

Mohammad Shabbir Hasan

Ph.D. Student at Virginia Tech.

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CAREER OBJECTIVE To be a successful researcher in Computer Science and build up a career as an academician.

RESEARCH INTERESTS Computational Biology; Bioinformatics; Variant Calling; Evolutionary Genomics.

EDUCATION **Virginia Tech, USA.**

Ph.D. in Computer Science, *Expected: Summer 2018*

- Thesis Topic: *Identifying genetic variations in human genome.*
- Advisor: Liqing Zhang, Ph.D., Associate Professor, Department of Computer Science, Virginia Tech.

The University of Akron, USA.

Masters in Computer Science, *Graduated: August 2013*

- Thesis Topic: *Investigating gene relationships in microarray expressions: approaches using clustering algorithms.*
- Advisor: Zhong-Hui Duan, Ph.D., Professor, Department of Computer Science, The University of Akron.

Khulna University of Engineering and Technology, Bangladesh.

B.Sc.(Engr.) in Computer Science and Engineering, *Graduated: March 2008*

- Thesis Topic: *A study on reducing the development cost for reusable Object Oriented software.*
- Advisor: K.M. Azharul Hasan, Ph.D., Professor, Department of Computer Science and Engineering, Khulna University of Engineering and Technology.

WORK EXPERIENCE **Research Assistant** August 2013 to present

- Computational Biology and Bioinformatics Lab (Zhang Lab), Virginia Tech

Research Projects:

- Genesis-indel: Gene set Influenced Analysis of indels.
- UPS-indel: A Universal Positioning System for indels.
- P-Dindel: A multi-thread based tool for calling indels from short reads.
- SPAI: Single Platform for Analyzing Indels.
- Performance evaluation of indel calling tools using real short-read data.

Software Development Engineering Intern May 2016 to August 2016

- Amazon.

Projects:

- Development of a Coral service application for the Amazon Prime customers.

Software Engineering Intern May 2015 to August 2015

- Biotronik/Micro Systems Engineering Inc.

Projects:

- Improved communication for implants using command batching.

Research Assistant August 2011 to July 2013
• Department of Computer Science, The University of Akron.

Research Projects:

- Hierarchical k-Means: A hybrid clustering algorithm and its application to study gene expression in Lung Adenocarcinoma.

Research Assistant January 2011 to July 2011
• Che Lab of BigData, East Stroudsburg University of Pennsylvania.

Research Projects:

- EGID: An Ensemble algorithm for Genomic Island Detection.
- GIST: Genomic Island Suite of Tools.

TEACHING
EXPERIENCE

Teaching Assistant August 2013 to present
• Department of Computer Science, Virginia Tech

Responsibilities:

- Teaching Lab classes for the courses **Introduction to Programming in Java, Introduction to Software Design, and Intermediate Software Design.**

Teaching Assistant August 2011 to July 2013
• Department of Computer Science, The University of Akron.

Responsibilities:

- Assisting professors for the courses **Algorithm, Data Structures, Object Oriented Programming, and Advanced Algorithm.**

Lecturer January 2010 to December 2010
• Department of Computer Science, Institute of Science, Trade, and Technology, Dhaka, Bangladesh.

Responsibilities:

- Teaching theory and lab classes on **Data Structures, Microprocessors** for undergraduate classes.
- Grading exams, projects, and assignments.

Lecturer May 2008 to September 2009
• Department of Computer Science, Asian University of Bangladesh, Dhaka, Bangladesh.

Responsibilities:

- Teaching theory and lab classes on **Algorithms, Discrete Mathematics, Introduction to Programming in C, Internet Programming** for undergraduate classes.
- Grading exams, projects, and assignments.

BOOK CHAPTER

1. **Hasan, M.S.** and Duan, Zhong-Hui. "Hierarchical k-Means: A hybrid clustering algorithm and its application to study gene expression in Lung Adenocarcinoma." in *Emerging Trends in Computational Biology, Bioinformatics, and Systems Biology - Algorithms and Software Tools.*, Elsevier, pp. 51-67, 2015.

JOURNAL
PUBLICATIONS

1. Hasan, K.M.A. and **Hasan, M.S.** “A parsing scheme for finding the design pattern and reducing the development cost of reusable object oriented software.” *International Journal on Computer Science and Information Technology*, 2(3):40–54, 2010.
2. **Hasan, M.S.**, Farhan, Q., and Al Mahmood, A. “An exploratory and feasibility study of implementing online based voting system in Bangladesh.” *International Journal of Computer Science and Emerging Technologies*, 1(3):125–132, 2010.
3. **Hasan, M.S.**, Al Mahmood, A., Alam, Md. , Hasan, Sk.Md., and Rahman, F. “An evaluation of software requirement prioritization techniques.” *International Journal of Computer Science and Information Security*, 8(9):83–94, 2010.
4. Hasan, Sk.Md., **Hasan, M.S.**, Al Mahmood, A., and Alam, Md. “A model for value based requirement engineering.” *International Journal of Computer Science and Network Security*, 10(12):171–177, 2010.
5. Che, D., **Hasan, M.S.**, Wang, H., Fazekas, J., Huang, J., and Liu, Q. “EGID: an ensemble algorithm for improved genomic island detection in genomic sequences.” *Bioinformatics*, 7(6):311–314, 2011.
6. **Hasan, M.S.**, Liu, Q., Wang, H., Fazekas, J., Chen, B., and Che, D. “GIST: Genomic Island Suite of Tools for predicting genomic islands in genomic sequences.” *Bioinformatics*, 8(4):203–205, 2012.
7. Che, D., **Hasan, M.S.**, and Chen, B. “Identifying pathogenicity islands in bacterial pathogenomics using computational approaches.” *Pathogens*, 3(1):36–56, 2014.
8. **Hasan, M.S.**, Wu,X., and Zhang, L. “Performance evaluation of indel calling tools using real short-read data.” *Human Genomics*, 9(1):1–14, 2015.
9. **Hasan, M.S.**, and Zhang, L. “SPAI: an interactive platform for indel analysis.” *BMC Genomics*, 17(5):496, 2016.
10. **Hasan, M.S.**, Wu, X., Watson, L., and Zhang, L. “UPS-indel: A Universal Positioning System for indels.” *Scientific Reports*, 7(1), 2017

CONFERENCE
PUBLICATIONS

1. **Hasan, M.S.** and Hasan, K.M.A. “Finding the design pattern from the source code for developing reusable object oriented software.” *2nd International Conference on the Applications of Digital Information and Web Technologies*, pp.157–162, London, UK, August 2009.
2. Hasan, K.M.A. and **Hasan, M.S.** “Principal component analysis of coupling measures for developing high quality object oriented software.” *3rd International Conference on Computer and Communication Engineering*, pp.217–222, Kuala Lumpur, Malaysia, July 2010.
3. **Hasan, M.S.** and Hasan, K.M.A. “Determining the Most Effective Class for Extending Reusability of Object Oriented System.” *International Conference on Educational and Information Technology*, pp.Volume 2: 498–502, Chongqing, China, September 2010.
4. **Hasan, M.S.**, Al Mahmood, A., and Farhan, Q. “A roadmap towards the implementation of an efficient online voting system in Bangladesh.” *International Conference on Software Engineering and Computational Intelligence*, pp. 1–4, Wuhan, China, December 2010.
5. Che, D., **Hasan, M.S.**, Wang, H., Chen, B., and Wei, Y. “M are better than one: An ensemble method for genomic island prediction.” *6th International Conference on Bioinformatics and Biomedical Engineering*, pp.Volume 2:426–429, Shanghai, China, May 2012.

6. **Hasan, M.S.** and Duan, Z. “A Hybrid Clustering Algorithms and Functional Study of Gene Expression in Lung Adenocarcinoma.” *World Comp: International Conference on Bioinformatics and Computational Biology*, pp. 23–29, Las Vegas, USA, July 2014.

SHORT PAPERS

1. **Hasan, M.S.** and Zhang, L. “SPAI: Single Platform for Analyzing Indels.” *11th International Symposium on Bioinformatics Research and Applications (ISBRA)*, pp.75–78, Norfolk, USA, June 2015.
2. **Hasan, M.S.** and Zhang, L. “P-Dindel: A multi-thread based tool for calling indels from short reads.” *11th International Symposium on Bioinformatics Research and Applications (ISBRA)*, pp.71–74, Norfolk, USA, June 2015.
3. Tithi, S. and **Hasan, M.S.** “Modeling ebola outbreak: a case study on 2014 outbreak in sierra leone.” *6th ACM International Conference on Bioinformatics, Computational Biology and Biomedicine (ACM BCB)*, pp.547–548, Atlanta, USA, September 2015.
4. **Hasan, M.S.**, Tithi, S., Tilevich, E., and Zhang, L. “Diagnosing and Treating Code-Duplication Problems in Bioinformatics Libraries.” *6th IEEE International Conference on Computational Advances in Bio and Medical Sciences (ICCABS)*, Atlanta, USA, October 2016.
5. **Hasan, M.S.**, Wu, X., Watson, L., Li, Z., and Zhang, L. “UPS-indel: A better approach for finding indel redundancy.” *6th IEEE International Conference on Computational Advances in Bio and Medical Sciences (ICCABS)*, Atlanta, USA, October 2016.

VOLUNTARY ACTIVITIES

Reviewer 2014 to present

- Scientific Reports (*publisher: Nature*)
- Briefings in Bioinformatics (*publisher: Oxford University Press*)
- American Journal of Bioinformatics and Computational Biology

HONORS AND AWARDS

Research Award 2017

- *Microsoft Azure Research Award.*

Travel Grant 2013 to present

- *NSF Travel Fellowship to attend IEEE ICCABS 2016.*
- *Virginia Tech Graduate Student Assembly Travel Fellowship to attend IEEE ICCABS 2016.*
- *NSF Travel Fellowship to attend ISBRA 2015.*
- *Sweden-Bangladesh Trust Fund.*

FDR Fellowship 2011

- *East Stroudsburg University of Pennsylvania.*

Merit Scholarship 2005 to 2008

- *Khulna University of Engineering and Technology, Bangladesh.*

RECENT TALKS

- “UPS-indel: a Universal Positioning System for Indels”, *32nd Graduate Student Assembly (GSA) Research Symposium*, Virginia Tech, March 23, 2016.

REFERENCES

Available upon request