

Mahir Shahriar Tamim

EXPLAINABLE & RESPONSIBLE AI · COMPUTER VISION, NLP & AGENTIC SYSTEMS

Dhaka, Bangladesh

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Research Profile

AI researcher and engineer (B.Sc. in CSE, **CGPA 3.86/4.00**) with **five accepted publications**, including three **Q1 journal papers** (IF up to 8.0). My research focuses on **explainable and responsible AI** across **computer vision**, **natural language processing (NLP)**, and **multimodal and agentic systems**, building faithful and interpretable AI for complex real-world decisions.

Highlights

- **3 peer-reviewed Q1 journal articles** — *Knowledge-Based Systems* (IF 8.0), *Neurocomputing* (IF 6.7), and *PLOS ONE* (IF 2.6).
- **2 peer-reviewed conference papers** — AACL 2026 and IEEE ICCIT 2025.
- **3 manuscripts under review** at ICLR 2027 (CORE A*) and WACV 2026 (CORE A, two submissions).
- **Research & industry roles** — Research Intern at CIOL and Research Assistant at the NSU MI Lab & RobotBulls; Backend Engineer at SysModeler.ai and Product Engineer at Obby LLC.
- Awarded a **100% merit scholarship** for outstanding academic performance at North South University.
- **2 years as an undergraduate teaching assistant** for CSE 373 (Design and Analysis of Algorithms), mentoring **600+** students.
- **Codeforces Expert** (max rating 1650) with four national and regional contest placements.

Research Interests

- **Computer vision and multimodal learning** — cross-modal alignment, modality balancing, graph-based relational representations, and test-time adaptation under distribution shift.
- **NLP and agentic systems** — large-scale sentiment analysis and LLM evaluation on politically sensitive text, alongside multi-agent systems, tool orchestration, and adaptive decision loops.
- **Trustworthy and explainable AI** — calibration, uncertainty, and interpretability of deep models, with explainability as a first-class requirement in medical imaging and high-stakes diagnostic settings.

Education

North South University

Dhaka, Bangladesh

B.SC. IN COMPUTER SCIENCE AND ENGINEERING

Sept. 2021 - Dec. 2025

- CGPA: **3.86/4.00** (Mark percentage: 96.5%, $\approx$ **Top 2%**) — [\[Grading Policy\]](#).
- Awarded a **100% Merit Scholarship** for outstanding academic performance (Jan. 2024).
- Undergraduate thesis: **PNEUMA** — Perceptual Noesis for Episodic Universal Memory Architecture. A model-agnostic long-term video memory system for egocentric QA, reaching **72.8%** NextQA zero-shot accuracy and **98%** recall on temporal BETWEEN queries. Supervisor: Dr. Nabeel Mohammed.

Publications

Bold denotes my own name. * denotes equal contribution (shared first authorship). Full list on [Google Scholar](#).

PEER-REVIEWED PUBLICATIONS

- [J1] **Mahir Shahriar Tamim**, Khan, S., Alim, M. S., Khan, T. A., Rahman, S., & Mohammed, N. (2026). “CAT-GS: Balanced Multimodal Learning via Calibrated Gating and Fusion Surgery,” *Neurocomputing*. [\[Q1\]](#) [\[IF: 6.7\]](#) *Accepted for publication*. [\[Link\]](#)
- [C1] Alim, M. S. *, **Mahir Shahriar Tamim** *, Khan, T. A., Khan, S., Dutti, R. F., Ridoy, S. Z., & Moni, M. A. (2026). “Can LLMs Follow the Pulse of a Crisis? Evaluating Crisis Sentiment in Bangladesh’s July Uprising,” in *Proc. Asia-Pacific Chapter of the Association for Computational Linguistics (AACL)*, Hengqin, China. Introduces the **UnRestSent200K** dataset. [\[Link\]](#)
- [J2] **Mahir Shahriar Tamim**, Alim, M. S., Rahman, M., Khan, T. A., & Anwar, M. M. (2025). “Ensemble and Temporal Feature-Based Framework for Rainfall Classification in Bangladesh,” *PLOS ONE*. [\[Q1\]](#) [\[IF: 2.6\]](#) [\[Link\]](#)
- [J3] Alim, M. S., **Mahir Shahriar Tamim**, Sarkar, S., Yousuf, M. A., Al-Moisheer, A. S., Alyami, S. A., & Moni, M. A. (2025). “Multi-Teacher Knowledge Distillation and Ensemble Algorithm for Efficient Brain Tumor Classification in Resource-Constrained Environments with Explainable AI,” *Knowledge-Based Systems*. [\[Q1\]](#) [\[IF: 8.0\]](#) [\[Link\]](#)
- [C2] Alim, M. S., **Mahir Shahriar Tamim**, Rahman, M., Khan, T. A., & Anwar, M. M. (2025). “When a Nation Speaks: Machine Learning and NLP in People’s Sentiment Analysis During Bangladesh’s 2024 Mass Uprising,” in *Proc. IEEE Int. Conf. on Computer and Information Technology (ICCIT)*. [\[Link\]](#)

MANUSCRIPTS UNDER REVIEW

- [U1] “Where the Cache Lives: Diagnosing Memory-Space Geometry in Cache-Based CLIP Test-Time Adaptation,” submitted to *Int. Conf. on Learning Representations (ICLR)*, 2027. [CORE: A*] Under review.
In collaboration with Prof. Pietro Liò, University of Cambridge.
- [U2] “SphereAD: Hyperspherical Self-Reference for Training-Free Anomaly Localization Across Diverse Domains,” submitted to *IEEE/CVF Winter Conf. on Applications of Computer Vision (WACV)*, 2026. [CORE: A] Under review.
- [U3] “When Bytes Take It All: CLIPByte for Tokenizer-Free Captioning via Byte-Level Vision–Language Bridging,” submitted to *IEEE/CVF Winter Conf. on Applications of Computer Vision (WACV)*, 2026. [CORE: A] Under review.

MANUSCRIPTS IN PREPARATION

- [P1] “Harness Recession: When Guidance Helps and When It Gets in the Way” — planning to submit to *ECIR 2027*. [CORE: A]
In preparation.

Research Experience

Computational Intelligence and Operations Laboratory (CIOL)

Remote

RESEARCH INTERN — VISION, LANGUAGE & AGENTIC SYSTEMS

May 2026 - Present

- Supervised by [Dr. Dong-Kyu Chae](#) (Assistant Professor, Hanyang University), working across **computer vision, natural language processing, and agentic systems**: training-free visual anomaly localization, LLM evaluation on politically sensitive text, and the design of reliable tool-using agents.
- Lead author on **SphereAD** (U2), a hyperspherical self-reference method for training-free anomaly localization that transfers across domains without per-domain fitting; co-first author on **Harness Recession** (P1), studying when scaffolding around a language model helps and when it constrains an already capable model.

Charles Sturt University

Remote

RESEARCH ASSISTANT — AI FOR HEALTHCARE & NEUROIMAGING

Dec. 2025 - May 2026

- Research in **AI for healthcare and neuroimaging**, supervised by [Dr. Mohammad Ali Moni](#) in collaboration with [Dr. Mohammad Abu Yousuf](#).
- Co-authored work on **multi-teacher knowledge distillation for brain-tumor classification** with explainable-AI overlays for resource-constrained deployment, published in *Knowledge-Based Systems* (J3).
- Co-first author on the **AACL 2026** crisis-sentiment study (C1), evaluating LLMs on Bangla and code-mixed social media text; also explored **image reconstruction from human brain activity** using hierarchical encoders with conditional diffusion.

NSU Machine Intelligence (MI) Lab & RobotBulls

Hybrid: Dhaka & Luxembourg

RESEARCH ASSISTANT — COMPUTER VISION / AI-ML ENGINEER

Mar. 2025 - Nov. 2025

- Supervised by [Dr. Nabeel Mohammed](#) and [Dr. Shafin Rahman](#); turned research prototypes into deployable real-time computer-vision systems, working with cross-site teams in Luxembourg and a Hong Kong robotics lab.
- Built vision pipelines spanning facial morphing, gesture rendering, diffusion-based lip synchronization, and 3D Gaussian representations, integrated with neural rendering under strict audio–visual latency constraints.
- Designed GPU-parallelized inference and real-time WebRTC streaming, optimizing end-to-end throughput for interactive deployment. [Demo](#)

Industry Experience

SysModeler.ai

USA (Remote)

BACKEND ENGINEER

Aug. 2026 - Present

- Backend work on an AI platform that turns documents and natural-language prompts into editable SysML v2 models.
- Microservices, scalable API design, and asynchronous processing for long-running model generation.
- Production PostgreSQL/MongoDB schema design and query optimization behind collaborative, versioned system models.
- First-principles Python/Go/Java under rigorous code review; Docker and CI/CD across cloud and on-premise deployments.

Obby LLC

USA (Remote)

PRODUCT ENGINEER

Jan 2026 - Jul. 2026

- Leadership & Product:** Led cross-functional work across engineering, operations, and product while shipping B2B SaaS systems for review automation and AI-powered communications.
- Automation:** Designed acquisition tracking, inbound lead flows, and workflow automations to scale repeatable operations.
- Agentic AI:** Built production multi-agent workflows with tool orchestration, MCP-powered automation, and decision loops.
- Voice AI:** Building production-grade AI voice agents and Agentic Council frameworks for multi-tenant SaaS use cases.
- Blog: [Multi-Tenant Architecture for AI Voice Agents: A Practical Guide](#).

- Developed a secure standups, project, and time-tracking app with Next.js, TypeScript, Socket.IO, and Tailwind.
- Integrated NLP autofill, LLM-powered summaries, and smart ticket categorization.
- Built dashboards with trend detection, anomaly alerts, and PDF/CSV exports; implemented email notifications, token revocation, rate limiting, and session management.
- Co-developed a foster-care platform as part of AGT's social initiatives.

Teaching & Leadership

Department of Electrical and Computer Engineering, North South University

Dhaka, Bangladesh

UNDERGRADUATE TEACHING ASSISTANT — CSE 373: DESIGN AND ANALYSIS OF ALGORITHMS

Jan. 2024 - Dec. 2025

- Prepared lecture and tutorial notes and supporting materials; conducted tutorial sessions outside class hours.
- Proctored exams and graded homework, programming assignments, and assessments.
- Mentored 600+ students through office hours, tutorials, and exam preparation.

NSU Problem Solvers Bootcamp & Intra-NSU Programming Contests

Dhaka, Bangladesh

INSTRUCTOR & PROBLEM SETTER — COMPETITIVE PROGRAMMING

- Instructor, NSU Problem Solvers Bootcamp: taught algorithms and contest strategies; mentored students.
- Problem Setter, Intra-NSU Programming Contests: authored problems, constraints, test cases, and editorials.

Honors & Awards

ACADEMIC

2024 Merit Scholarship (100%), North South University, for outstanding academic performance

Dhaka, Bangladesh

COMPETITIVE PROGRAMMING

Codeforces Expert (max rating 1650), Codeforces Profile

2025 18th / 130 teams, AUST IUPC (NSU_PyramicSchemers)

2025 53rd / 313 teams, ICPC Asia Dhaka Regional (NSU_EktaNaamDaoFast)

2024 67th / 300 teams, ICPC Asia Dhaka Regional (NSU_PyramicSchemers)

2024 29th / 196 teams, JU National Collegiate Programming Contest (NCPC) (NSU_OneLastTime)

Technical Skills

- Programming Python, C, C++, Java, JavaScript, TypeScript, Go, SQL
- ML Frameworks PyTorch, TensorFlow, Hugging Face Transformers, timm, scikit-learn, OpenCV, NumPy, Pandas, Matplotlib
- Systems & Tooling Next.js, MERN, Socket.IO, REST, WebRTC, Git, Docker, CI/CD, PostgreSQL, MongoDB, MCP, LaTeX

Linguistic Proficiency

Bengali (Native) | English (C1)

IELTS Academic	Overall: 8.0	Reading: 9.0	Listening: 8.5	Writing: 7.5	Speaking: 6.5
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References

Dr. Nabeel Mohammed, Ph.D. (Monash University)

Dhaka, Bangladesh

ASSOCIATE PROFESSOR, DEPT. OF ELECTRICAL AND COMPUTER ENGINEERING, NORTH SOUTH UNIVERSITY

- Undergraduate thesis supervisor (PNEUMA); co-author on Neurocomputing (J1).
- Email: nabeel.mohammed@northsouth.edu.

Dr. Mohammad Ali Moni, Ph.D. (University of Cambridge)

Australia

PROGRAM LEAD, PROGRAM FOR AI AND DIGITAL HEALTH TECHNOLOGY, CHARLES STURT UNIVERSITY

- Co-author on Knowledge-Based Systems (J3) and AACL 2026 (C1).
- Email: mmoni@csu.edu.au.

Dr. Mohammad Abu Yousuf, Ph.D. (Saitama University, Japan)

Dhaka, Bangladesh

PROFESSOR, INSTITUTE OF INFORMATION TECHNOLOGY, JAHANGIRNAGAR UNIVERSITY

- Co-author on Knowledge-Based Systems (J3); former Professor, North South University.
- Email: yousuf@juniv.edu.