

A. K. M. Azad, Ph.D.

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Personal Statement

- A passionate, motivated, and committed academician with over 05 years of experience in a leading Australian university, teaching students at both undergraduate and post-graduate level from various social and cultural background. Highly constructive, adaptive, and collaborative to effective teaching methods with excellent managerial, verbal and written skills to aspire excellence in teaching industries. Highly active researcher with excellent track-records and leadership in the field of Bioinformatics & Computational Biology, Artificial Intelligence, and Machine learning. Actively seeking for suitable academic opportunities at universities, institutes or colleges for enhancing teaching career.

Education

- 2013 – 2017 ▪ **Ph.D. Monash University, Clayton** in Computational Systems Biology.
Thesis title: *Computational modelling and characterisation of cell signaling cross-talks in acquired drug resistance.*
- 2010 – 2012 ▪ **M.Sc. Information & Communications, Gwangju Institute of Science & Technology, South Korea** in Data mining & computational biology.
Thesis title: *Network Reconstruction Approach for Integrating Gene Expression and Copy Number Aberration Reveals Cancer Related Pathways.*
- 2003 – 2008 ▪ **B.Sc. (Hons) Computer Science & Engineering, University of Dhaka, Bangladesh.**
Final year thesis title: *Plant Promoter Prediction: A machine learning approach.*

Employment History

- 2019 – ... ▪ **Casual Lecturer**, Central Queensland University, Sydney, Australia
- **Casual Lecturer**, Swinburne University of Technology, Sydney, Australia
- **Online Facilitator**, RMITOnline, Australia
- 2018 – ... ▪ **Post-doctoral Research Associate**, UNSW, Sydney, Australia
- 2017 – 2018 ▪ **Post-doctoral Research Fellow**, Monash University, Clayton, Australia
- 2014 – 2018 ▪ **Casual Teaching Associate**, Monash University, Clayton, Australia
- 2013 – 2017 ▪ **PhD Researcher**, Monash University, Clayton, Australia
- 2010 – 2013 ▪ **Researcher & Research Assistant**, Gwangju Institute of Science & Technology, Gwangju, South Korea
- 2009 – 2010 ▪ **Software Architect**, BDCOM, Dhaka, Bangladesh
- 2009 – 2009 ▪ **Senior .NET Programmer**, QusarBD, Dhaka, Bangladesh
- 2008 – 2009 ▪ **Visual Studio .NET Programmer**, SGCsoft.NET Pvt. Ltd., Dhaka, Bangladesh

Teaching

Courses

- **Intelligent systems**, *Postgraduate level*, 2 semesters, Monash University, Australia.

Teaching (continued)

- **Research methods in computer science**, *Postgraduate and undergraduate level*, 1 semester, Monash University, Australia.
- **Discrete mathematics for computer science**, *Undergraduate level* 5 semesters, Monash University, Australia.
- **Introduction to computer science**, *Undergraduate level*, 1 semester, Monash University, Australia.
- **Algorithms and programming**, *Undergraduate level*, 1 semester, Monash University, Australia.
- **Algorithmic problem solving**, *Undergraduate level*, 2 semesters, Monash University, Australia.
- **Techniques for modelling**, *Undergraduate level* 1 semester, Monash University, Australia.

Roles and Responsibilities

- Involved in researching, developing, and implementing effective course contents and teaching plans.
- facilitating face-to-face teaching and lab demonstration for various ICT-related courses both in postgraduate and undergraduate level.
- Managing online discussion boards and forums.
- Managing attendance and feedback.
- Marking, processing, and submitting of assessment results.
- Engaging one-to-one consultation and supports to slow learning students.
- Participating admin meetings to discuss course progresses with peers and mentors.

Research Interest

- Artificial Intelligence, Machine learning, Deep learning, Bioinformatics, Computational Biology, Bayesian Methods, Bayesian Network, Single-cell, Multi-omics integration, Next-generation Sequencing, Network modeling, bio-marker discovery, etc.

Research Publications

Full papers

- 1 **Azad, A. K. M.** & Vafae, F. (2019). Single cell data explosion: deep learning to the rescue. *arXiv preprint arXiv:1901.06105*.
- 2 Vafae, F. & **Azad, A. K. M.** (2019). Deep learning meets single-cell omics to personalise medicine. *Briefings in Bioinformatics [under review]*.
- 3 **Azad, A. K. M.** (2018a). Kpgminer: a tool for retrieving pathway genes from kegg pathway database. *bioRxiv*, 416131.
- 4 **Azad, A. K. M.** (2018b). Xtalkiis: a tool for finding data-driven cross-talks between intra-/inter-species pathways. *BioRxiv*, 437541.
- 5 **Azad, A. K. M.**, Alyami, S. A., & Keith, J. M. (2018). Bnmcmc: a software for learning and visualizing bayesian networks using mcmc methods. *bioRxiv*, 414953.
- 6 **Azad, A. K. M.**, Lawen, A., & Keith, J. M. (2018). Cross-talk categorisations in data-driven models of signalling networks: a system-level view. In *Gene expression and regulation in mammalian cells-transcription from general aspects*. InTech.

- 7 **Azad, A. K. M.** (2017). Integrating heterogeneous datasets for cancer module identification. In *Bioinformatics* (pp. 119–137). Springer.
- 8 **Azad, A. K. M., Lawen, A., & Keith, J. M.** (2017). Bayesian model of signal rewiring reveals mechanisms of gene dysregulation in acquired drug resistance in breast cancer. *PloS one*, *12*(3), e0173331.
- 9 Alyami, S. A., **Azad, A. K. M., & Keith, J. M.** (2016a). The neighborhood mcmc sampler for learning bayesian networks. In *First international workshop on pattern recognition* (Vol. 10011, 100111K). International Society for Optics and Photonics.
- 10 Alyami, S. A., **Azad, A. K. M., & Keith, J. M.** (2016b). Uniform sampling of directed and undirected graphs conditional on vertex connectivity. *Electronic Notes in Discrete Mathematics*, *53*, 43–55.
- 11 **Azad, A. K. M., Lawen, A., & Keith, J. M.** (2015, January). Prediction of signaling cross-talks contributing to acquired drug resistance in breast cancer cells by bayesian statistical modeling. *BMC Systems Biology*, *9*(1), 2. doi:10.1186/s12918-014-0135-x
- 12 **Azad, A. K. M. & Lee, H.** (2013). Voting-based cancer module identification by combining topological and data-driven properties. *PloS one*, *8*(8), e70498.
- 13 **Azad, A. K. M., Shahid, S., Noman, N., & Lee, H.** (2011). Prediction of plant promoters based on hexamers and random triplet pair analysis. *Algorithms for Molecular Biology*, *6*(1), 19.

Papers in prep

- 1 Alyami, S. A., **Azad, A. K. M., & Keith, J. M.** (n.d.[a]). *Adaptive techniques for large-scale bayesian network inference using mcmc methods.*
- 2 Alyami, S. A., **Azad, A. K. M., & Keith, J. M.** (n.d.[b]). *Discrete hit-and-run markov chain algorithm to sample connected bayesian networks.*
- 3 Asad, T. & **Azad, A. K. M.** (n.d.). *Modelling and characterizing system-level mechanisms of malaria resistance using bayesian statistical modelling and bioinformatic approach.*
- 4 **Azad, A. K. M., Lawen, A., & Keith, J. M.** (n.d.). *Integrating phosphoproteomics and transcriptomics to elucidate the role of signaling cross-talks contributing to acquired resistance in breast cancer.*

Abstracts

- 1 **Azad, A. K. M., Lawen, A., & Keith, J. M.** (2016). Bayesian approach for modelling condition-specific signal rewiring reveals possible mechanism of gene dys-regulation in acquired resistance in breast cancer cell-lines. ISMB conference, Florida, USA.
- 2 Alyami, S. A., **Azad, A. K. M., & Keith, J. M.** (2015). A new version of the hit-and-run algorithm to sample graph spaces. The 39th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, University of Queensland, Australia.
- 3 **Azad, A. K. M. & Keith, J. M.** (2014). Prediction of drug-resistive cross-talks among signaling pathways in breast cancer by bayesian statistical modeling. International Conference on Systems Biology, Melbourne, Australia.
- 4 **Azad, A. K. M. & Lee, H.** (2011). Network reconstruction approach for integrating gene expression and copy number dataset. GIW conference, Busan, South Korea.

Skills

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| R&D technologies | ■ Deep Learning Keras PyTorch Tensorflow Big Data Data Analytics Machine learning Artificial intelligence Computational cancer genomics Computational Biology Bioinformatics NGS Data integration Bayesian statistical modelling Natural language generation Bioconductor Shiny Bayesian Methods MCMC sampling Bayesian Network WinBUGS JAGS NeticaJ APIs AgenaRisk APIs High-performance Computing. |
| Coding | ■ R Python C#.Net VB.Net Java/J2EE MATLAB Shell Scripting. |
| Databases | ■ Microsoft SQL Server Oracle MySQL MS Access ADO.Net ODBC OLE DB SQLite. |
| Web Dev | ■ ASP.Net MVC REST Web APIs HTML5 CSS3 JavaScript JQuery D3.js Ajax XML JSON Xampp. |
| IDEs | ■ MS Visual Studio Eclipse Xamarin IntelliJ Idea Xcode RStudio PyCharm. |
| source control | ■ Git GitHub Bitbucket. |
| Development platforms | ■ Windows Linux OSX iOS. |
| Misc. | ■ Academic research, teaching, training, consultation, L ^A T _E X typesetting and publishing. |

Supervision and Mentorship

- **Research Associate**, School of BABS, UNSW Sydney, Australia.
Research: *Drug repositioning*
- **Research Associate**, School of BABS, UNSW Sydney, Australia.
Research: *Biomarker Discovery*
- **SVRP Student**, School of BABS, UNSW Sydney, Australia.
Research: *Cell-identity mapping from massive single-cell data using deep learning*
- **SVRP Student**, School of BABS, UNSW Sydney, Australia.
Research: *Deep learning for multi-omics integration*
- **MS Student**, Monash University, Australia.
Research: *Discovering novel mechanisms of drug-resistance in malaria using systems biological approach*

Presentations and Invited talk

- 2019 ■ Presented a seminar talk at the **School of Biotechnology & Biomolecular Sciences** (University of New South Wales, Australia) on deep learning based functional effect prediction of brain-specific noncoding variants
- 2017 ■ Presented a seminar talk at the **Monash Bioinformatics Platform** (Monash University, Clayton, Australia) on computational modelling and characterisations of signalling cross-talks in acquired drug resistance
- 2014 ■ Presented a poster at the **ICSB 2014** - 15th International Conference on Systems Biology, Melbourne, Australia
- 2011 ■ Presented a poster at the **GIW 2011** - 22nd international conference on genome informatics, Busan, South Korea

Professional Memberships

- **Bioinformatics Editor**, WebmedCentral, UK

Professional Memberships (continued)

- ▀ Peer Reviewer, Artificial Intelligence Review (AIRE)
- ▀ Peer Reviewer, BMC Supplements

Miscellaneous Experience

Awards

- 2017 ▀ Post Publication Award (PPA), Monash University, Australia.
- 2013 ▀ Monash IPRS scholarship (MIPRS), Monash University, Australia.
▀ Monash Graduate Scholarship (MGS), Monash University, Australia.
▀ Departmental Top-up Scholarship, School of Mathematical Sciences, Monash University, Australia.
▀ Travel grants from Monash University, Australia for presenting research works in domestic and international conferences.
- 2010 ▀ Financial supports scholarship from GIST, South Korea, for MS research students through Research Assistantships, tuition assistance, and monthly stipends.
- 1998–2003 ▀ Bangladesh government scholarships for outstanding results in HSC (higher secondary school), SSC (secondary school certificate), and JSC (junior school certificate) exams..

Specialization and Certification

- 2019 ▀ Big data specialization. Awarded by University of California San Diego, Coursera.
- 2014 ▀ Sesional Staff training. Awarded by the Faculty of IT, Monash University.

References

Available on Request