

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	Next Generation Sequencing; Evolutionary Genomics; Bioinformatics; Computational Biology.
EDUCATION	<p>Virginia Tech, USA.</p> <p>Ph.D. in Computer Science, <i>Expected: Summer 2018</i></p> <ul style="list-style-type: none">• Thesis Topic: <i>Identifying genetic variations in human genome.</i>• Advisor: Liqing Zhang, Ph.D., Associate Professor, Department of Computer Science, Virginia Tech.• Co-Advisor: Xiaowei Wu, Ph.D., Assistant Professor, Department of Statistics, Virginia Tech. <p>The University of Akron, USA.</p> <p>Masters in Computer Science, <i>Graduated: August 2013</i></p> <ul style="list-style-type: none">• Thesis Topic: <i>Investigating gene relationships in microarray expressions: approaches using clustering algorithms.</i>• Advisor: Zhong-Hui Duan, Ph.D., Professor, Department of Computer Science, The University of Akron. <p>Khulna University of Engineering and Technology, Bangladesh.</p> <p>B.Sc.(Engg.) in Computer Science and Engineering, <i>Graduated: March 2008</i></p> <ul style="list-style-type: none">• Thesis Topic: <i>A study on reducing the development cost for reusable Object Oriented software.</i>• Advisor: K.M. Azharul Hasan, Ph.D., Professor, Department of Computer Science and Engineering, Khulna University of Engineering and Technology.
WORK EXPERIENCE	<p>Research Assistant August 2013 to present</p> <ul style="list-style-type: none">• Computational Biology and Bioinformatics Lab (Zhang Lab), Virginia Tech <p><i>Research Projects:</i></p> <ul style="list-style-type: none">• 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. <p>Software Development Engineering Intern May 2016 to August 2016</p> <ul style="list-style-type: none">• Amazon. <p><i>Projects:</i></p> <ul style="list-style-type: none">• Development of a Coral service application for the Amazon Prime customers. <p>Software Engineering Intern May 2015 to August 2015</p> <ul style="list-style-type: none">• Biotronik/Micro Systems Engineering Inc. <p><i>Projects:</i></p>

- 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.

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.

MANUSCRIPTS
UNDER
SUBMISSION

1. **Hasan, M.S.**, Wu, X., Watson, L., Li, Z., and Zhang, L. "UPS-indel: A Universal Positioning System for indels." *Submitted to Nature Communications*.

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

- 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.*

REFERENCES

Available upon request