Md Amit Hasan Arovi

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Professional Summary

Ph.D. candidate in Computer Science and Engineering at Penn State specializing in non blocking data structures and safe memory reclamation (SMR). Author of RRR-SMR (PACMPL/PLDI 2025) and the SCOT brief announcement (SPAA 2025). I design practical concurrent algorithms with rigorous correctness arguments, safe memory management, and reproducible artifacts that scale efficiently on modern multicore systems.

Research Interests (Proposed Endeavor)

Non blocking concurrent data structures; safe memory reclamation (SMR); practical algorithm engineering for multicore systems; correctness and progress guarantees; robustness and performance under contention.

Impact Snapshot

- **Citations:** *20; h-index: 1; i10-index: 1* (Google Scholar).
- **Patent impact:** ICCIT 2015 paper cited by 1 patent (per IEEE Xplore, as of Sept 5, 2025).
- **Software and data impact:** RRR-SMR artifact *188 downloads* on Zenodo (as of Sept 5, 2025).
- **Talks:** PLDI 2025 presentation on RRR-SMR .

Education

Ph.D., Computer Science and Engineering Fall 2022 – Present
The Pennsylvania State University, University Park, PA
Advisor: Dr. Ruslan Nikolaev Focus: Scalable concurrent algorithms and safe memory reclamation

M.S., Computer Science and Engineering Spring 2025
The Pennsylvania State University, University Park, PA
Earned along the way to Ph.D.

B.S., Computer Science and Engineering Dec 2011 – Dec 2015
Islamic University of Technology, Bangladesh
Thesis: Speech Based Interaction for the Visually Impaired
Advisor: Dr. Md Kamrul Hasan

Publications

RRR-SMR: Reduce, Reuse, Recycle: Better Methods for Practical Lock Free Data Structures
Md Amit Hasan Arovi, Ruslan Nikolaev.
Proceedings of the ACM on Programming Languages (PACMPL), Volume 9, Issue PLDI, Article 234, pp. 2156–2179. Published: 13 June 2025.
DOI: 10.1145/3729337

Brief Announcement: SCOT: Fix non blocking data structures, not memory reclamation
Md Amit Hasan Arovi, Ruslan Nikolaev.
SPAA 2025: Proceedings of the 37th ACM Symposium on Parallelism in Algorithms and Architectures, pp. 603–607. Published: 16 July 2025.
DOI: 10.1145/3694906.3743348

Speech Based Text Correction Tool for the Visually Impaired
Md. Nafiz Hasan Khan; **Md. Amit Hasan Arovi**; Hasan Mahmud; Md. Kamrul Hasan; Husne Ara Rubaiyeat.
18th International Conference on Computer and Information Technology (ICCIT), IEEE. pp. 150–155. Published: December 2015.
DOI: 10.1109/ICCITechn.2015.7488059 Electronic ISBN: 978-1-4673-9930-2

Software and Artifacts

RRR-SMR Artifact (PLDI 2025)
Zenodo DOI: 10.5281/zenodo.15258497
Code: GitHub

Brief Announcement: SCOT (SPAA 2025)
Code: GitHub

Research Experience

Graduate Research Assistant, The Pennsylvania State University Fall 2022 – Present

- Designed and analyzed high performance non blocking data structures with safe memory management under heavy contention.
- Proposed RRR-SMR for practical memory reuse and SCOT for safe concurrent optimistic traversals; evaluated across workloads.
- Built reproducible benchmarking and artifacts; verified correctness and performance on multicore systems.

Software Engineering Experience

Senior Software Engineer, Nilavo Technologies Ltd., Bangladesh — Jan 2022 – Jul 2022

Software Engineer — Jan 2019 – Dec 2021

Junior Software Engineer — Dec 2015 – Dec 2018

- Built full stack ASP.NET applications (C#, MSSQL, JavaScript) from specification to deployment.
- Performed debugging, optimization, and secure code audits for production systems.

Software Engineer Intern, XeonBD, Bangladesh — Nov 2014 – Dec 2014

Honors and Awards

Microsoft Imagine Cup (Bangladesh), 2015: Winner; World Semi Finalist (World Citizenship Track) (***Project: Eye Pointer***).

Watch demo: https://www.youtube.com/watch?v=ZZeTRWBsB24