2155-6180.1000174, (*Impact Factor: 1.5*).
9. M. Mace, **K. A. Mamun**, A. A. Naeem, L. Gupta, S. Wang, R. Vaidyanathan, “A heterogeneous framework for real-time decoding of bioacoustic signals: Applications to assistive interfaces and prosthesis control,” *Expert System with Applications*, vol. 40, no. 13, pp. 5049-5060, Elsevier, 2013, doi: 10.1016/j.eswa.2013.03.028, (*Impact Factor: 1.965*).
10. **K. A. Mamun**, M. Mace, L. Gupta, C. A. Verschuur, M. E. Lutman, M. Stokes, R. Vaidyanathan, S. Wang, “Robust Real-time Identification of Tongue Movement Commands from Interferences,” *Neurocomputing*, Elsevier, vol. 80, pp.83-92, doi: 10.1016/j.neucom.2011.09.018, March 2012, (*Impact Factor: 2.00*).
11. **K. A. Mamun**, F. Sarker and G. Muhammad, “A High Resolution Pitch Detection Algorithm based on AMDF and ACF,” *Journal of Scientific Research*, vol. 1, no. 3, pp.508-515, doi: 10.3329/jsr.v1i3.2569, 2009, (*Impact Factor: 1.211*).
12. **K. A. Mamun**, A. H. M. Sayeed, S. Yeasmin and F. Sarker, “A Novel Segmented Display for Arabic Numerals,” *Journal of Computer Science*, vol. 1, no. 1, pp. 44-47, IBAIS University, Dhaka, Bangladesh, June 2007.
13. **K. A. Mamun**, S. Ahmmed, F. Sarker, A. Y. Saber, “Segmented Display for Alphanumeric Bangla, English and Arabic Characters,” *Research Journal of Applied Sciences*, vol. 2, no. 4, pp. 522-529, March 2007.
14. S. Ahmmed, **K. A. Mamun**, M. M. Islam, “A Novel Algorithm for Designing Three Layered Artificial Neural Networks,” *International Journal of Soft Computing*, Vol. 2, Num. 3, pp. 450-458, March 2007.

15. **K. A. Mamun**, M. Mace, R. Craig, M. E. Lutman, R. Vaidyanathan, and S. Wang, “Tongue Movement Ear Pressure Signal Classification using Wavelet Packet Transform,” *International Journal of Audiology*, pp. 701, vol. 49, no. 9, Sep. 2010 (abstract only).

Manuscripts Under Review / Revision

1. J. Lu, **K. A. Mamun**, T. Chau, “Pattern classification to optimize the performance of Transcranial Doppler Ultrasonography based Brain Machine Interface,” *Under revision in the Journal of Pattern Recognition Letters (Impact Factor: 1.266)*.
2. **K. A. Mamun**, A. A.M. Rahat, M. Mace, G. Muhammad, M. S. Hossain, R. Vaidyanathan, S. Wang, T. Chau, “Multi-objective evolutionary algorithm in classifying tongue movement ear pressure signals: an application to assistive human machine interface,” *Under revision in the Journal of Pattern Recognition Letters (Impact Factor: 1.266)*.
3. M.S. Nikjoo, **K. A. Mamun**, A. Kushkia, A.J. Andrews, T. Chau, “A time-evolving reputation-based classifier for discerning physiological responses of youth with severe disabilities,” *Under review in the PLoS One Journal (Impact Factor: 3.73)*.
4. **K. A. Mamun**, C. M. Steele, T. Chau, “An investigation to characterize optimal sensor positions for acquiring reliable swallowing accelerometry signals,” *Under review in the IEEE Transactions on Biomedical Engineering (Impact Factor: 2.23)*.
5. M. Islam, **K. A. Mamun**, M. Khan and H. Deng, “Neural Network-Based Ensemble Classifiers for Movement Decoding Using Deep Brain Local Field Potentials,” *Under review in the IEEE Journal of Biomedical and Health Informatics*.

Manuscripts on hold due to commercialization (Medical Device)

6. **K. A. Mamun**, C. M. Steele, T. Chau, “The Effects of sensor attachment methods for capturing dual-axis swallowing accelerometry signals,” *Ready to submit in Journal of Physiological Measurement*.
7. **K. A. Mamun**, C. M. Steele, T. Chau, “Multivariate Bayesian classification for identifying pattern of healthy and pathological swallowing accelerometry signals,” *In Preparation, to be submitted to PLoS One Journal*.

Manuscripts in Preparation

8. **K. A. Mamun**, M. Mace, R. Vaidyanathan and S. Wang, “Weighted Sequential Feature Selection (WSFS): an efficient strategy to facilitate high dimensional small sample size biosignal classification,” *In Preparation, to be submitted to IEEE Transactions on Neural Systems and Rehabilitation Engineering*.
9. J. Chan, **K. A. Mamun** and T. Chau, “An online near-infrared spectroscopy brain-computer interface with instantaneous graphical and mechanical feedback,” *In Preparation, to be submitted to Journal of NeuroEngineering and Rehabilitation*.
10. E. Wan, **K. A. Mamun**, T. Chau, “A Novel Auditory-based Access Technology Using Transient Evoked Otoacoustic Emission,” *In Preparation, to be submitted to PLoS One*.
11. **K. A. Mamun**, S. Chan and T. Chau, “Tongue Movement Accelerometer: An alternative access communication pathway,” *In Preparation, to be submitted to IEEE Transactions on Human-Machine Systems*.
12. **K. A. Mamun**, E. Nguyen, W. D. Armas and T. Chau, “Dynamic topographic visualization and quantification of a multichannel surface EMG grid array,” *In Preparation, to be submitted to Journal of Electromyography & Kinesiology*.

Refereed Conference Papers:

1. A. Islam, E. Ahmed, A. Islam, J. Lu, F. Sarkar, **K. A. Mamun**, “Decoding Human Brain States Using Transcranial Doppler Ultrasonography,” Accepted for publication in the *2nd International Conference on Electrical Engineering and Information & Communication Technology (iCEEiCT 2015)*, Jahangirnagar University, Dhaka.
2. S. Ahmmed, F. Ahamed, **K. A. Mamun**, “Finger Movement Detection and Classification for Patients having Parkinson’s Disease,” Accepted for publication in the *2nd International Conference on Electrical Engineering and Information & Communication Technology (iCEEiCT 2015)*, Jahangirnagar University, Dhaka.
3. M. Islam, **K. A. Mamun**, M. Khan and H. Deng, “Decoding movements from human deep brain local field potentials using radial basis function neural network,” *The IEEE 27th international symposium on Computer-based medical systems (IEEE CBMS 2014)*, Icahn School of Medicine at Mount Sinai, New York, USA, May 27-29, 2014.

4. B. Ghali, **K. A. Mamun**, T. Chau, "Variation of grip force profile during signature writing," *The IEEE Canadian Conference on Electrical and Computer Engineering 2014 (CCECE 2014)*, Toronto, Ontario, Canada, May 4-7, 2014.
5. F. Anowar, M. A. Helal, S. Afroj, S. Sultana, F. Sarker and **K. A. Mamun**, "A critical review on World University ranking in terms of top four ranking systems," *International Conferences on Engineering Education, Instructional Technology, Assessment, & E-learning in the 9th Annual International Joint Conferences on Computer, Information, Systems Sciences, & Engineering* (will be included in the Springer Book), Connecticut, USA, Dec 12-14, 2013.
6. M. Islam, **K. A. Mamun**, M. Khan and H. Deng, "Performance assessment of artificial neural network classifier for predicting movement and laterality of deep brain local field potential," *3rd workshop on Machine learning and interpretation in neuroimaging (MLINI 2013) in Neural information processing systems (NIPS 2013)*, Nevada, USA, Dec 9-10, 2013.
7. **K. A. Mamun**, M. N. Huda, M. Mace, R. Vaidyanathan, M. E. Lutman, J. Stein, X. Liu, T. Aziz, and S. Wang, "Pattern Classification of Deep Brain Local Field Potentials for Brain Computer Interfaces," *15th International Conference on Computer And Information Technology (ICCIT 2012)*, Chittagong, Bangladesh, Dec. 22-24, 2012.
8. **K. A. Mamun**, M. Mace, R. Vaidyanathan, M. E. Lutman, J. Stein, X. Liu, T. Aziz, and S. Wang, "A Robust Strategy for Decoding Movements from Deep Brain Local Field Potentials to Facilitate Brain Machine Interfaces," *Fourth IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics*, Roma, Italy, Jun 24-28, 2012.
9. M. Mace, **K. A. Mamun**, Shouyan Wang, Lalit Gupta and Ravi Vaidyanathan, "Ensemble classification for robust discrimination of multi-channel, multi-class tongue-movement ear pressure signal," *33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS 2011)*, Boston, USA, Aug 30-Sep 3, 2011.
10. **K. A. Mamun**, R. Vaidyanathan, M. E. Lutman, J. Stein, X. Liu, T. Aziz, and S. Wang, "Decoding Movement and Laterality from Local Field Potentials in the Subthalamic Nucleus," *In Proc. of the 5th International IEEE EMBS Conference on Neural Engineering*, Cancun, Mexico, Apr. 27- May 1, 2011.
11. **K. A. Mamun**, M. Banik, M. Mace, M. E. Lutman, R. Vaidyanathan and S. Wang, "Multi-layer Neural Network Classification of Tongue Movement Ear Pressure Signal for Human Machine Interface," *In Proc. of the 13th International Conference on Computer And Information Technology (ICCIT 2010)*, Dhaka, Bangladesh, Dec. 23-25, 2010.
12. M. Mace, **K. A. Mamun**, Ravi Vaidyanathan, Shouyan Wang and Lalit Gupta, "Real-time implementation of a non-invasive tongue-based human-robot interface," *In Proc. of the 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2010)*, Taipei International Convention Center, Taipei, Taiwan, Oct. 18-22, 2010.
13. **K. A. Mamun**, M. Mace, M. E. Lutman, R. Vaidyanathan, and S. Wang, "SVM Classification of Tongue Movement Ear Pressure Signals for Human Machine Interface," *INSPIRE 2010*, University College London (UCL), London, UK, Sep. 6-8, 2010.
14. M. Mace, **K. A. Mamun**, S. Wang, L. Gupta and R. Vaidyanathan, "Human-Machine Interface for Tele-Robotic Operation using Tongue Movement Ear Pressure (TMEP) Signals," *In Proc. of the 11th Conference Towards Autonomous Robotic Systems*, Plymouth, UK, Aug. 31- Sep 2, 2010.
15. **K. A. Mamun**, M. Mace, M. E. Lutman, R. Vaidyanathan, L. Gupta and S. Wang, "Multivariate Bayesian Classification of Tongue Movement Ear Pressure Signals Based on the Wavelet Packet Transform," *In Proc. of the 2010 IEEE Int. Workshop on Machine Learning for Signal Processing*, Finland, Aug 29- Sep 1, 2010. (Selected as one of the best papers).
16. **K. A. Mamun**, M. Mace, M. E. Lutman, R. Vaidyanathan, and S. Wang, "Bayesian Classification of Tongue Movement Based on Wavelet Packet Transformation," *INSPIRE 2009*, Imperial College London, London, UK, September 2009.
17. **K. A. Mamun**, M. Mace, M. E. Lutman, R. Vaidyanathan, and S. Wang, "Pattern Classification of Tongue Movement Ear Pressure Signal based on Wavelet Packet Feature Extraction," *In Proc. of the 5th UK & RI Postgraduate Conference in Biomedical Engineering & Medical Physics*, pp. 33-34, Magdalen College, Oxford University, Oxford, UK, July 2009.
18. Y. A. Alotaibi, **K. A. Mamun** and G. Muhammad, "Noise Effect of Saudi Accented Arabic Alphanumeric in Automatic Speech Recognition," *In Proc. of the 2009 International Conference on Image Processing, Computer Vision, and Pattern Recognition (ICCV'09)*, Las Vegas, Nevada, USA, July 2009.
19. S. S. Al-Dahri, Y. H. Al-Jassar, Y. A. Alotaibi, M. M. Alsulaiman, **K. A. Mamun**, "A Word-Dependent Automatic Arabic Speaker Identification System," *In Proc. of the 8th IEEE International Symposium on*

- Signal Processing and Information Technology (ISSPIT 2008)*, Sarajevo, Bosnia & Herzegovnia, December 2008.
20. Y. A. Alotaibi, **K. A. Mamun** and G. Muhammad, "Study on unique Pharyngeal and Uvular consonants in foreign accented Arabic," *In Proc. of the INTERSPEECH 2008*, pp. 751-754, Brisbane, Australia, September, 2008.
 21. G. Muhammad and **K. A. Mamun**, "Real-time pitch extraction in noisy environment," *In Proc. of the National Information Technology symposium (NITS'08)*, King Saud University (KSU), Riyadh, Saudi Arabia, September 2008, (held on March 2009).
 22. **K. A. Mamun** and G. Muhammad, "Improved Noise Reduction with Pitch-Enabled Voice Activity Detection," *In Proc. of the IEEE 4th International Symposium on Image/Video Communications over fixed and mobile networks (ISIVC2008)*, Bilbao, Spain, July 2008.
 23. A. Y. Saber, S. Ahmmed and **K. A. Mamun**, "Constrained Non-linear Optimization by Modified Particle Swarm Optimization," *In Proc. of the 10th International Conference on Computer and Information Technology (ICCIT 2007)*, Dhaka, Bangladesh, December 2007.
 24. **K. A. Mamun**, N. K. Siddika, M. F. Al-Ameen, F. Sarker and M. M. Akbar, "Segment and Semi Circle Based Geometric Characters of Bangla and An Efficient Relevant Method of Character Recognition," *In Proc. of the 4th International Conference on Electrical and Computer Engineering (ICECE 2006)*, pp. 193-196, Dhaka, Bangladesh, December 2006.
 25. F. Jahan, M. F. Al-Ameen and **K. A. Mamun**, "Partial Matching of Bangla Words," *In Proc. of the 4th International Conference on Electrical and Computer Engineering (ICECE 2006)*, pp. 189-193, Dhaka, Bangladesh, December 2006.
 26. M. S. Alam, M. A. Rahman, **K. A. Mamun** and M. M. Islam, "A Novel Framework for Emphasizing Both Exploitation and Exploration in Evolutionary Algorithms," *In Proc. of the 9th International Conference on Computer and Information Technology (ICCIT 2006)*, pp. 45-50, Dhaka, Bangladesh, December 2006.
 27. **K. A. Mamun**, M. N. Huda, M. M. Akbar and M. Kaykobad, "A memory efficient Huffman coding," *In Proc. of the MMU International Symposium on Information & Communication Technologies (M²USIC 2006)*, pp. 145-150, Petaling Jaya, Malaysia, November 2006.
 28. **K. A. Mamun** and M. S. Hossain, "Rectangle & Circle Based Geometric Characters of Bangla & English and An Efficient Relevant Method of Size Independent Character Recognition," *In Proc. of the MMU International Symposium on Information & Communication Technologies (M²USIC 2006)*, pp. 70-76, Petaling Jaya, Malaysia, November 2006.
 29. M. F. Al-Ameen, F. Jahan and **K. A. Mamun**, "Fuzzy Matching of Bangla Words," *In Proc. of the MMU International Symposium on Information & Communication Technologies (M²USIC 2006)*, pp. 64-69, Petaling Jaya, Malaysia, November 2006.
 30. M. N. Huda, M. Banik, **K. A. Mamun**, "A new technique for solving non-linear equations," *In Proc. of the 3rd International Conference on Electrical, Electronics and Computer Engineering (ICEECE 2003)*, pp. 126-129, Dhaka, Bangladesh, December 2003.
 31. M. Banik, M. N. Huda, **K. A. Mamun**, and M. Arifuzzaman, "A new technique for generalized matrix search," *In Proc. of the 3rd International Conference on Electrical, Electronics and Computer Engineering (ICEECE 2003)*, pp. 130-135, Dhaka, Bangladesh, December 2003.

Refereed Conference Abstracts/ Extended Abstracts / Short paper:

1. **K. A. Mamun**, Elizabeth Nguyen, Winston De Armas, Tom Chau, "Dyanamic Topographic Visualization and Quantification of a Multichannel Surface EMG Grid Array," *In Proc. of the International Conference on Physics in Medicine and Clinical Neuroelectrophysiology (PMCN2015)*, pp. 103, Dhaka, Bangladesh, February 2015.
2. Eshtiak Ahmed, Ashraful Islam, Lucy Lu, **K. A. Mamun**, "Identification of Cognitive States based on Transcranial Doppler Ultrasonography," *In Proc. of the International Conference on Physics in Medicine and Clinical Neuroelectrophysiology (PMCN2015)*, pp. 115, Dhaka, Bangladesh, February 2015.
3. S. Ahmed, F. Ahmed, M. Mace, R. Vaidyanathan, J. Stein, T. Aziz, S. Wang, **K. A. Mamun**, "Decoding Movements from Human Subthalamic Local Field Potentials Based on Neural Synchronization," *In Proc. of the International Conference on Physics in Medicine and Clinical Neuroelectrophysiology (PMCN2015)*, pp. 82, Dhaka, Bangladesh, February 2015.
4. Ashraful Islam, Farzana Anowar, Eshtiak Ahmed, **K. A. Mamun**, "Smart Green Home: An Intelligent Way to Lead a Better Life," *In Proc. of 2nd National Conference on Natural Sciences and Technology (NCNST2015)*, Chittagong, Bangladesh, April 2015.

5. Ashraful Islam, Eshtiaq Ahmed, Lucy Lu, **K. A. Mamun**, “Transcranial Doppler Ultrasonography A Non-invasive Approach for Identifying Human Brain States,” *In Proc. of 2nd National Conference on Natural Sciences and Technology (NCNST2015), Chittagong, Bangladesh, April 2015.*
6. Ashfaul Islam, Ashraful Islam, Farhana Sarker, **K. A. Mamun**, “E-learning: The Revolution of Distance Learning in Bangladesh,” *In Proc. of 2nd National Conference on Natural Sciences and Technology (NCNST2015), Chittagong, Bangladesh, April 2015.*
7. S. Ahmmed, F. Ahamed, **K. A. Mamun**, “Determining the Movements from Deep Brain Signals of Human Brain,” *In Proc. of the National Conference on Physics Education and Research in Bangladesh, Dhaka, Bangladesh, April 2015.*
8. F. Hoque, A. Islam, E. Ahmed, F. Anowar, **K. A. Mamun**, “Assistive Human Machine Interface using Tongue-Movement Ear Pressure Signals,” *In Proc. of the National Conference on Physics Education and Research in Bangladesh, Dhaka, Bangladesh, April 2015.*
9. A. Islam, E. Ahmed, F. Anowar, J. Lu, **K. A. Mamun**, “Decoding Cognitive States of Human Brain using Transcranial Doppler Ultrasonography,” *In Proc. of the National Conference on Physics Education and Research in Bangladesh, Dhaka, Bangladesh, April 2015.*
10. **K. A. Mamun**, S. Chan and T. Chau, “Tongue Movement Accelerometer: An alternative access pathway,” *8th Annual BRI Symposium, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada, Nov 12, 2013.*
11. **K. A. Mamun**, E. Nguyen, W. D. Armas and T. Chau, “Dynamic topographic visualization and quantification of a multichannel surface EMG grid array,” *8th Annual BRI Symposium, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada, Nov 12, 2013.*
12. T. W. C. Hang, **K. A. Mamun**, and T. Chau, “Characterizing physiological pattern of peripheral nervous system for activity engagement in youth with severe disabilities” *7th Ward Student Research Day, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada, Jul 23, 2013.*
13. **K. A. Mamun**, C. M. Steele, T. Chau, “The effects of varying sensor position on dual-axis swallowing accelerometry signals,” *21st Dysphagia Research society Annual Meeting, Seattle, Washington, USA, Mar 14-16, 2013.*
14. **K. A. Mamun**, M. Mace, M. E. Lutman, R. Vaidyanathan, J. Stein, X. Liu, T. Aziz, and S. Wang, “Decoding Movement and Laterality from Human Subthalamic Local Field Potentials for Neuro-Prosthetic Applications,” *2011 International UKIERI Workshop on the Fusion of Brain-Computer Interface and Assistive Robotics, Londonderry, Northern Ireland, UK, Jul 7- 8, 2011.*
15. **K. A. Mamun**, M. Mace, M. E. Lutman, R. Vaidyanathan, J. Stein, X. Liu, T. Aziz, and S. Wang, “Decoding Movements from Human Subthalamic Local Field Potentials based on Neural Synchronization,” *9th Annual Southampton Neurosciences Group (SoNG) Meeting, University of Southampton, Southampton, UK, Sep. 22, 2011.*
16. **K. A. Mamun**, M. E. Lutman, R. Vaidyanathan, J. Stein, X. Liu, T. Aziz, and S. Wang, “Recognition of Voluntary Movement from Human Subthalamic Activity for Brain Computer Interface,” *SET for BRITAIN 2011, The House of Commons, UK, March 14, 2011.*
17. **K. A. Mamun**, M. E. Lutman, R. Vaidyanathan, J. Stein, X. Liu, T. Aziz, and S. Wang, “Recognition of Voluntary Movement from Human Subthalamic Activity for Brain Machine Interface,” *Multidisciplinary Postgraduate Research Showcase, University of Southampton, UK, March 31, 2011.*
18. **K. A. Mamun**, M. E. Lutman, R. Vaidyanathan, J. Stein, X. Liu, T. Aziz, and S. Wang, “Recognition of the Laterality of Voluntary Movement from Subthalamic Activity,” *8th Annual Southampton Neurosciences Group (SoNG) Meeting, University of Southampton, Southampton, UK, Sep. 23, 2010.*
19. **K. A. Mamun**, M. E. Lutmen, R. Vaidyanathan, and S. Wang, “Tongue Movement: A Novel Concept for Assistive HMI,” *FESM Postgraduate Research Showcase 2010, University of Southampton, UK, May 6, 2010.*
20. **K. A. Mamun**, M. Mace, M. E. Lutmen, R. Vaidyanathan, and S. Wang, “State Identification of Tongue Movement Signals,” *Mathematical Neuroscience 2010, Edinburgh, UK, Apr. 19-21, 2010.*
21. **K. A. Mamun**, M. Mace, R. Craig, M. E. Lutmen, R. Vaidyanathan, and S. Wang, “Tongue movement ear pressure signal classification using wavelet packet transform,” *British Society of Audiology Short Papers Meeting on Experimental Studies of Hearing and Deafness, pp. 138-139, University of Southampton, Southampton, UK, Sep. 17-18, 2009.*
22. **K. A. Mamun**, M. Mace, R. Craig, M. E. Lutmen, R1. Vaidyanathan, and S. Wang, “Tongue movement as new way of communication for rehabilitation systems,” *PhD Presentation Day, Human Sciences Group, ISVR, University of Southampton, UK, July 1, 2009.*

Research Work Featured in News Media

- New Scientist
(<http://www.newscientist.com/article/dn19790-tongue-clicks-to-control-wheelchairs.html#.UzIB1fldXwg>)
- BBC
(<https://www.youtube.com/watch?v=C-DjZ8saufg>, <https://www.youtube.com/watch?v=TBHbkx0809E>)

Technical Skills

- Programming: Matlab, C/C++, Assembly, Visual C++, Visual C#, Python, SPSS, Origin Lab and OpenGL.
- Database Languages: Oracle, MySQL, Microsoft Access.
- Operating System: Windows, IOS, LINUX (basic)
- Application: MS Office, Latex.
- Certification: Cisco Certified Network Associate (CCNA), Fundamentals of Wireless Local Area Network (FWL), Cisco Certified Academy Instructor (CCAI).

Professional Memberships

1. Fellow, Bangladesh Computer Society.
2. Member, Institute of Electrical and Electronics Engineers (IEEE).
3. Member, IEEE Communications Society.
4. Member, IEEE Engineering in Medicine and Biology Society.
5. Member, Institute of Engineer's Bangladesh (IEB).

Awards, Honors and Scholarship

1. Earned position in Marquis Who's Who in the World 31th Edition, 2014.
2. Full grants for attending international conferences (PGBioMed 2009, Oxford University, UK [GBP. 300]; INSPIRE 2009, Imperial College London, UK [GBP. 200]; INSPIRE 2010, University College London, UK [GBP. 200]; MLSP 2010, Finland [GBP. 1200]; SET for BRITAIN 2011, House of Commons, London, UK [GBP. 200]) from Engineering and Physical Sciences Research Council (EPSRC), UK.
3. Full grant for attending CINN Summer School 2010 (University of Reading, UK) from Mathematical Neuroscience Network (MNN), UK [GBP. 500].
4. Full grant for attending workshop (Mathematical Neuroscience 2010, Edinburgh, UK) from Mathematical Neuroscience Network (MNN), UK [GBP. 300].
5. PhD Scholarship (The Lord Rayleigh Scholarship and EPSRC Grant), 2008 - 2011, Institute of Sound and Vibration Research (ISVR), University of Southampton, UK [GBP. 80,000].
6. International Doctoral Scholarship, October 2008, Gipsa-lab, Grenoble INP, France (declined).
7. Full grants for attending international conferences (ISIVC '08, Spain; INTERSPEECH '08, Australia) from Prince Sultan Bin Abdulaziz International Program for Distinguished Research Grants, King Saud University, KSA [SAR. 25,000].
8. Prince Sultan Bin Abdulaziz International Program for Distinguished Research Scholarship, King Saud University, KSA for research, 2007 – 2008 [SAR. 60,000].
9. International Doctoral Studentship Award, October 2007, Telecommunications software and systems group, Waterford Institute of Technology, Ireland (declined).
10. Full grant for attending and completing Fundamentals of Wireless Local Area Network (FWL) instructor Training (University of Indonesia, Jakarta, Indonesia, 2007) from USAID and Ahsanullah University of Science and Technology, Dhaka, Bangladesh [BDT. 70,000].
11. Partial grants for attending international conferences (M2USIC '06, Malaysia; ICECE 06, Bangladesh) from Ahsanullah University of Science and Technology, Dhaka, Bangladesh [BDT. 30,000].
12. Full grant for completing CCNA instructor Training (BUET, Bangladesh 2004) from Ahsanullah University of Science and Technology, Dhaka, Bangladesh [BDT. 24,000].
13. Dean's Award and Tuition Fee Scholarship for the full four years of the undergraduate study from Ahsanullah University of Science and Technology, Dhaka, Bangladesh, 1999-2002 [BDT. 135,000].

14. Achieved “**Khanbahadur Ahsanullah Podak (Gold Medal)**” for securing the highest CGPA (3.931 on a scale of 4.0, Top position) in the Bachelor Degree program of the year 2002.

Invited talks & presentations (except conference presentation)

1. *Intelligent Systems for Medical Engineering and Rehabilitation Applications*, International Conference on Physics in Medicine and Clinical Neuroelectrophysiology, University of Dhaka, February 19-20, 2015.
2. *Multidisciplinary Intelligent Systems for Medical Engineering and Rehabilitation Applications*, Department of Electrical and Computer Engineering, Florida International University, USA, July 2, 2014.
3. *An overview of Brain Machine Interface and Biomedical Engineering*, Department of Computer Science and Engineering, Ahsanullah University of Science and Technology, Dhaka, Bangladesh, January 22, 2013.
4. *Advancement of Human Machine Interface for Rehabilitation Engineering*, Department of Biomedical Physics & Technology, University of Dhaka, Dhaka, Bangladesh, January 8, 2013.
5. *Pattern Identification of Movement Related States in Biosignals*, PRISM Lab, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Ontario, Canada, July 20, 2012.
6. *Decoding movement related states in bio-signals*, Brains & Behavior Lab, Dept. of Bioengineering, Imperial College London (ICL), London, UK, December 8, 2011.
7. *Feature extraction and pattern identification of movement related states in bio-signals*, Motor Control Group, Institute of Cognitive Neuroscience, University College London (UCL), London, UK, October 13, 2011.
8. *Pattern Classification of Movement and Laterality from Local Field Potentials in the Subthalamic Nucleus*, Functional Neurosurgery and Experimental Neurology (FNEN) Group, University of Oxford, UK, March 25, 2011.
9. *Recognition of Voluntary Movement from Human Subthalamic Activity for Brain Computer Interfaces*, SET for BRITAIN 2011, The House of Commons, UK, March 14, 2011.
10. *Pattern Classification of Movement related States in Biosignals*, Human Sciences Group, ISVR, University of Southampton, UK, March 8, 2011.
11. *Classification of Visually Cued Movement Related Subthalamic Activity for Brain Computer Interface*, INSPIRE 2010, University College London (UCL), London, UK, September 7, 2010.
12. *Tongue Movement: A Novel Concept for Assistive HMI*, FESM Postgraduate Research Showcase 2010, University of Southampton, UK, May 6, 2010.
13. *Evolution of Brain Computer Interface (BCI)*, HABC, ISVR, University of Southampton, Southampton, UK, December 1, 2009.
14. *Tongue movement as a new way of communication for rehabilitation systems*, PhD Presentation Day, Human Sciences Group, ISVR, University of Southampton, UK, July 1, 2009.
15. *Human-Machine Interface for Rehabilitation Systems Based on Tongue-Movement*, HABC, ISVR, University of Southampton, Southampton, UK, March 24, 2009.
16. *Career Prospects for CISCO Networking Professionals*, United International University, Dhaka, Bangladesh, June 18, 2007.

Research Funding

- Investigator, Project title: *Dynamic topographic visualization and quantification of a multichannel surface EMG grid array*, Received funding (CD \$ 25000) from Natural Sciences and Engineering Research Council of Canada, Canada.
- Principal Investigator, Project title: *Autism Express: A Mobile Interactive Screening Mechanism for Autism in Rural Bangladesh*, Applied for funding (CD \$ 1,00,000) to Grand Challenges Canada (Stars in Global Health Round 7), Canada.
- Co-Principal investigator, Project title: *Smart Deep Brain Stimulator (SDBS): Towards Future Adaptive Brain Machine Brain Interface (BMBI) for Therapeutic Interventions of Parkinson and Other Motor Disorders*, Applied for funding (US \$ 6,00,000) to National Institutes of Health (NIH), USA in collaboration with principal investigator **Dr. Hai Deng**, Assistant Professor, Director of Sensor Research Lab, Department of Electronic and Computer Engineering, Florida International University, Miami, Florida, USA.
- Co-investigator, Project title: *A Wearable Fetal Movement Monitor for Prenatal Care in LIC Community Medicine*, Applied for funding (GBP 10,00,000) to Newton Fund, UK in collaboration with

principal investigator **Dr. Ravi Vaidyanathan**, Senior Lecturer in Biomechanics, Imperial College London (ICL), UK.

Professional Activities

1. Member, Organizing Committee, SKIMA 2014, Dhaka, Bangladesh.
2. Reviewer, *IEEE Robotics and Automation Magazine*.
3. Reviewer, *Journal NeuroEngineering and Rehabilitations, BMC*
4. Reviewer, *Journal of Computers in Human Behavior*, Elsevier.
5. Reviewer, *Research Ethics Board*, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital, University of Toronto, Toronto Canada
6. Reviewer, *Graduate Scholarship Program*, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital, University of Toronto, Toronto Canada
7. Member, Program Committee, *IEEE Asia-Pacific World Congress on Computer Science and Engineering 2014 (IEEE APWC on CSE 2014)*, Fiji, November 4-5, 2014.
8. Reviewer, *IEEE International Conference on Electrical and Computer Engineering (ICECE 2014)*, Dhaka, Bangladesh, December 20-22, 2014.
9. Reviewer, *The IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics (BioRob 2014)*, Brazil, August 12-15, 2014.
10. Reviewer, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2014)*, Chicago, USA, September 14–18, 2014.
11. Reviewer, *The 9th Annual International Joint Conferences on Computer, Information, Systems Sciences, & Engineering (CISSE 2013)*, University of Bridgeport, USA, December 12-14, 2013.
12. Reviewer, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2013)*, Tokyo, Japan, November 3-7, 2013.
13. Reviewer and Judge, *The 7th Annual Anne & David Ward Summer Student Research Day*, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital, University of Toronto, Toronto Canada, July 23, 2013.
14. Reviewer, *The 8th International Workshop on Systems, Signal Processing and their Applications (WOSSPA2013)*, Algiers, Algeria, 12-15 May 2013.
15. Reviewer, *The Second International Conference on e-Technologies and Networks for Development (ICeND 2013)*, Kuala Lumpur, Malaysia, March 4-6, 2013
16. Reviewer, *The IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics (BioRob 2012)*, Italy, June 24-27, 2012.
17. Reviewer, *Public Journal of {Engineering, Electrical Engineering, Medicine, Biology}*, (www.PublicJournals.org).
18. Editorial board member, *Lecture Notes in Information Science and Technology* (<http://orslib.org/Inist/editorialboard.html>).
19. Member, International Program Committee, *The 2nd International Conference on Informatics, Electronics & Vision (ICIEV 2013)*, May 17-18, 2013, Dhaka, Bangladesh.
20. Member, Steering Committee, *Southampton Neurosciences Group (SoNG)*, University of Southampton, UK, 2011-2012.

Conference / Workshop Attended

1. Annual BRI Symposium 2013, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada, Nov 12, 2013.
2. Engineering Global Health Symposium, University of Toronto, Canada, May 3, 2013.
3. Annual BRI Symposium 2012, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada, Nov 13, 2012.
4. SoNG Meeting 2011, University of Southampton, Southampton, UK, Sep 22, 2011.
5. SET for BRITAIN 2011, House of Commons, London, UK, March 14, 2011.
6. INSPIRE 2010, University College London (UCL), London, UK, Sep 6-8, 2010.

7. SoNG Meeting 2010, University of Southampton, Southampton, UK, Sep 23, 2010.
8. MLSP 2010, Kittila, Finland, Aug 29- Sep 1, 2010.
9. CINN Summer School in Cognitive Neurodynamics 2010, CINN, University of Reading, UK, July 9-16, 2010
10. Brain Products Workshop on EEG & TMS and EEG & fMRI, CINN, University of Reading, UK, July 7-8, 2010
11. Signal Processing for Cochlear Implants, Short course, ISVR, University of Southampton, UK, April 13-15, 2010
12. Mathematical Neuroscience 2010, Edinburgh, UK, Apr 19-21, 2010.
13. The MathWorks Customized Course on MATLAB, University of Southampton, UK, Dec 14-15, 2009.
14. INSPIRE 2009, Imperial College London, London, UK, Sep 21-23 2009.
15. BSA short papers meeting, University of Southampton, Southampton, UK, Sep 17-18, 2009.
16. PGBioMed 2009, Oxford University, Oxford, UK, Jul 12-14, 2009.
17. INTERSPEECH 2008, Brisbane, Australia, Sep 22-26, 2008.
18. ISIVC 2008, Bilbao, Spain, Jul 9-11, 2008.
19. ICECE 2006, Dhaka, Bangladesh, Dec 19-21, 2006.
20. ICCIT 2006, Dhaka, Bangladesh, Dec 21-23, 2006.
21. M2USIC 2006, Petaling Jaya, Malayasia, Nov 16-17, 2006.
22. ICEECE 2003, Dhaka, Bangladesh, Dec 22-24, 2003.
23. ICCIT 2002, Dhaka, Bangladesh, Dec 27-28, 2002.

Courses Taught

- *Undergraduate level:* Programming Language (C, C++, Java), Data Structures and Algorithms, Computer Networks, Computer Architecture, Numerical Methods, Discrete Mathematics, Digital Logic Design, Digital System Design, Information System Design, Software Engineering, Software Development Lab, Database Management (Lab using Oracle), Control System, Signal Processing, Pattern classification, Computing using Python, Modelling and Computing.
- *Graduate level:* Signal Processing, Pattern Classification, Assistive Technologies, Matlab, Research Methods.
- *PhD level:* Research methods and presentation skills.
- *Professional:* Cisco Certified Network Associate (CCNA), Wireless LAN.

Student Thesis/Project Supervision/Co-Supervision

Graduate students

Florida International University, USA

2013 – Mohammad Saiful Islam, *PhD Candidate*, Department of Electrical and Computer Engineering, Proposed Thesis Title: Development of an intelligent brain machine interface system for close loop deep brain stimulations, co-supervising with Dr. Hai Deng.

University of Toronto, Canada

2012 – 2013 Bassma Ghali, *PhD*, Institute of Biomaterials and Biomedical Engineering, Thesis Title: Variability of handwriting biomechanics: a focus on grip kinetics during signature writing, (Co-supervised the research work).

2012 – 2013 Jie Lu, *Master of Applied Science*, Institute of Biomaterials and Biomedical Engineering, Thesis Title: Development and evaluation of an online Transcranial Doppler Ultrasonographic brain-computer interface for communication

2012 – 2013 Eric Wan, *Master of Applied Science*, Department of Electrical and Computer Engineering, Thesis Title: Automatic Detection of Selective Auditory Attention via Transient Evoked Otoacoustic Emissions

2012 – 2013 Winston De Armas, *Masters of Health Science*, Institute of Biomaterials and Biomedical Engineering, Thesis Title: Vocal Frequency Estimation and Voicing State Prediction with Surface EMG Pattern Recognition

Undergraduate Students

Ahsanullah University of Science and Technology, Bangladesh

- 2013- 2014 Group of 4 students, Final year thesis, Bachelor of Computer Science and Engineering, Topic: An extensive review of world university ranking system and Bangladesh perspective
- 2013- 2014 Group of 4 students, Final year thesis, Bachelor of Computer Science and Engineering, Topic: A proposal for ranking higher education institutions: A case study for Bangladesh
- 2006- 2007 Group of 4 students, Final year thesis, Bachelor of Computer Science and Engineering, Topic: A study to simulate AI character for interactive computer games

Undergraduate internship/summer students

University of Toronto, Canada

- 2014 Melodie Therme, Polytech Grenoble, France
Project: Physiological measures of coaching responses: Solution-Focused coaching and Problem-Based coaching.
- 2014 Laura M. C. Moreno, Escuela de Ingeniería de Antioquia (EIA) - Universidad CES, Colombia
Project: Tongue Movement Accelerometer for access communications
- 2013 Stephanie Chan, McMaster University, Canada
Project: Tongue Movement Accelerometer: An alternative access pathway
- 2013 Elizabeth Nguyen, Ryerson University, Canada
Project: Dynamic topographic visualization and quantification of a multichannel surface EMG grid array
- 2013 Tracy Wong, The Chinese University of Hong Kong, Hong Kong
Project: Characterizing physiological pattern of peripheral nervous system for activity engagement in youth with severe disabilities
- 2012 Adeel Alam, University of Toronto, Canada
Project: Tongue Switch: An assistive access pathway

Courses Completed during Academic Degrees

PhD in Computer Science

Signal Processing, Pattern Classification, Machine learning, Adaptive Methods, Research Methods, Project Development, Biomedical Applications of Signal Processing, Neuroscience, Systems Neuroscience.

M. Sc. in Computer Science and Engineering Courses

Multimedia Systems, Computational Geometry, Graph Theory, Distributed Computing System, Advanced Database System, Fuzzy System.

B. Sc. in Computer Science and Engineering Courses

Algorithms, Data Structures, Artificial Intelligence, Programming Language-I(C-Programming), Programming Language-II(C++ Programming), Software Development Lab (C, JAVA), Computer Networks, Network programming, Compiler construction, Computer Architecture, Operating Systems, Numerical Methods, Discrete Mathematics, Digital System Design, Digital Logic Design, VLSI Design, Data Communications, Microprocessor, Computer Interfacing, Digital electronics and pulse techniques, Databases, Information System Design, Software Engineering, Computer Graphics(Lab using OpenGL), Advanced Database Management(Lab using Oracle), Mathematical Analysis for Computer Science, Introduction to Theoretical Computer Science, Basic Electrical Engineering, Electronic Devices & Circuits, Electrical Drives & Instrumentation, Mathematics-I, II, III, IV (Differential Calculus, Co-ordinate Geometry, Integral Calculus, Ordinary Differential Equations, Complex Variable, Laplace Transforms, Statistics, Matrices, Vector and Fourier Analysis), Physics, Chemistry, English, Economics, Accounting, Sociology, Industrial Management.

Co-curricular Activities

1. Member, The Spectrum of Science Roadshow, Outreach program of ISVR, University of Southampton, UK, 2010
2. PhD Student Representative, Human Science Group, ISVR, University of Southampton, 2010-2011.
3. PhD Student Representative, HABC, Human Science Group, ISVR, University of Southampton, 2008-2010
4. President, Bangladeshi Student Society, University of Southampton, 2008-2009
5. Executive Committee Member, Institute of Engineer's Bangladesh (IEB), Riyadh, Saudi Arabia, 2007-2008.

6. Committee Member, Cisco Networking Academy Program (CNAP), United International University (UIU), 2007.
7. Committee Member, Cisco Networking Academy Program (CNAP), Ahsanullah University of Science and Technology (AUST), 2004-2007.
8. Student Advisor, Department of Computer Science & Engineering, Ahsanullah University of Science and Technology (AUST), 2003-2007.
9. Coach, Ahsanullah University of Science and Technology (AUST) programming Contest Team, 2003-2007, Team participated at ACM-ICPC 2004 (Dhaka), ACM-ICPC 2005 (Dhaka), NCPC 2005 (Dhaka), EWUIPC 2006 (Dhaka), ACM-ICPC 2006 (Dhaka), DIU-IUPC 2007 (Dhaka).
10. Organizing Member, Intra AUST Programming Contest (IAPC), Ahsanullah University of Science and Technology (AUST), 2003-2007.
11. Team Leader, Ahsanullah University of Science and Technology (AUST) Flood Relief Distribution Team, 2004.
12. Member, AUST Computer Club, Ahsanullah University of Science and Technology (AUST), 1998-2002.
13. Team Manager, 1st and 2nd AUST intra-CSE cricket tournament, Ahsanullah University of Science and Technology (AUST), 1999, 2000.
14. Member, Science and Technology, Nongalkot Student Welfare Association, Dhaka, Bangladesh, 2000-2001.

Research Collaborations

1. **Dr. Tom Chau**, Professor, Institute of Biomaterials & Biomedical Engineering, University of Toronto and Vice President, Research & Director, Bloorview Research Institute, Canada Research Chair in Pediatric Rehabilitation Engineering, Holland Bloorview Kids Rehabilitation Hospital, Toronto, Canada
2. **Dr. Hai Deng**, Assistant Professor, Director of Sensor Research Lab, Department of Electronic and Computer Engineering, Florida International University, Miami, Florida, USA
3. **Dr. Shouyan Wang**, Professor of Biomedical Engineering, Director of Medical Electronics Department, Suzhou Institute of Biomedical Engineering and Technology (SIBET), Chinese Academy of Sciences, Suzhou, China
4. **Dr. Ravi Vaidyanathan**, Senior Lecturer in Biomechatronics, Department of Mechanical Engineering, Imperial College London, London, UK
5. **Dr. Ghulam Muhammad**, Associate Professor, Department Computer Engineering, College of Computer and Information Sciences, King Saud University, Riyadh, Saudi Arabia

Personal Data

- Date of birth: October 5, 1980.
- Nationality: Bangladeshi (by birth).
- Marital Status: Married.
- Permanent Address:
Village: Patower, Police Station: Nangalkot,
District: Comilla, Bangladesh

References

1. **Dr. Tom Chau**
Vice President, Research & Director, Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital
Professor, Institute of Biomaterials & Biomedical Engineering, University of Toronto
150 Kilgour Road, Toronto, Ontario, M4G 1R8, Canada
Phone: +1 416 425 6220 ext. 3515
Email: tom.chau@utoronto.ca, tchau@hollandbloorview.ca
2. **Dr. Shouyan Wang**
Professor of Biomedical Engineering and Director, Medical Electronics Department
Suzhou Institute of Biomedical Engineering and Technology (SIBET), Chinese Academy of Sciences
88 Keling Road, Ke Ji Cheng, Gao Xin Qu, Suzhou, China 215163
Phone: +86 512 6958 8242
Email: swang@sibet.ac.cn
3. **Dr. Ravi Vaidyanathan**
Senior Lecturer in Biomechatronics, Department of Mechanical Engineering
Imperial College London
South Kensington Campus, London, SW7 2AZ, UK
Phone: +44 (0) 20 7594 7020
E-mail: r.vaidyanathan@imperial.ac.uk
4. **Dr. Mohammad Nurul Huda**
Professor, Department Computer Science and Engineering,
School of Science & Engineering, United International University,
Mirza Golam Hafiz Road, Dhanmondi, Dhaka 1209, Bangladesh

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5. **Prof. M. H. Khan**
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