Hasnain Heickal

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EDUCATION

University of Massachusetts Amherst — Massachusetts, USA
MS/PhD in Computer Science and Engineering. Advisor: Dr. Andrew Lan — *Fall, 2021 – Present*

University of Dhaka — Dhaka, Bangladesh
MS in Computer Science and Engineering — *2012 – 2013*
CGPA - 3.85/4.00. Rank - 4th among 13 students.

University of Dhaka — Dhaka, Bangladesh
B.Sc. (Hons) in Computer Science and Engineering — *2007 – 2011*
CGPA - 3.63/4.00. Rank - 4th among 43 students.

WORK EXPERIENCE

Summer Intern — June 2024 - August 2024
Educational Testing Service (ETS) — *NJ, USA*

Worked in Automatic Speech and Language Processing (ASLP) team under Product and Innovation Development (PID).

Assistant Professor (On study leave) — February 2018 – Present
Lecturer — May 2014 – February 2018
Department of Computer Science and Engineering, University of Dhaka — *Bangladesh*

Courses Taught: Advanced Algorithms (MS), Programming Fundamentals, Data Structures, Algorithms, Distributed Systems, Computer Graphics, System Programming, Numerical Analysis, Multi-variable Calculus and Geometry.

Lecturer — January 2014 – May 2014
Department of Computer Science and Engineering, Eastern University — *Bangladesh*

RESEARCH

Research Interest — Machine Learning for Education, Natural Language Processing

Google Scholar Profile — https://scholar.google.com/citations?user=oQc7yEAAAAAJ

Current Research — Natural language feedback generation for programming assignments

Selected Publications

1. *Learning Code-Edit Embeddings to Model Student Debugging Behavior* **Hasnain Heickal**, Andrew Lan. AIED 2025: 91–98.

2. *Generating Feedback-Ladders for Logical Errors in Programming using Large Language Models* **Hasnain Heickal**, Andrew Lan. EDM 2024: 947–951.

3. *An Automatic Abstractive Text Summarization System* Nasid Habib Barna, **Hasnain Heickal**. DUJASE 6(2) (2022): 39–48

4. *End-to-End Speech Synthesis for Bangla with Text Normalization.* Tanzir Islam Pial, Shahreen Salim Aunti, Shabbir Ahmed, **Hasnain Heickal**. CSII 2018: 66–71

5. *Deep Learning Based Bangla Speech-to-Text Conversion.* Md. Tahsin Tausif, Sayontan Chowdhury, Md. Shiplu Hawlader, Md. Hasanuzzaman, **Hasnain Heickal**. CSII 2018: 49–54

6. *Segmentation of Heterogeneous Documents into Homogeneous Components using Morphological Operations.* Nasid Habib Barna, Tisa Islam Erana, Shabbir Ahmed, **Hasnain Heickal**. ICIS 2018: 513–518

7. *Computer Vision-Based Real-Time 3D Gesture Recognition Using Depth Image.* **Hasnain Heickal**, Tao Zhang, Md. Hasanuzzaman. International Journal of Image and Graphics 15(1) (2015)

Thesis Supervisions

1. *Automatic Evaluation of Subjective Answers.* Master's thesis of Tisa Islam Erana. Proposed a weighted bipartite matching-based semantic distance measure to group similar answers.

2. *A Hybrid Filtering-based Book Recommender System Using Users' Social Media Activities.* Master's thesis of Shahreen Selim Aunti. Proposed a Hybrid Filtering-based approach that uses users' social media activities to identify their preferences and topics of interest.

3. *Sentiment Analysis using Convolutional Neural Network with Word Embedding and SentiWordNet.* Master's thesis of Tanzir Islam Pial. Proposed a novel approach for sentiment analysis using a CNN that uses word vectors and sentiment information of individual words together.

PROGRAMMING CONTEST EXPERIENCE

Coach of Programming Contest

Department of Computer Science and Engineering, University of Dhaka	*2010 – Present*
Department of Computer Science and Engineering, Jahangirnagar University	*September 2011 – October 2013*

Two teams have qualified to ICPC World Finals under my coaching in 2017 and 2020.

Problem-setting and Judging   2013 – Present

ICPC Asia West Continent Final Contest   *January, 2020*
- As Judging Coordinator, coordinated with the judging team to create an original problem set. Team members included judges from Iran, India, Pakistan, Afghanistan, and Bangladesh.

ICPC Dhaka Regional   *2013, 2017 – 2019*
- As Judging Director on 2019, managed the whole judging team consisting 23 persons.
- As Problem-setter and Judge, created few original problems, wrote solutions, tests etc.

National Collegiate Programming Contest (NCPC)   *2014 - 2015, 2017 - 2020*
- As Judging Coordinator on 2018 - 2020, coordinated with the judging team to create an original problem set.
- As Problem-setter and Judge, created few original problems, wrote solutions, tests etc.

Team Leader, Bangladesh Informatics Olympiad Team   2014

International Olympiad of Informatics (IOI)   *Taipei, Taiwan*

Competitive Programming Achievements

- 1st position in IUPC by BGC Trust University, Bangladesh in 2012. Team - DU Angry Birds
- 1st position in NCPC by University of Dhaka, Bangladesh in 2011. Team - DU Resonance
- 1st position in IUPC by IUT, Bangladesh in 2011. Team - DU Resonance
- 5th position in ICPC Dhaka Regional by NSU, Bangladesh in 2011. Team - DU Resonance
- 4th position in ICPC Dhaka Regional by NSU, Bangladesh in 2010. Team - DU Resonance
- 6th Position in ICPC Amritapuri Regional by Amrita Vishwa Vidyapeetham, India in 2010. Team - DU Resonance
- 2nd position in NCPC by SUST, Bangladesh in 2010. Team - DU Resonance
- 4th position in ICPC Amritapuri Regional by Amrita Vishwa Vidyapeetham, India in 2009. Team - DU Dark Shadows

Online Problem Solving

- Solved more than 700 problems in Valladolid Online Judge. Profile: hhjami
- Maximum rating in Topcoder – 1692 (Yellow). Profile: Jami_CSEDU
- Maximum rating in Codeforces – 2128 (International Master). Profile: Jami_CSEDU

SKILLS

Programming Languages: C/C++, Python, Java, PHP, JavaScript, SQL, QBasic, Assembly, Lisp, Prolog.
Key Concepts: Data Structures, Algorithms, NLP, Machine Learning, Databases, Object Oriented Programming
Tools: Vim, Git, Google Cloud Platform, VS Code, Eclipse, Netbeans
Libraries: OpenGL, Weka, OpenNI, TensorFlow
Frameworks: React, Node.js, WordPress, Laravel
Operating Systems: Ubuntu, MacOS, Windows, Fedora, CentOS