Curriculum Vitae

Dr. Abul Kalam al Azad

PostDoc: Theoretical Neuroscience, Computing and Mathematics,
University of Plymouth, UK, and University of Bristol, UK
PhD: Mathematics, University of Exeter, UK.
MS. and BSc.: Department of Physics, Dhaka University, Bangladesh.

CURRENT AFFILIATION
Associate Professor
Department of Computer Science & Engineering
University of Liberal Arts Bangladesh
Dhaka, Bangladesh
Email: abul.azad@ulab.edu.bd
ULAB portal: https://cse.ulab.edu.bd/faculty/abul-kalam-al-azad-phd
Personal portal: https://sites.google.com/site/drabulkalamalazad/home

EDUCATION
- PhD in Mathematics (2010), University of Exeter, UK
- MS, Theoretical Physics (2004), First Class, University of Dhaka
- B.Sc. (Honours), Physics (2001), First Class, University of Dhaka
- H.Sc., Science (1996), distinction, Notre Dame College Dhaka

RESEARCH INTEREST
- Dynamical and Complex Systems
- Theoretical Neuroscience
- Neuroinformatics and Biologically Inspired Connectomics
- Machine Leaning (ML) and Deep Learning (DL)
- Data Analytics
- Natural Language Processing (NLP)
- Internet of Things (IoT)
- Cryptography
- Fluid Dynamics

RESEARCH e-Profiles
- Google scholar: https://scholar.google.com/citations?user=uSRqFOwAAAAJ&hl=en
- Web of Science: https://www.webofscience.com/wos/author/record/GQP-7911-2022
- Researchgate: https://www.researchgate.net/profile/Abul_Azad5
- Scopus:https://www.scopus.com/authredirect.uri?txGid=4adb5388c492044430d7533102 cc567c&code=XQNEH6vQt3TXwR0_eyVwWVmKJqB1PCrdBvUq93if&state=autoLogin %7CtxId%3D0877A952A8C140E31DDC8805143AE3E3.i-0917734dea49e80af%3A2
- Orcid: https://orcid.org/my-orcid?orcid=0000-0003-3399-3195

ACADEMIC EXPERIENCE
- **Associate Professor**, Department of Computer Science and Engineering, University of Liberal Arts Bangladesh, January, 2018 to present
- **Head of the Department** (Acting), Department of Computer Science and Engineering, University of Liberal Arts Bangladesh, January, 2022 to September, 2022
- **Academic Council Member**, University of Liberal Arts Bangladesh, January, 2022 to present

- **Assistant Professor**, Department of Computer Science and Engineering, University of Liberal Arts Bangladesh, October, 2012 to December, 2017
- **Assistant Proctor,** University of Liberal Arts Bangladesh, May, 2015 to February, 2021
- **Post-doctoral Research Fellow** in Theoretical Neuroscience, School of Computing and Mathematics, University of Plymouth, UK, & Xenopus Lab, School of Biological Sciences, University of Bristol, UK, Project theme: *Modelling the developing spinal cord of a Xenopus tadpole, and understanding its locomotion from the emergent functional connectome.* August, 2009 to July, 2012
- **Tutor** in Dynamical Systems and Mathematics to undergraduate, School of Computing and Mathematics, University of Plymouth, UK, 2010 to 2011
- **Teaching Assistant** in Mathematics, College of Engineering, Mathematics & Physical Sciences, University of Exeter, UK, 2006-2009
- **Lecturer**, Natural Sciences, Stamford University Bangladesh, 2006

TEACHING AND CO-CURRICULAR
Courses: Physics 1, Physics 2, Physics 1 Lab, Discrete Mathematics, Differential and Integral Calculus, Differential Equations, Numerical Analysis, Mathematical Methods, Introduction to Computer Studies, and General Mathematics (offered from General Education Department).
Supervision: Supervised over 100 students in internship, thesis, and capstone projects.
Coordinator: ULAB CSE Alumni Association
Curriculum: Member of the IQAC, member of the UGC curriculum revision committee and member of the Departmental IEB Accreditation Committee
Course and Teaching Evaluation: Approximately 4.5 out of the designated scale 5.0 across all the courses and all the terms.

AWARDS AND GRANTS
- **Institute of Advanced Research (IAR) Grant**, Feasibility study of the effectiveness of AR technology in assisting children with autism spectrum disorder for literacy, BDT 495,956, Aug 2022 to Aug 2023.
- **The Vice Chancellor's Award of Excellence** for Engagement in Teaching and Learning, University of Liberal Arts Bangladesh, 2015.
- **ULAB Faculty Research Grant**, Measurement and Analysis of Traffic Noise, 2014, Amount BDT 75,000.
- **ULAB Faculty Research Grant**, *Poor Utilization of Road Networks and Variable Vehicular Speed*, 2014, Amount BDT 350,000.
- **Travel Award**, 2nd UK Neuroinfomatics Node Congress, Edinburgh, 2012.
- **Travel Award**, *Equidiff*, Loughborough, 2011.
- Biotechnology and Biological Sciences Research Council (BBSRC) **Post-Doctoral Fellowship Award** in Xenopus Tadpole Project, 2009-12.
- **Travel Award**, Organization for Computational Neurosciences (OCNS), 2011.
- **British Council/ DAAD Corporation Grant** between Exeter, Cologne University & Plymouth Universities, 2007-09.
- **Travel Award**, Mathematical Neuroscience, Montréal, Canada, 2007.
- **Maintenance Award** from College of Engineering, Mathematics & Physical Sciences, University of Exeter, 2006.
- Prestigious **Exeter Research Scholarships (ERS)**, 2006.

PUBLICATIONS: Peer-reviewed Journal (Selected)
- Al-Akhir Nayan, Ahamad Nokib Mozumder, Md. Rakibul Haque, Fahim Hossain Sifat, Khan Raqib Mahmud, **AKA Azad**, Muhammad Golam Kibria, "A Deep Learning Approach for Brain Tumor Detection from MRI Images", International Journal of Electrical and Computer Engineering (IJECE), Vol. 13, No. 1, pp. 1039~1047, ISSN: 2088-8708, 2022.

- Md. Asifuzzaman Jishan, Khan Raqib Mahmud, **AKA Azad**, Mohammad Rifat Ahmmad Rashid, Bijan Paul, Md. Shahabub Alam, "Bangla language textual image description by hybrid neural network model", Indonesian Journal of Electrical Engineering and Computer Science, 2021.
- Al-Akhir Nayan, Joyeta Saha, Ahamad Nokib Mozumder, Khan Raqib Mahmud, **AKA Azad**, "Early Detection of Fish Diseases by Analyzing Water Quality Using Machine Learning Algorithm", International Journal of Advanced Science and Technology, SERSC Journals, 2020
- Md. Asifuzzaman Jishan, Khan Raqib Mahmud, **AKA Azad**, Md Shahabub Alam, Anif Minhaz Khan, Hybrid deep neural network for Bangla automated image descriptor, International Journal of Advances in Intelligent Informatics, Vol. 6, No. 2, July 2020
- Al-Akhir Nayan, Joyeta Saha, Ahamad Nokib Mozumder, Khan Raqib Mahmud, **AKA Azad**, "Real Time Multi-Class Object Detection and Recognition Using Vision Augmentation Algorithm", International Journal of Advanced Science and Technology, SERSC Journals, 2020.
- Md. Asifuzzaman Jishan, Khan Raqib Mahmud, **AKA Azad**, Natural Language descriptor of images using hybrid neural network, International Journal of Electrical and Computer Engineering (IJECE), Volume 9, August 2019.
- KR Mahmud, MM Rhaman and **AKA Azad**, 'Parametric study of near-wall turbulence modelling for large eddy simulation of incompressible flows', International Journal for Numerical Methods in Engineering, June, 2017.
- A Hassan, MR Amin, **AKA Azad**, Nabeel Mohammed,' Sentiment analysis on Bangla and Romanized Bangla text using deep recurrent models', 2017, IEEE Xplore, doi: 10.1109/IWCI.2016.7860338
- L Rahman, Nabeel Mohammed, **AKA Azad**, 'A new LSTM model by introducing biological cell state', IEEE Explore, 2017, doi.: 10.1109/CEEICT.2016.7873164
- KR Mahmud, MM Rhaman and **AKA Azad**, 'Numerical simulation and analysis of incompressible Newtonian fluid flows using FreeFem++', Journal of Advanced Research in Fluid Mechanics and Thermal Sciences, 2016, Vol. 26(1), pp 1-19.
- A Roberts, D Conte, M Hull, R Merrison-Hort, **AKA Azad**, E Buhl, R Borisyuk, & SR Soffe, 2014, 'Can simple rules control development of a pioneer vertebrate neuronal network generating behavior?'. The Journal of Neuroscience : the official journal of the Society for Neuroscience, vol 34., pp. 608-621
- **AKA Azad**, 2013, 'Cluster synchrony dynamics in coupled neuronal bursters'. ULAB Journal of Science and Engineering, vol. 4, pp 2-9.
- Roman Borisyuk, **AKA Azad**, Deborah Conte, Alan Roberts, Stephen R Soffe. Modelling the connectome of a simple spinal cord. Frontiers in Neuroinfomatics; 01/2011; 5:20. DOI: 10.3389/fninf.2011.00020. (Endorsed by F1000 scholars).
- **AKA Azad** and Peter Ashwin. Within-burst synchrony changes for coupled elliptic bursters. SIAM Journal on Applied Dynamical Systems 9:261-281 ,2010.

PRESERVED IN PORTICO (Not peer-reviewed)
AKA Azad, AM Hussain. Modeling and Analysis of The Early-Growth Dynamics of COVID-19 Transmission. *Preprints* **2020**, 2020050372 (doi: 10.20944/preprints202005.0372.v1). (**Viewed: 856, downloads: 536**)

REFEREED CONFERENCE PROCEEDING
AKA Azad, R. Borisyuk, D. Conte, A. Roberts, S. R. Soffe. Gradient based axon growth modelling of different cell types with specific growth features in the spinal cord of hatchling Xenopus tadpole. *20th Annual Computational Meeting*, 2011, Stockholm, Sweden. On-line: Neuroscience 2011, 12 (Suppl 1):09. doi:10.1186/1471-2202-12-S1-O9.

CONTRIBUTED/ INVITED TALKS

- CNS, Stockholm, 2011. Main meeting, oral session. Gradient based axon growth modeling of different cell types with specific growth features in the spinal cord of hatchling Xenopus tadpole.
- *Equidiff*, Loughborough, 2011. Theoretical Neuroscience minisymposia. Nonlinear synchrony dynamics of coupled neuronal bursters.
- Patterns, Nonlinear Dynamics and Applications (PANDA), Bath, Apr 2010. Within-burst synchrony changes in mutually delay-coupled neuronal elliptic bursters.
- Mathematical Institute Seminars, University of Cologne, Germany, 2009. Within burst synchrony changes in coupled elliptic bursters.
- Nonlinear Neurodynamics Meeting, 18-19 Sept 2008.

CONFERENCE PROCEEDINGS

- J. P. Mondol, K. R. Mahmud, M. G. Kibria and **AKA Azad**. IoT based Smart Weather Monitoring System for Poultry Farm. 2nd International Conference on Advanced Information and Communication Technology (ICAICT), Dhaka, Bangladesh, 2020.
- Mayesha Mukarrama, **AKA Azad** and Khan Raqib Mahmud. Neural Network Compression By Filter Similarity Detection And Visualization. 2nd International Conference on Sustainable Technologies for Industry 4.0 (STI) 2020, IEEE Xplore Digital Library.
- Al-Akhir Nayan, Joyeta Saha, Khan Raqib Mahmud, **AKA Azad** and Muhammad Golam Kibria, Detection of Objects from Noisy Images. 2nd International Conference on Sustainable Technologies for Industry 4.0 (STI) 2020, IEEE Xplore Digital Library.
- Zaman R., Mahmud K.R., **Al Azad A.K.**, Asifuzzaman Jishan M. Prediction of DNA-Binding Protein from Profile-Based Hidden Markov Model. Proceedings of International Joint Conference on Computational Intelligence. IJCCI 2019. Algorithms for Intelligent Systems. Springer, Singapore.
- **AKA Azad**, R. Borisyuk. Study of the Connectome of a simple spinal cord locomotor network. Program: PP1. Siam Conference on Applications of Dynamical Systems, 2011, Snowbird, USA.
- R. Borisyuk, **AKA Azad**, Conte, A. Roberts, S. R. Soffe. Modelling the structure and function of a neuronal network in young frog tadpole spinal cord: a developmental approach. Mathematical Modeling and Computational Topics in Biosciences, June 4-8, 2012,Vietri sul Mare, Italy.
- **AKA Azad**, R. Borisyuk, D. Conte, S. R. Soffe, A. Roberts. Gradient based axon growth modelling of different cell types with specific growth features in the spinal cord of hatchling Xenopus tadpole. Program index: P002. 4th INCF congress of Neuroinfomatics 2011, Boston, USA.
- D. Conte, **AKA Azad**, S. R. Soffe, R. Borisyuk, A. Roberts. The developing spinal connectome: Can simple rules govern formation of pioneer spinal motor networks in *Xenopus* laevis tadpoles? Program No. 382.01. 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2011.
- R. Borisyuk, **AKA Azad**. Biologically realistic model of neural connections of the tadpole spinal cord generates swimming activity. Session IB. 9th International Workshop on Neural Coding, 2010, Limas sol, Cyprus.

THESES

Nonlinear synchrony dynamics of neuronal bursters, PhD thesis, University of Exeter, UK, 2010.

    E-link: https://eric.exeter.ac.uk/repository/handle/10036/96226

    Supervisor: Professor Peter Ashwin

ORGANIZER
- 3rd International Joint Conference on Computational Intelligence (IJCCI 2019), University of Liberal Arts Bangladesh, 25-26 October, 2019.
- Nonlinear Neurodynamics Meeting, 18-19 Sept 2008
  (Link: https://empslocal.ex.ac.uk/people/staff/pashwin/Workshop_18_Sept_2008.html)

PROFESSIONAL SOCIETIES
- Honorary Fellow of School of Computing & Mathematics, University of Plymouth, UK
- Society for Industrial and Applied Mathematics (SIAM); member
- Organization for Computational Neurosciences (OCNS); member
- Mathematical Neuroscience Network (MNN); member

PROFESSIONAL DEVELOPMENT
Induction of Teaching Assistants (IOTA**)** programme for graduate level teaching (17th Oct 2007, Exeter, UK). This is a six-hour, three-part programme that introduces lecturers in graduate teaching scope to some key principles in teaching and supporting students' learning in a university setting.

LANGUAGE
- Excellent in English; scored 8 out of 9 in IELTS with 9 in speaking category.
- Bengali, first language.

COMPUTING SKILLS
- ***Operating systems*** Windows, Mac (OS), Linux, ubuntu
- ***Specialized software and algorithms*** MatLab, Python, Xppaut (Dynamical systems & bifurcation analyses), Tensorflow

Hobbies
Traveling, photography, and piano.