

# Md Amit Hasan Arovi

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## Professional Summary

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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)

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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

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- **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).

## Education

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<b>Ph.D., Computer Science and Engineering</b> The Pennsylvania State University, University Park, PA Advisor: Dr. Ruslan Nikolaev Focus: Scalable concurrent algorithms and safe memory reclamation	Fall 2022 – Present
<b>M.S., Computer Science and Engineering</b> The Pennsylvania State University, University Park, PA <i>Earned along the way to Ph.D.</i>	Spring 2025
<b>B.S., Computer Science and Engineering</b> Islamic University of Technology, Bangladesh Thesis: Speech Based Interaction for the Visually Impaired Advisor: Dr. Md Kamrul Hasan	Dec 2011 – Dec 2015

## Publications

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**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](https://doi.org/10.1145/3694906.3743348)

**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](https://doi.org/10.1145/3729337)

**Speech Based Text Correction Tool for the Visually Impaired**

Md. Nafiz Hasan Khan; Md. Amit Hasan Arovi; Hasan Mahmud; Md. Kamrul Hasan; Husne Ara Rubaiyat.

*18th International Conference on Computer and Information Technology (ICCIT)*, IEEE.

pp. 150–155. Published: December 2015.

DOI: [10.1109/ICCITechn.2015.7488059](https://doi.org/10.1109/ICCITechn.2015.7488059)

Electronic ISBN: 978-1-4673-9930-2

## Talks

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**RRR-SMR: Reduce, Reuse, Recycle: Better Methods for Practical Lock Free Data Structures**

*Conference talk*, PLDI 2025 — Seoul, South Korea (June 2025).

Slides: [PLDI 2025 presentation on RRR-SMR](#)

## Software and Artifacts

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**Brief Announcement: SCOT (SPAA 2025)**

Code: [GitHub](#)

**RRR-SMR Artifact (PLDI 2025)**

Zenodo DOI: [10.5281/zenodo.15258497](https://doi.org/10.5281/zenodo.15258497)

Code: [GitHub](#)

## Research Experience

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

- Design and analyze high performance non blocking data structures with safe memory reclamation (SMR) under heavy contention.
- Build and maintain reproducible benchmarks and artifacts; verify correctness and evaluate performance on multicore systems.
- Proposed RRR-SMR for practical memory reuse and SCOT for safe concurrent optimistic traversals; evaluated across workloads.

## Software Engineering Experience

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**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

## Grants and Scholarships

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- **PLMW @ PLDI 2025 – Travel Scholarship**, ACM SIGPLAN  
Seoul, South Korea, June 2025. *Travel support to attend PLDI 2025.*  
**Amount: \$2,700**
- **SIGPLAN PAC – Travel Support for PLDI 2025**, ACM SIGPLAN  
Seoul, South Korea, June 2025. *Professional Activities Committee travel funding.*  
**Amount: \$1,500**

## Honors and Awards

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

*Project: Eye Pointer* — [Watch demo](#).