# Alif Al Hasan

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Cleveland, Ohio - 44106, USA

## EDUCATION

• **Ph.D. in Computer Science**                                      *August 2025 - Present*
*Case Western Reserve University*                                      Cleveland, OH, USA
  ◦ CGPA: 4.00/4.00
  ◦ Advisor: Dr. Sumon Biswas

• **M.S. in Computer Science and Engineering**                  *July 2023 - December 2024*
*Jahangirnagar University*                                            Dhaka, Bangladesh
  ◦ CGPA: 3.85/4.00

• **B.S. in Computer Science and Engineering**                 *February 2018 - June 2023*
*Jahangirnagar University*                                            Dhaka, Bangladesh
  ◦ CGPA: 3.63/4.00

## RESEARCH EXPERIENCE

• **Graduate Research Assistant**                                    *August 2025 - Present*
*Case Western Reserve University, Cleveland, OH, USA*            Advisor: Dr. Sumon Biswas
  ◦ Conducting research on **Trustworthy AI for Software Engineering**, focusing on the safety, robustness, and responsibility of LLM-generated code.
  ◦ Analyzing state-of-the-art LLMs to identify **safety risks** and **reliability gaps** in automated code generation pipelines.

• **Remote Research Assistant**                                      *May 2024 – July 2025*
*Missouri University of Science and Technology, Rolla, MO, USA*   Advisor: Dr. Mia Mohammad Imran
  ◦ **Learning Programming in Informal Space** [1]: Processed 83,000 posts using Llama-3.1-70B to model novice emotions in online communities, identifying key affective states and proposing five categories of affect-aware support.
  ◦ **CDDRefactorER**: Developed an AI-guided refactoring framework benchmarked on MBPP, achieving 71% reduction in functional errors and a 17% decrease in cognitive load to enhance novice comprehension.

• **Remote Research Intern**                                         *January 2025 – February 2025*
*University of Maryland, Baltimore County, Baltimore, MD, USA*   Advisor: Dr. Tarannum Shaila Zaman
  ◦ **LLPut** [2]: Conducted the evaluation of LLMs for extracting failure-inducing inputs by constructing a benchmark of 206 verified Linux *coreutils* cases and comparing BERT against open-source models (LLaMA, Qwen) using BLEU-based metrics.

• **Research Assistant**                                             *November 2023 - July 2024*
*Jahangirnagar University, Dhaka, Bangladesh*                    Advisor: Dr. Musfique Anwar
  ◦ **SEAGET** [3]: Proposed a Seasonal and Active hours-guided Graph-Enhanced Transformer that integrates temporal dynamics and operational constraints, outperforming state-of-the-art baselines with a **13.7% improvement in Acc@1**.

## PUBLICATIONS                              C=CONFERENCE, J=JOURNAL, W=WORKSHOP

**[C.1]** **[ICSE] [Rank=A*]** Alif Al Hasan, Subarna Saha, and Mia Mohammad Imran. "Learning Programming in Informal Spaces: Using Emotion as a Lens to Understand Novice Struggles on r/learnprogramming". In: *Accepted at ICSE-SEET* (2026)

**[J.1]** Alif Al Hasan and Md. Musfique Anwar. "SEAGET: Seasonal and active hours guided graph enhanced transformer for the next POI recommendation". In: *Array* 26 (2025), p. 100385. ISSN: 2590-0056. DOI: https://doi.org/10.1016/j.array.2025.100385

**[W.1]** Alif Al Hasan et al. "LLPut: Investigating Large Language Models for Bug Report-Based Input Generation". In: *Proceedings of the 33rd ACM International Conference on the Foundations of Software Engineering*. FSE Companion '25. Trondheim, Norway, 2025, pp. 1652–1659. DOI: 10.1145/3696630.3728701

## PROBLEM SOLVING EXCELLENCE

- **Quantitative Aptitude:** GRE Quantitative Reasoning: **170/170** (Perfect Score).
- **Algorithmic Profile:** Codeforces Max: **2033** (Top 2%); CodeChef Max: **2084** (Top 2%); Solved **4500+** algorithmic problems across online judges.
- **ICPC Achievements:** Ranked **3rd/165** in ICPC Asia Dhaka Regional '21; **7th/1640** in ICPC Dhaka Preliminary '21; **17th/58** in Asia West Continent Finals '21.
- **National Contests:** Ranked **1st/57** in MBSTU IDPC '20; **12th/114** in BUET IUPC '22; **12th/97** in RUET IUPC '22; **14th/105** in AUST IUPC '22.

## TEACHING EXPERIENCE

- **Graduate Teaching Assistant**                                                                 *August 2025 - December 2025*
*Case Western Reserve University, Cleveland, OH, USA*                              CSDS 325/425: Computer Networks
  ◦ Supported a class of 65 undergraduate and graduate students, facilitating lab sessions and helping in complex simulation projects.
  ◦ Managed course logistics including grading, discussion facilitation, and providing one-on-one academic support to enhance student comprehension.

- **Teaching Assistant**                                                                           *December 2021 - April 2024*
*Jahangirnagar University, Dhaka, Bangladesh*                                             Data Structures and Algorithms
  ◦ Conducted extra-curricular training sessions for a cohort of 50 students on Data Structures and Algorithms, guiding them through advanced problem-solving strategies.
  ◦ Mentored university teams for national-level programming contests, providing personalized feedback and debugging optimization techniques.

- **Competitive Programming Mentor**                                                     *August 2023 - December 2023*
*Netrokona University, Netrokona, Bangladesh*                                            Data Structures and Algorithms
  ◦ Designed and executed a weekly curriculum for 30 students, focusing on algorithmic problem-solving to prepare them for ICPC and IUPC contests.
  ◦ Delivered personalized mentorship and code review, significantly improving students' debugging skills and contest readiness.

## PROJECTS

- **Fairness Analysis of Text-to-Image Models in Negative Role Depictions**                         *December 2025*
*Tools: Python, PyTorch, Diffusers, Stable Diffusion, Flux, FairFace*                                             [⌂]
  ◦ Led the quantification of T2I bias in negative roles, revealing a ∼95% male skew; engineered a FairFace auditing pipeline to measure SPD and Bias Amplification.
  ◦ Demonstrated that prompt-based mitigation reduces racial and age bias amplification, though gender skew remains persistent across models.

- **Arabic2English: Bidirectional Translation Web App**                                               *March 2024*
*Tools: Gradio, PyTorch, Transformers, CI/CD*                                                                     [⊕]
  ◦ Developed a bidirectional Arabic-English translation web app with a comprehensive **model card** and automated CI/CD deployment pipelines.

- **EPL Top5 Emblem Classifier: Image Classification**                                              *January 2024*
*Tools: TensorFlow, NumPy, SciPy, Gradio*                                                                         [⊕]
  ◦ Built a web-based Premier League emblem classifier using automated CI/CD workflows, documenting performance in a detailed **model card**.

## HONORS AND AWARDS

- **Government Scholarship for Academic Excellence**                                               *October 2025*
*Ministry of Education, Bangladesh*
  ◦ Awarded by the Government of Bangladesh for demonstrating outstanding academic performance at Jahangirnagar University.

- **National Science and Technology (NST) Fellowship**                                            *February 2025*
*Ministry of Science & Technology, Bangladesh*
  ◦ Received a competitive fellowship grant of **$700** to support M.Sc. thesis research, recognizing scientific research potential.

- **Dean's Scholarship**                                                                    *February 2018 – December 2024*
*Jahangirnagar University*
  ◦ Secured the prestigious Dean's Scholarship **five times** during B.Sc. and M.Sc. tenure for maintaining exceptional academic standing.

## Technical Skills

- **Programming Languages:** Python, C/C++, Java, SQL, JavaScript
- **AI & Machine Learning:** PyTorch, TensorFlow, Hugging Face Transformers, Diffusers, Scikit-learn, Pandas, NumPy
- **Generative AI & LLMs:** Large Language Models (Llama, Qwen, BERT), Stable Diffusion, Flux, Prompt Engineering, RAG
- **Web Technologies:** Gradio, Spring Boot, Node.js, Express.js, Bootstrap, REST APIs
- **Database Systems:** MySQL, MongoDB, RoomDB, SQLite
- **DevOps & Tools:** Git, Linux/Bash, CI/CD Pipelines, LaTeX, Vim
- **Research Areas:** Software Engineering (SE), AI Safety & Robustness, Automated Program Repair, Bias Analysis

## Volunteer Experience

- **Instructor: Workshop on CP Strategies** *November 2024*
  *Bangladesh Digital University*
  ◦ Delivered a session on contest tactics and problem-solving techniques to **over 90 participants**, organizing 2 contests for hands-on practice.

- **Judge, Organizer & Trainer: CodeElevate Camp 2023** *September 2023*
  *Jahangirnagar University* [🌐]
  ◦ Conducted a technical session on graph algorithms for **100+ participants** and authored a problem for the main contest round.

- **Judge & Organizer: Brain Muscle Checking Contest 2022** *January 2022*
  *Jahangirnagar University* [🌐]
  ◦ Served as a problem setter, authoring 2 algorithmic challenges for the main round of the competition.