Alif Al Hasan

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Cleveland, Ohio - 44106, USA

Education

- **Ph.D. in Computer Science** | **CGPA: 4.00/4.00** — *August 2025 – May 2030 (Expected)*
  Case Western Reserve University | Advisor: Dr. Sumon Biswas — Cleveland, OH, USA
- **M.S. in Computer Science and Engineering** | **CGPA: 3.85/4.00** — *July 2023 – December 2024*
  Jahangirnagar University — Dhaka, Bangladesh
- **B.S. in Computer Science and Engineering** | **CGPA: 3.63/4.00** — *February 2018 – June 2023*
  Jahangirnagar University — Dhaka, Bangladesh

Research Experience

- **Graduate Research Assistant** — *August 2025 – Present*
  Case Western Reserve University, Cleveland, OH, USA — Advisor: Dr. Sumon Biswas
  - **Operational Safety of Code LLMs** [U.1]: Led a comprehensive study characterizing the safety failures of agentic code assistants to identify vulnerabilities in automated program generation.
  - Evaluated state-of-the-art LLMs to pinpoint reliability gaps, establishing new testing frameworks to ensure the safety and robustness of AI in software engineering contexts.

- **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** [C.1]: Analyzed a curated dataset of **1,500 posts** using Llama-3.1-70B to model novice emotions, identifying core triggers to propose five affect-aware support bots.
  - **CDDRefactorER** [C.2]: Developed an AI-guided refactoring framework benchmarked on the MBPP and APPS datasets. Reduced refactoring failures by **54–71%** across LLMs and improved novice function identification by **31.3%** in a 20-person user study.

- **Remote Research Intern** — *January 2025 – February 2025*
  University of Maryland, Baltimore County, Baltimore, MD, USA — Advisor: Dr. Tarannum Shaila Zaman
  - **LLPut** [W.1]: Built a benchmark of **206 verified Linux *coreutils* bug reports** to evaluate LLM input extraction. Demonstrated generative LLMs outperformed BERT baselines, with Qwen achieving **62.62% accuracy** (BLEU-2 ≥ 0.5).

- **Research Assistant** — *November 2023 – July 2024*
  Jahangirnagar University, Dhaka, Bangladesh — Advisor: Dr. Musfique Anwar
  - **SEAGET** [J.1]: Engineered a Graph-Enhanced Transformer integrating seasonal and operational time data for POI recommendation. Outperformed baseline algorithms with a **13.7% improvement in Acc@1**.

Publications

C=Conference, J=Journal, W=Workshop, U=Under Review

* Equal Contribution

[C.1] **[ICSE-SEET '26] [Rank=A*] [AR=33%] A. A. Hasan***, S. Saha*, and M. M. Imran. "Learning Programming in Informal Spaces: Using Emotion as a Lens to Understand Novice Struggles on r/learnprogramming". In: *Proceedings of the International Conference on Software Engineering: Software Engineering Education and Training (ICSE-SEET)*. Status: Accepted. Preprint: arXiv:2511.22789. 2026

[C.2] **[EASE '26] [Rank=A] [AR=28%]** S. Saha, **A. A. Hasan**, F. T. Shifat, and M. M. Imran. "Improving Code Comprehension through Cognitive-Load Aware Automated Refactoring for Novice Programmers". In: *Proceedings of the International Conference on Evaluation and Assessment in Software Engineering (EASE)*. Status: Accepted. Preprint: arXiv:2603.16791. 2026

[J.1] **[Q1] [IF=4.5] A. A. Hasan** and M. M. Anwar. "SEAGET: Seasonal and active hours guided graph enhanced transformer for the next POI recommendation". In: *Array* 26 (2025). DOI: 10.1016/j.array.2025.100385

[W.1] **[LLanMER @ FSE '25] A. A. Hasan**, S. Saha, M. M. Imran, and T. S. Zaman. "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. 2025. DOI: 10.1145/3696630.3728701

Quantitative & Algorithmic Achievements

- **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** *January 2026 – May 2026*
  Case Western Reserve University, Cleveland, OH, USA CSDS 393/493: Software Engineering
  ◦ Evaluated live project architectures and mentored student teams through the software development lifecycle for a cohort of **75 students**.
  ◦ Led weekly office hours to provide targeted one-on-one debugging support and assess technical assignments.
- **Graduate Teaching Assistant** *August 2025 – December 2025*
  Case Western Reserve University, Cleveland, OH, USA CSDS 325/425: Computer Networks
  ◦ Directed complex network simulation projects and facilitated technical discussions for **65 undergraduate and graduate students**.
  ◦ Evaluated technical coursework and held one-on-one mentoring sessions to reinforce core networking and routing concepts.
- **Teaching Assistant** *December 2021 – April 2024*
  Jahangirnagar University, Dhaka, Bangladesh Data Structures and Algorithms
  ◦ Led extra-curricular algorithmic training sessions for a cohort of **50 students**, focusing on advanced data structures and problem-solving heuristics.
  ◦ Coached competitive programming teams for national-level contests, conducting rigorous code reviews and optimizing debugging workflows.
- **Competitive Programming Mentor** *August 2023 – December 2023*
  Netrokona University, Netrokona, Bangladesh Data Structures and Algorithms
  ◦ Designed an intensive weekly algorithmic curriculum for **30 students** to rigorously prepare them for ICPC and IUPC regional contests.
  ◦ Delivered personalized code reviews focusing on time-complexity optimization and efficient memory management.

Projects

- **Fairness Analysis of Text-to-Image Models in Negative Role Depictions** *December 2025*
  Tools: Python, PyTorch, Diffusers, Stable Diffusion, Flux, FairFace [GitHub]
  ◦ 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 [Web]
  ◦ 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 [Web]
  ◦ 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

Academic Service

- **Instructor: Workshop on Competitive Programming 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.