

# Ashis Kumer Biswas

Resumé<sup>1</sup>

603 Causley Ave, Apt 37  
Arlington, Texas 76010, USA

☎ +1 (682) 234-3458

✉ ashis.biswas@mavs.uta.edu

🏠 biomecis.uta.edu/~ashis

🌐 ashiskb

🐦 ashiscsedu

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## Summary

Multidisciplinary research experience in Bioinformatics problem solving from works performed during graduate level studies. Knowledge in current state-of-the-art machine learning and data mining concepts and techniques to tackle challenging tasks in the computer science domain. Motivating and energetic teacher driven to inspire students to pursue academic and personal excellence. Always put effort to create engaging learning environment where students become life-long scholars and learners. Extraordinary track record of research success with multiple publications.

### Fields of Interest

**Machine Learning, Data Mining, Bioinformatics.**

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## Work Experience

- Aug 2011 – **Graduate Teaching Assistant**, *University of Texas at Arlington*, Arlington, Texas, USA.  
present
- Jan 2010 – **Lecturer**, *University of Dhaka*, Bangladesh.  
present I was engaged in teaching under-graduate classes: programming in C, programming in Java, microcontroller and interface programming, internet security and cryptography. And, I devoted myself in motivating a lot of students from my programming class to engage in problem solving and arranged weekly programming competitions, and regular training sessions for them to prepare for participating in national and international competitions.
- Apr 2009 - **Lecturer**, *University of Asia Pacific*, Dhaka, Bangladesh.  
Jan 2010 I taught few under-graduate courses: programming in C, programming in Java, microcontroller and interface programming. I engaged myself in preparing students to participate in national and international programming competitions.
- Feb 2008 - **Lecturer**, *State University of Bangladesh*, Dhaka, Bangladesh.  
Dec 2008 I taught few under-graduate courses: computer graphics, data communication, distributed computing, programming in java, and I trained a couple of teams to prepare for participating in national and international programming competitions.

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## Education

- Aug 2011 – present **Ph.D. candidate in Computer Science and Engineering**, *University of Texas at Arlington*, Arlington, Texas, USA, GPA:4.0/4.0 so far.  
Supervisor: Dr. Jean X. Gao
- Oct 2009 **M.S. in Computer Science and Engineering**, *University of Dhaka*, Dhaka, Bangladesh, Score: 77.38% (4<sup>th</sup> place in order of merit).  
Thesis Supervisor: Dr. Nasimul Noman  
Thesis title: Machine Learning Approach to Predict Protein Phosphorylation Sites
- Mar 2008 **B.Sc.(hons.) in Computer Science and Engineering**, *University of Dhaka*, Dhaka, Bangladesh, Score: 80.88% (1<sup>st</sup> place in order of merit).  
Thesis Supervisor: Dr. Hafiz Md. Hasan Babu  
Thesis title: Efficient Design of an  $N$ -bit Reversible Processor

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## Research/Academic Projects

### Projects in Ph.D. (so far)

- R,Matlab Association study between Long non-coding RNA and human diseases.
- Matlab Structure oriented clustering of the non-coding RNA segments from the Next Generation Sequencing platform, RNA-seq.
- R Distinguishing coding and non-coding RNA transcripts.
- Java Infobox suggestions for wikipedia articles

### Projects in M.S.

- C,SVM Phosphorylation Site Predictions in proteins using Support Vector Machines (SVMs).
- Java An advanced networking project to implement a streaming video server and client that communicates using the Real-Time Streaming Protocol (RTSP) and send data using the Real-time Transfer Protocol (RTP).

### Projects in B.Sc. (hons.)

- ASP.NET(C#)Enterprise Service and Transaction Management (ESTM) project suitable for Oracle 9i mobile phone operators to manage user call transactions to high level report generations.
- C,X-GUI An operating system project to simulate a simple traffic control system on a 4-way intersection with various traffic conditions. I used processes to represent cars, mutex locks as traffic signals and proposed traffic conditions to avoid deadlocks.
- C,OpenGL GL-Ball – a game almost similar to the popular DX-Ball by Michael P. Welch.
- Java A chat server and chat client with user-friendly GUI that are capable of passing messages securely using the digital signature scheme.
- C Automatic Coordinator Selection in a distributed networking infrastructure where a ring election algorithm scheme to elect a most capable coordinator and announce to everyone.

- C, Lex, Yacc Implementation of a compiler for a subset of Pascal Programming Language and generated SPIM code that can be executed in SPIM simulator.
- Visual C, Interfacing An interfacing project, to design and implement a remote control receiver device and developing a user-friendly software using Microsoft Foundation Classes (MFC) to control mouse movements, clicks and basic operations like power-off, restart, volume up/down so that an ordinary TV remote can be used to control the PC.

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## Languages

- Bangla Native speaker  
English Fluent

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## Honors, Awards and Achievements

### Education

- 2014 Best Paper Award in the Bioinformatics category: Received at the 14th IEEE International Conference on Bioinformatics and BioEngineering (BIBE-2014) conference for the paper “NMF-based LncRNA-Disease Association Inference and Bi-clustering”
- 2011 – Enhanced Graduate Teaching Assistantship to pursue Ph.D. at the University of present Texas at Arlington, USA from August 2011 to present.
- 2008 Attorney Alamgir Gold Medal 2005: From the University of Dhaka for achieving the highest score in the B.Sc. (Hons.) among all the students in the faculty of Science (session: 2005).
- 2008 Kudrat-E-Khuda Scholarship 2005: From the University of Dhaka for securing the 1st position in the B.Sc. (Hons.) (session: 2005).

### Programming competitions

- 2006 6th Position as team “DU Apocalypse” at the ACM International Collegiate Programming Contest (ACM ICPC) 2006, Dhaka site
- 2006 10th Position as team “DU Apocalypse” at the EWUIPC (an Inter-University Programming Contest at East West University, Dhaka, Bangladesh), 2006
- 2006 13th Position as team “DU Apocalypse” at the AIPC (an Inter-university programming contest at American International University, Dhaka, Bangladesh), 2006.
- 2004 40th Position as team “DU Knights” at the ACM International Collegiate Programming Contest (ACM ICPC) 2004, Dhaka site.

### Professional certifications

- 2007 CCNA (Cisco Certified Network Associate): My certificate verification number: 393854170255GPXM. The certificate can be verified at <http://www.ciscocertificates.com/verify.cfm>

## Athletics

- 2016 Marathon Finisher: I completed the USATF certified 26.2 miles of the Big D Texas Marathon presented by Mellow Productions, Dallas, TX (April 10, 2016). I took 4:50:26 to finish.
- 2014 Half Marathon Finisher: I completed the USATF certified 13.1 miles of the Austin Half Marathon presented by Freescale, Austin, TX (February 16, 2014). I took 2:35:42 to finish.

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## Professional Activities

Reviewer for NetMAHIB (2015), CBM (2015), BIBM (2015, 2014, 2013), BMC Bioinformatics (2016), ETRI (2015), MEJ (2015).

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## Extra-curricular Interests

Running, Hiking, Cycling, Traveling, Photography

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## References

Reference Contact to my supervisors from University of Texas at Arlington, USA and University of Dhaka, Bangladesh.

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## Journal Publications

### Journal Publications

- [1] M. Kang, J. Park, D. C. Kim, A. Biswas, C. Liu, and J. Gao, "Multi-block bipartite graph for integrative genomic analysis," *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, vol. PP, no. 99, pp. 1–1, 2016.
- [2] A. K. Biswas and J. X. Gao, "Pr2s2clust: Patched rna-seq read segments' structure-oriented clustering," *Journal of Bioinformatics and Computational Biology*, p. 1650027, 2016.
- [3] A. K. Biswas, M. Kang, D.-C. Kim, C. H. Ding, B. Zhang, X. Wu, and J. X. Gao, "Inferring disease associations of the long non-coding rnas through non-negative matrix factorization," *Network Modeling Analysis in Health Informatics and Bioinformatics*, vol. 4, no. 1, pp. 1–17, 2015.
- [4] A. K. Biswas, B. Zhang, X. Wu, and J. X. Gao, "Cnctdiscriminator: Coding and noncoding transcript discriminator—an excursion through hypothesis learning and ensemble learning approaches," *Journal of bioinformatics and computational biology*, vol. 11, no. 05, p. 1342002, 2013.
- [5] A. K. Biswas, L. Jamal, M. Mottalib, and H. M. H. Babu, "Design of a reversible parallel loading shift register," *Dhaka Univ. J. Eng & Tech*, vol. 1, no. 2, pp. 1–5, 2011.

- [6] A. K. Biswas, N. Noman, and A. R. Sikder, “Machine learning approach to predict protein phosphorylation sites by incorporating evolutionary information,” *BMC bioinformatics*, vol. 11, no. 1, p. 273, 2010.
- [7] S. M. Khaled, R. Karim, A. K. Biswas, R. Rahman, N. Newsheen, and M. A. Qayum, “Optimization of reliability in a real time security system controlled by embedded internet technology,” *Asian Journal of Information Technology*, vol. 6, no. 10, pp. 1050–1056, 2007.
- [8] A. K. Biswas, M. M. Hasan, A. R. Chowdhury, and H. M. H. Babu, “Efficient approaches for designing reversible binary coded decimal adders,” *Microelectronics journal*, vol. 39, no. 12, pp. 1693–1703, 2008.

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## Conference Publications

### Conference Publications

- [9] A. K. Biswas, B. Zhang, X. Wu, and J. X. Gao, “Improving consensus hierarchical clustering framework,” in *Proceedings of the 2015 International Conference on Communications, Signal Processing, and Systems*. Springer, 2015, pp. 781–791.
- [10] M. Kang, J. Park, D.-C. Kim, A. K. Biswas, C. Liu, and J. Gao, “An integrative genomic study for multimodal genomic data using multi-block bipartite graph,” in *Bioinformatics and Biomedicine (BIBM), 2015 IEEE International Conference on*. IEEE, 2015, pp. 563–568.
- [11] D.-C. Kim, M. Kang, A. Biswas, C. Liu, and J. Gao, “Integrative approach for inference of gene regulatory networks using lasso-based random featuring and application to psychiatric disorders,” in *Bioinformatics and Biomedicine (BIBM), 2015 IEEE International Conference on*. IEEE, 2015, pp. 145–150.
- [12] A. K. Biswas, B. Zhang, X. Wu, and J. X. Gao, “A multi-label classification framework to predict disease associations of long non-coding rnas (lncrnas),” in *The Proceedings of the Third International Conference on Communications, Signal Processing, and Systems*. Springer International Publishing, 2015, pp. 821–830.
- [13] A. K. Biswas, J. X. Gao, B. Zhang, and X. Wu, “Nmf-based lncrna-disease association inference and bi-clustering,” in *Bioinformatics and Bioengineering (BIBE), 2014 IEEE International Conference on*. IEEE, 2014, pp. 97–104.
- [14] A. K. Biswas, B. Zhang, X. Wu, and J. X. Gao, “An information integration approach for classifying coding and non-coding genomic data,” in *The Proceedings of the Second International Conference on Communications, Signal Processing, and Systems*. Springer, 2014, pp. 1085–1093.
- [15] —, “Qlzcclust: Quaternary lempel-ziv complexity based clustering of the rna-seq read block segments,” in *Bioinformatics and Bioengineering (BIBE), 2013 IEEE 13th International Conference on*. IEEE, 2013, pp. 1–4.

- [16] A. K. Biswas, J. X. Gao, X. Wu, and B. Zhang, “Integrating rna-seq transcript signals, primary and secondary structure information in differentiating coding and non-coding rna transcripts,” in *The 5th International Conference on Bioinformatics and Computational Biology (BICoB) 2013, Honolulu, Hawaii*. ISCA, 2013.
- [17] A. Sultana, Q. M. Hasan, A. K. Biswas, S. Das, H. Rahman, C. Ding, and C. Li, “Infobox suggestion for wikipedia entities,” in *Proceedings of the 21st ACM international conference on Information and knowledge management*. ACM, 2012, pp. 2307–2310.
- [18] A. K. Biswas, A. R. Sikder, and N. Noman, “Incorporating evolutionary information in protein phosphorylation site predictions,” in *The 8th Asia Pacific Bioinformatics Conference (APBC 2010), held on 18-21 January 2010 in Bangalore, India*. ISCB, 2010.
- [19] A. K. Biswas, M. M. Hasan, M. Hasan, A. R. Chowdhury, and H. M. H. Babu, “A novel approach to design bcd adder and carry skip bcd adder,” in *VLSI Design, 2008. VLSID 2008. 21st International Conference on*. IEEE, 2008, pp. 566–571.
- [20] S. M. Khaled, A. K. Biswas, M. A. Qayum, and M. L. Rahman, “Present status of telecommunication in bangladesh and its impact on ict,” in *The 9th International Conference on Computer & Information Technology*, 2006, pp. 221–226.
- [21] S. M. Khaled, A. K. Biswas, M. L. Rahman, and S. Pervin, “An analysis on human resource development in the ict sector of bangladesh,” in *The 8th International Conference on Computer & Information Technology*, 2005, pp. 507–512.