



Ashis Kumer Biswas

*Curriculum vitæ*¹

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Research Interests

Machine Learning, Data Mining, Big Data Analysis.

Ensemble Learning; Inductive Matrix Completion; Non-negative Matrix Completion; Multi-label learning; Recommender systems; Sparse learning; Graph mining; Cross-Language Text Classification; Wikipedia article enhancement; Numerical optimization.

Bioinformatics.

Non-coding RNA annotations; High Throughput Sequencing (HTS) (*a.k.a.* Next Generation Sequencing (NGS) Data Analysis: RNA-seq, ChIP-seq; Genome Wide Association Study (GWAS); Gene disease association study; Integrative approaches for heterogeneous genomic data including but not limited to: gene expression, SNP, secondary structure of RNA; Computational modeling of eQTL epistasis;

Education

Dec 2016 **Ph.D. in Computer Science and Engineering**, *University of Texas at Arlington*, Arlington, Texas, USA.

Dissertation Title: Integrative Approaches for Large-scale Biomedical Data Analysis
Dissertation Advisor: Dr. Jean X. Gao

Oct 2009 **M.S. in Computer Science and Engineering**, *University of Dhaka*, Dhaka, Bangladesh, Position: First class fourth place in order of merit.

Thesis title: Machine Learning Approach to Predict Protein Phosphorylation Sites
Thesis Advisor: Dr. Nasimul Noman

Apr 2008 **B.Sc.(hons.) in Computer Science and Engineering**, *University of Dhaka*, Dhaka, Bangladesh, Position: First class first place in order of merit.

Thesis title: Efficient Design of an N -bit Reversible Processor
Thesis Advisor: Dr. Hafiz Md. Hasan Babu

Professional Appointments

Aug'17– present **Assistant Professor**, *University of Colorado Denver*, Colorado, USA.

Jan'17– Aug'17 **Instructor**, *University of Texas at Arlington*, Texas, USA.

Jan'10 – Aug'11 **Lecturer**, *University of Dhaka*, Dhaka, Bangladesh.

¹Curriculum vitæ last updated on July 10, 2017.

Apr'09– **Lecturer**, *University of Asia Pacific*, Dhaka, Bangladesh.
Jan'10
Feb'08– **Lecturer**, *State University of Bangladesh*, Dhaka, Bangladesh.
Dec'08
Sep'07– **Programming Contest Coach**, *Eastern University*, Dhaka, Bangladesh.
Nov'07

Journal Publications

- [1] **JBCB 2017**: Kim, Dong-Chul and Kang, Mingon and Biswas, Ashis and Yang, Chin-Rang and Wang, Xiaoyu and Gao, Jean X, “Effects of low dose ionizing radiation on dna damage-caused pathways by reverse-phase protein array and bayesian networks,” *Journal of Bioinformatics and Computational Biology*, vol. 15, no. 02, p. 1750006, 2017.
- [2] **JBCB 2016**: Ashis Kumer Biswas and Jean X. Gao, “PR2S2Clust: Patched RNA-seq read segments’ structure-oriented clustering,” *Journal of Bioinformatics and Computational Biology*, vol. 14, no. 05, p. 1650027, 2016.
- [3] **BMC Medical Genomics 2016**: Dong-Chul Kim and Mingon Kang and Ashis Kumer Biswas and Chunyu Liu and Jean Gao, “Integrative approach for inference of gene regulatory networks using lasso-based random featurng and application to psychiatric disorders,” *BMC Medical Genomics*, vol. 9, no. 2, p. 50, 2016.
- [4] **TCBB 2016**: Mingon Kang and Juyoung Park and Dong-Chul Kim and Ashis Kumer Biswas and Chunyu Liu and Jean 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.
- [5] **NetMAHIB 2015**: Ashis Kumer Biswas and Mingon Kang and Dong-Chul Kim and Chris H.Q. Ding and Baoju Zhang and Xiaoyong Wu and Jean 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.
- [6] **JBCB 2013**: Ashis Kumer Biswas and Baoju Zhang and Xiaoyong Wu and Jean 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.
- [7] **DUJET 2011**: Ashis Kumer Biswas and Lafifa Jamal and MA Mottalib and Hafiz Md Hasan Babu, “Design of a Reversible Parallel Loading Shift Register,” *Dhaka University Journal of Engineering & Technology*, vol. 1, no. 2, pp. 1–5, 2011.
- [8] **BMC Bioinformatics 2010**: Ashis Kumer Biswas and Nasimul Noman and Abdur R. Sikder, “Machine learning approach to predict protein phosphorylation

sites by incorporating evolutionary information,” *BMC Bioinformatics*, vol. 11, no. 1, p. 273, 2010.

- [9] **MEJ 2008**: Ashis Kumer Biswas and Md Mahmudul Hasan and Ahsan Raja Chowdhury and Hafiz Md Hasan Babu, “Efficient approaches for designing reversible binary coded decimal adders,” *Microelectronics journal*, vol. 39, no. 12, pp. 1693–1703, 2008.
- [10] **AJIT 2007**: Shah Mostafa Khaled and Rezaul Karim and Ashis Kumer Biswas and R.H. Rahman and Nusrat Nowsheen and Mohammad Abdul 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.
- [11] **Bioinformatics**: Ashis Kumer Biswas and Mingon Kang and Dong-Chul Kim and Jean X. Gao, “LiDiAimc: LincRNA-Disease Associations through Inductive Matrix Completion,” *Bioinformatics*, (under review).
- [12] **TCBB**: Ashis Kumer Biswas and Dong-Chul Kim and Mingon Kang and Jean X. Gao, “Robust Inductive Matrix Completion Strategy to Explore Associations between LincRNAs and Human Disease Phenotypes,” *IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)*, (under review).
- [13] **BMC Medical Genomics**: Ashis Kumer Biswas and Mingon Kang and Dong-Chul Kim and Jean X. Gao, “Stable solution to $\ell_{2,1}$ -based Inductive Matrix Completion Strategy and its application in human disease studies,” *BMC Medical Genomics*, (preparing).

Conference Publications

- [14] **BIBM 2016**: Ashis Kumer Biswas and Dong-Chul Kim and Mingon Kang and Jean X. Gao, “Robust Inductive Matrix Completion Strategy to Explore Associations between LincRNAs and Human Disease Phenotypes,” in *2016 IEEE International Conference on Bioinformatics and Biomedicine*. IEEE, Dec. 15–18, 2016, [Acceptance Rate: 70/361 (19.4%)].
- [15] **BIBM 2015**: Mingon Kang and Juyoung Park and Dong-Chul Kim and Ashis Kumer Biswas and Chunyu Liu and Jean X. Gao, “An integrative genomic study for multimodal genomic data using multi-block bipartite graph,” in *2015 IEEE International Conference on Bioinformatics and Biomedicine*. IEEE, Nov. 9–12, 2015, pp. 563–568, [Acceptance Rate: 68/346 (19.6%)].
- [16] **BIBM 2015**: Dong-Chul Kim and Mingon Kang and Ashis Kumer Biswas and Chunyu Liu and Jean X. Gao, “Integrative approach for inference of gene regulatory networks using lasso-based random featurer and application to Psychiatric disorders,” in *2015 IEEE International Conference on Bioinformatics and Biomedicine*. IEEE, Nov. 9–12, 2015, pp. 145–150, [Acceptance Rate: 68/346 (19.6%)].

- [17] **CSPS 2015:** Ashis Kumer Biswas and Baoju Zhang and Xiaoyong Wu and Jean X. Gao, “A Multi-Label Classification Framework to Predict Disease Associations of Long Non-coding RNAs (lncRNAs),” in *Proceedings of the Third International Conference on Communications, Signal Processing, and Systems*. Springer International Publishing, Oct. 23–24, 2015, pp. 821–830.
- [18] —, “Improving Consensus Hierarchical Clustering Framework,” in *Proceedings of the 2015 International Conference on Communications, Signal Processing, and Systems*. Springer, Oct. 23–24, 2015, pp. 781–791.
- [19] **BIBE 2014:** Ashis Kumer Biswas and Jean X. Gao and Baoju Zhang and Xiaoyong Wu, “NMF-Based LncRNA-Disease Association Inference and Bi-Clustering,” in *2014 IEEE International Conference on Bioinformatics and Bioengineering*. IEEE, Nov. 10–12, 2014, pp. 97–104, received the Best Paper Award.
- [20] **CSPS 2014:** Ashis Kumer Biswas and Baoju Zhang and Xiaoyong Wu and Jean X. Gao, “An Information Integration Approach for Classifying Coding and Non-Coding Genomic Data,” in *Proceedings of the Second International Conference on Communications, Signal Processing, and Systems*. Springer, Jul. 14–15, 2014, pp. 1085–1093.
- [21] **BIBE 2013:** Ashis Kumer Biswas and Baoju Zhang and Xiaoyong Wu and Jean X. Gao, “QLZCclust: Quaternary lempel-Ziv complexity based clustering of the RNA-seq read block segments,” in *IEEE 13th International Conference on Bioinformatics and Bioengineering*. IEEE, Nov. 10–13, 2013, pp. 1–4.
- [22] **BICoB 2013:** Ashis Kumer Biswas and Jean X. Gao and Xiaoyong Wu and Baoju 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*. ISCA, Mar. 4–6, 2013.
- [23] **CIKM 2012:** Afroza Sultana and Quazi Mainul Hasan and Ashis Kumer Biswas and Soumyava Das and Habibur Rahman and Chris Ding and Chengkai Li, “Infobox suggestion for Wikipedia entities,” in *Proceedings of the 21st ACM international conference on Information and knowledge management*. ACM, Oct. 29 – Nov. 2, 2012, pp. 2307–2310.
- [24] **APBC 2010:** Ashis Kumer Biswas and Abdur Rahman Sikder and Nasimul Noman, “Incorporating Evolutionary Information in Protein Phosphorylation Site Predictions,” in *The 8th Asia Pacific Bioinformatics Conference*. ISCB, Jan. 18–21, 2010.
- [25] **VLSI Design 2008:** Ashis Kumer Biswas and Md Mahmudul Hasan and Moshaddek Hasan and Ahsan Raja Chowdhury and Hafiz Md Hasan Babu, “A novel approach to design BCD adder and Carry Skip BCD adder,” in *21st International Conference on VLSI Design*. IEEE, Jan. 4–8, 2008, pp. 566–571.

- [26] **ICCIT 2006:** Shah Mostafa Khaled and Ashis Kumer Biswas and Mohammad Abdul Qayum and M Lutfar Rahman, “Present Status of Telecommunication in Bangladesh and its Impact on ICT,” in *The 9th International Conference on Computer & Information Technology*, Dec. 21–23, 2006, pp. 221–226.
- [27] **ICCIT 2005:** Shah Mostafa Khaled and Ashis Kumer Biswas and M Lutfar Rahman and Suraiya Pervin, “An Analysis on Human Resource Development in the ICT Sector of Bangladesh,” in *The 8th International Conference on Computer & Information Technology*, Dec. 28–30, 2005, pp. 507–512.

Honors & Awards

- 2017 **Invited** to submit an extended version of our BIBM 2016 paper in the journal of BMC Medical Genomics.
- 2015 **Invited** to submit an extended version of our BIBE 2014 paper in the journal of Network Modeling Analysis in Health Informatics and Bioinformatics.
- 2014 **Winner**, Best Paper Award in the Bioinformatics category at the 14th IEEE International Conference on BioInformatics and BioEngineering (BIBE) for the paper “NMF-based LncRNA-Disease Association Inference and Bi-clustering”.
- 2013 **Invited** to submit an extended version of our BICoB 2013 paper in the Journal of Bioinformatics and Computational Biology.
- 2011 **Received**, Enhanced Graduate Teaching Assistantship to pursue Ph.D. at the University of Texas at Arlington, USA (2011–2016).
- 2008 **Winner**, Attorney Alamgir Gold Medal from the University of Dhaka for achieving the highest score in the B.Sc. (Hons.) among all the students in the faculty of Science (academic session: 2005).
- 2008 **Received**, Kudrat-E-Khuda Scholarship from the University of Dhaka for securing the 1st position in the B.Sc. (Hons.) (academic session: 2005).
- 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.
- 2005 **13th Position** as team “DU Apocalypse” at the AIPC (an Inter-university programming contest at American International University, Dhaka, Bangladesh), 2005.
- 2004 **40th Position** as team “DU Knights” at the ACM International Collegiate Programming Contest (ACM ICPC) 2004, Dhaka site.

Teaching and Mentoring Experiences

(More than 3 years of teaching experience)

Instructor

- Sum'17– **Algorithms and Data Structures (CSE-2320)**, *University of Texas at Arlington*, U.S.A..
 Aug'17 *ton*, U.S.A..
 Class size 34.
- Spr'17– **Discrete Structures (CSE-2315)**, *University of Texas at Arlington*, U.S.A..
 May'17 Three sections with enrollments 44, 48 and 15 respectively.
- Spr'10,'11 **Programming Fundamentals**, *University of Dhaka*, Bangladesh.
 Spr'11 **Internet Security and Cryptography**, *University of Dhaka*, Bangladesh.
- Spr'10,'11, **Programming Fundamentals Lab**, *University of Dhaka*, Bangladesh.
 Fall'10
- Spr'10,Fall'10 **Object Oriented Programming Lab**, *University of Dhaka*, Bangladesh.
 Fall'10 **Microcontroller and Interface Programming Lab**, *University of Dhaka*, Bangladesh.
- Sum'09,'10, **Programming in C**, *University of Asia Pacific*, Bangladesh.
 Fall'09
- Sum'09,'10, **Object Oriented Programming**, *University of Asia Pacific*, Bangladesh.
 Fall'09
- Fall'11 **Microcontroller & Interface Programming**, *University of Asia Pacific*, Bangladesh.
- Spr'08,Sum'08 **Computer Graphics**, *State University of Bangladesh*, Bangladesh.
- Spr'08,Fall'08 **Data Communication**, *State University of Bangladesh*, Bangladesh.
 Fall'08 **Distributed Computing**, *State University of Bangladesh*, Bangladesh.
 Fall'08 **Programming in Java**, *State University of Bangladesh*, Bangladesh.
- MS Thesis Supervisor
- Fall'10– **Salim Sazed**, *University of Dhaka*, Bangladesh.
 Spr'11 Thesis title: Cancer Classification on gene expression profile.
- Research Mentor of High School Students
- Sum'16 **A. Zhang (Oakridge School) and J. Wong (Martin High School)**, *University of Texas at Arlington*, U.S.A..
 Project co-supervised: Classifying Lung Cancer (LUAD) affected tissues through analyzing Tissue images provided by the TCGA consortium.
- Programming Contest Coach
- Spr'10– **Coach**, *University of Dhaka*, Bangladesh.
 Spr'11
- Sum'09– **Coach**, *University of Asia Pacific*, Bangladesh.
 Fall'09
- Sum'08– **Coach**, *State University of Bangladesh*, Bangladesh.
 Fall'08
- Guest Lecturer

Fall'16, **Data Analysis and Modeling Techniques (CSE-5301)**, *University of Texas*
Spr'15,'16 *at Arlington, U.S.A..*

Fall'14,'15 **Discrete Structures (CSE-2315)**, *University of Texas at Arlington, U.S.A..*

Spr'15 **Intermediate Programming (CSE-1320)**, *University of Texas at Arlington,*
U.S.A..

Teaching Assistant

Spr'15,'16, **Data Analysis and Modeling Techniques (CSE-5301)**, *University of Texas*
Fall'16 *at Arlington, U.S.A..*

Sum'16 **Web Data Management (CSE-5335)**, *University of Texas at Arlington, U.S.A..*

Fall'14,'15 **Discrete Structures (CSE-2315)**, *University of Texas at Arlington, U.S.A..*

Sum'15 **Professional Practices (CSE-4314)**, *University of Texas at Arlington, U.S.A..*

Fall'13,Spr'14, **Theoretical Concepts in Computer Science and Engineering (CSE-**
Sum'14 **3315)**, *University of Texas at Arlington, U.S.A..*

Spr'13 **Special Topics in Information Security (CSE-6388)**, *University of Texas at*
Arlington, U.S.A..

Sum'12 **Introduction to Digital Logic (CSE-2441)**, *University of Texas at Arlington,*
U.S.A..

Fall'12 **Computer Organization and Assembly Language Programming (CSE-**
2312), *University of Texas at Arlington, U.S.A..*

Fall'11,'12, **Computer Literacy (CSE-1301)**, *University of Texas at Arlington, U.S.A..*
Spr'12

Professional Activities

- Program committee member for –
 - o The 9th International Workshop on Biological Network Analysis and Integrative Graph-Based Approaches (IWBNA) (Co-located with BIBM 2016).
 - o The 1st International Conference on Data Intelligence and Security (ICDIS), (to be held in April 2018).

- Reviewer for –
 - o IEEE International Conference on Bioinformatics and BioEngineering (BIBE) – 2016,
 - o Transactions on Biomedical Engineering (TBME) – 2016,
 - o Network Modeling Analysis in Health Informatics and Bioinformatics (NetMAHIB) – 2015,
 - o Computers In Biology and Medicine (CBM) – 2015,
 - o IEEE International Conference on Bioinformatics and Biomedicine (BIBM) – 2015, 2014, 2013,
 - o BMC Bioinformatics – 2016,
 - o Electronics and Telecommunications Research Institute (ETRI) – 2015,
 - o Elsevier Microelectronics Journal (MEJ) – 2015,
 - o International Journal of Data Mining and Bioinformatics (IJDMB) – 2016.

- Member as IEEE Graduate Student since 2015 (Member # 92783372)
- General Secretary at the Bangladesh Students’ Organization (BSO) in the University of Texas at Arlington, TX, USA (2014).
- Member of the curriculum development committee and conducted revision of syllabuses for the following undergraduate courses in the University of Dhaka, Bangladesh (2011):
 - o Programming Fundamentals (CSE-1102)
 - o Discrete Mathematics (CSE-1201)
 - o Object Oriented Programming (CSE-2102)
 - o Data Structures (CSE-2101)
 - o Design and analysis of Algorithms (CSE-2203)
 - o Peripheral and Interfacing (CSE-3101)

Extra-curricular Activities

- 2014–2016 **Manager of the BioMeCIS Lab**, *University of Texas at Arlington, U.S.A.*
 Responsibilities include: inventory management; give an orientation of lab and the systems to the new lab members; regular system update, upgrade, maintenance and data backup; regular reporting to the lab director Dr. Jean X. Gao.
- Marathon Finisher.**
- 2017 Austin Marathon, Austin, TX (Chip time 05:01:46), BIB no. 952.
 2016 BMW Dallas Marathon, Dallas, TX (Chip time 05:02:46), BIB no. 1077.
 2016 Big D Texas Marathon, Dallas, TX (Chip time 04:50:26), BIB no. 641.
- Half Marathon Finisher.**
- 2014 Austin Half Marathon, Austin, TX (Chip time 02:35:42), BIB no. 6688.
- 2007 **CCNA (Cisco Certified Network Associate) certified.**
 My certificate verification number: 393854170255GPXM. The certificate can be verified at <http://www.ciscocertificates.com/verify.cfm>

2006 **Trainee.**

Completed the training for the Red Hat Certified Engineering (RHCE) certification exam on Redhat Enterprise Linux 4.0 (update 2) systems at Agni Systems Ltd., Bangladesh.