RUBEL HASSAN MOLLIK

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SUMMARY

Ph.D. Candidate and Research Assistant in Computer Science & Engineering at the University of North Texas, with six years of software engineering experience. My research focuses on accessibility, human-computer interaction, and generative AI, with an emphasis on accessible programming environments for blind and visually impaired learners. I design and evaluate AI-supported accessibility tools to support inclusive K–12 computing education.

EDUCATION

Ph.D. Candidate in Computer Science & Engineering, Aug 2023 - Present
University of North Texas
CGPA: *4.00/4.00, Fall 2023–Spring 2026*

B.Sc. in Computer Science & Software Engineering, Jun 2013 - Feb 2018
American International University-Bangladesh
CGPA: *3.58/4.00*

PUBLICATIONS

Peer-Reviewed Conference and Journal Publications:

1. **RH Mollik**, VK Kosuri, H Djalali, K Patel, N Lester, A Mountapmbeme, S Ludi. 2026. Accessible Block-Based Programming for K-12 Classrooms: Co-Designed with Teachers of Students with Visual Impairments
   28th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2026).
2. **RH Mollik**, W Aljedaani, S Ludi. 2026. Understanding Design and Accessibility Issues in Block-Based Programming for People with Disabilities: A Literature Review
   Universal Access in the Information Society (Springer), vol. 25, no. 3, p. 94.
3. W Aljedaani, PD Parthasarathy, **RH Mollik**, AK Badamalolu. 2026. Designing and Evaluating an AI-Powered Figma Plugin for Accessibility Education
   28th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2026).
4. W Aljedaani, PD Parthasarathy, A Aljohani, **RH Mollik**, AM Tomjack. 2026. Enhancing AI Learning through Algorithm Visualization with Pseudocode Tracing: An Experience Report
   SIGCSE Virtual 2026.
5. **RH Mollik**, VK Kosuri, H Djalali, S Ludi, A Mountapmbeme. 2026. An Extension-Based Accessibility Framework for Making Blockly Accessible to Blind and Low-Vision Users
   1st International Workshop on User Interface and Experience for Software Engineering (UISE 2026), co-located with *ICSE 2026*.
6. W Aljedaani, **RH Mollik**. 2026. Large Language Models for Web Accessibility: A Systematic Literature Review
   Accepted to *23rd International Web for All Conference (Web4All 2026)*.
7. W Aljedaani, **RH Mollik**, E Saad, MM Eler, AM Alghamdi. 2025. Challenges and Barriers Faced by Blind and Visually Impaired Users on Social Media: A Systematic Literature Review
   Universal Access in the Information Society (Springer), pp. 1–30.
8. **RH Mollik**, A Datta, AH Mollah, W Aljedaani. 2025. RCEGen: A Generative Approach for Automated Root Cause Analysis Using Large Language Models (LLMs)
   Software (MDPI), vol. 4, no. 4, p. 29.

9. FR Arnob, **RH Mollik**, P Goyal, R Bryce. 2025. Bug Triaging Based on Transformer Models Utilizing Commit Messages
International Conference on Information Technology-New Generations (Springer), pp. 354–366.

PROFESSIONAL EXPERIENCE

Research Assistant (RA), *DiscoverABILITY Lab, University of North Texas.* Jan 2025 – Present
Conduct funded research to improve the accessibility of block-based programming environments for K–12 students with disabilities. Develop generative AI-supported tools and curricula for visually and cognitively impaired learners.

Senior Software Engineer, *Dynamic Solutions Innovators Ltd.* Jul 2022 - Aug 2023
Led a development team at bKash Ltd., deployed as a contractual employee (Lead Engineer) from DSi, managed a small dev team for the largest MFS company in Bangladesh with a 50M+ customer base.

- Engineered persistence layer of payment gateway transactions using DynamoDB by minimizing database calls by 30% to improve overall transaction performance and user experience
- Designed and implemented microservices for 2nd generation payment gateway products (Tokenized Payment) to migrate from Lambda to K8s
- Wrote development documentation and managed release cycle

Skills: *Java, Spring Boot, Spring Webflux, DynamoDB, Redis, AWS, Docker*

Software Engineer, *Backend Engineering, Dynamic Solutions Innovators Ltd.* Jul 2020 - Jun 2022
Software engineer at Consilio, LLC (WA, USA) as a part of the offshore engineering and research team at DSi Ltd.

- Actively developed eDiscovery analytics tools (Envize) using Supervised Machine Learning, Scikit-Learn, Flask Python. Envize and train TBs of legal documents to its patented ML model and generate reviews that save hundreds of paid lawyers' hours
- Integrated database version control system (Liquibase) and writing SQL migration scripts
- Feature innovation based on the needs of stakeholders and documentation

Skills: *Python, Scikit-learn, Flask, Spring Boot, eDiscovery, PosgreSQL, Microservices, Docker*

Associate Software Engineer, *Backend Engineering, Dynamic Solutions Innovators Ltd.* Jul 2018 - Jun 2020
Software engineer at Consilio, LLC (WA, USA) as a part of the offshore engineering and research team

- Design and implement batch processing architecture (ETL) using Spring-Batch to process TBs of legal documents from different sources
- Enhancement and bug fixing in a Machine Learning based document analytics project
- Dockerized a Spring Boot application

Skills: *Java, Spring Boot, Hibernate, JUnit, Docker, PostgreSQL, Celery, RabbitMQ*

Junior Software Engineer, *Backend Engineering, Dynamic Solutions Innovators Ltd.* Jul 2017 - Jun 2018
Software engineer at iControl ESI (TX, USA) as a part of the offshore engineering and research team

- Worked on document translation feature using Microsoft - Text Translator API
- Implement a custom authorization framework on top of a Spring project
- Integrating unit testing frameworks JUnit, Mockito, and Hamcrest in an existing project

Skills: *Java, Spring MVC, JUnit, Mockito, Hamcrest, MySQL*

ACHIEVEMENTS & SCHOLARSHIPS

2024-25 **Dean's Engineering Scholarship, UNT** for the 2024-2025 academic year

2024-25, 2025-26 **UNT Porter-Evans Scholarship, UNT** for the 2024-2025 academic year

2018 Conducted training session on **Unit Testing Best Practices for Software Engineers** at DSi (Software Company, Dhaka)

2016 Finalist in **Smart City Hackathon 2016** 1st runner-up in the category of "Clean Dhaka" as one of the top 30 teams.

2016 Finalist in **National Hackathon 2016** and developed prototype on **Combating Gender-Based Violence** and ended in **top 10** in the category

2014 Awarded scholarship for academic excellence during undergraduate study at American International University-Bangladesh

EXTRACURRICULAR ACTIVITIES

2024 **Judge, 2024 TAMS Fair, University of North Texas**
Evaluated student research projects in robotics, HCI, and AI, and provided constructive feedback and mentorship to support students' technical growth.

2025–Present **Event Coordinator, Bangladeshi Student Association (BSA), UNT**
Help organize cultural events, including Sound of Bengal and International Mother Language Day, to promote cultural exchange and community building.

TECHNICAL SKILLS

Languages	Python, Java, JavaScript, C++, PHP, SQL
Frameworks	Spring Boot, Hibernate, JUnit-5, Flask, Falcon, ReactJS
Machine Learning	Scikit-learn, PyTorch, Numpy
Databases & Cache	PostgreSQL, MySQL, DynamoDB, Firebase, Elasticsearch, Redis
Cyber Security	KERI, SSI, CESR, PKI, vCred
Tools & others	AWS Cloud Service, Docker, Kubernetes, RabbitMQ, Git, Linux, JAWS, VoiceOver, NVDA

OPEN-SOURCE CONTRIBUTION

Contributor at WebOfTrust(Keripy) [Keripy], [Keria], [KAPI]
WebOfTrust is standards relating to a Web Of Trust Based on Autonomic Identifier Systems. Key Event Receipt Infrastructure (KERI) is the first truly fully decentralized identity system (**SSI**). Keripy is the Python implementation of the KERI core library. I contributed multiple PRs involving configurable logging, KERIA API enhancements, cryptographic utility refactoring for nonce and signer generation, and escrow-processing performance optimizations. I also initiated KAPI and served as a maintainer until August 2024.

PROJECTS

Accessible Blockly [Prototype]
Developed an Extension-Based Accessibility Framework (EAF) as part of a Google Blockly accessibility research project to provide keyboard interaction and screen reader support for visually impaired learners in block-based programming environments such as Scratch, Microsoft MakeCode, and Code.org.

Developer Productivity Analytics [Github]
Built an analytics dashboard that extracts data from GitHub, Bitbucket, and JIRA for individual developers in a software project team, providing aggregated insights into progress, contributions, and productivity over time.

Gender Prediction from Bengali Names [Github]
Developed an API for predicting gender from Bangladeshi names as part of an undergraduate data mining course project using supervised machine learning algorithms, achieving 74% accuracy.

Larubel [Github]
Developed a custom PHP MVC framework during my undergraduate web technology course to support building web applications in PHP, with features including routing, request/response handling, configurable views, ORM, and validation.