TANVIR AHMED KHAN

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Education

University of Texas at Arlington   Jan 2021 – Dec 2025

Ph.D. candidate in Computer Science

• Focus: Big data, Distributed Systems, Machine learning

• Summary: My research involves building efficient Distributed Systems (similar to Apache Spark, PyTorch, Ray etc.) to improve latency and memory usage of Machine Learning computations and Big Data Analytics.

University of Dhaka   2013 - 2017

B.Sc. in Electrical and Electronic Engineering

Publications

Google scholar link: *google-scholar/tanvir*

• *A Planner for Scalable Tensor Programs*
  T.A. Khan, L. Fegaras
  IEEE International Conference on Big Data (BigData'24). *Paper link*

• *Scalable Tensors for Big Data Analytics*
  L. Fegaras, **T.A. Khan**, M.H. Noor, T. Sultana
  IEEE International Conference on Big Data (BigData'22). *Paper link*

• *Translation of Array-based Loop Programs to Optimized SQL-based Distributed Programs*
  M.H. Noor, L. Fegaras, **T.A. Khan**, T. Sultana
  Open Journal of Big Data (OJBD) 2022. *Paper link*

• *AlloyFL: A Fault Localization Framework for Alloy*
  T.A. Khan, A. Sullivan, K. Wang
  The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) Demonstration Track (FSE Demo) August 2021. *Paper link*

Professional Experience

Cornami Inc.   Campbell, CA, USA

Compiler Engineer Intern   Feb 2025 – May 2025

• Worked on compiler extension on MLIR using fully-homomorphic encryption to run ML programs on Cornami accelerator

University of Texas System   Austin, Texas, USA

Software Developer Intern – Texas Medical & Dental Schools Application Services   May 2022 – Aug 2022

• Upgraded TMDSAS portal with latest backend and frontend frameworks

• Built a chatbot using Large Language Model and Knowledge Graphs to answer applicant queries

• Developed a secure .NET Web API and enhanced frontend using React and Material-UI

Samsung Research Bangladesh   Dhaka, Bangladesh

Software Engineer – Mobile Application Group 2   Nov 2018 – Dec 2020
  • Built UI components for Samsung Galaxy smart watches using Tizen Wearable framework
  • Improved UI scrolling speed of Weather app by 30%
  • Designed and integrated SmartThings app with new API

Software Engineer Intern   Aug 2018 – Nov 2018

Ixora Solution Ltd.   Dhaka, Bangladesh

Software Developer   Mar 2018 – July 2018
  • Designed and built a web application for blast (Bangladesh Legal Aid and Services Trust) to be used by people with disabilities to file cases, link: https://blast-cms.org
  • Implemented a web application for managing product deliveries and logistic operations of courier services

Software Developer Intern   Nov 2017 – Feb 2018

Research Projects

  • *TensorPlanner* (Ongoing project)
   MPI-OpenMP hybrid framework that generates C++ code with OpenMP directives for multi-core execution and MPI for distributed execution.
  • *Diablo*
   A distributed system on top of Apache Spark which can translate comprehensions (like SQL) based on a tensor algebra to distributed Spark scala code with Spark operations (join, reduceByKey, etc.)
  • *SQLGen*
   Generates optimized Spark SQL from array-based loop programs

Skills

• C/C++	• Python	• JavaScript	• TypeScript	• C#	• Java	• Scala
• Apache Spark	• Hadoop	• TensorFlow	• PyTorch	• Angular	• React	• .NET
• LLVM	• CUDA	• Ray	• AWS	• ML	• Bash	• Git

Certifications

  • SWC Professional Certificate – Samsung R&D Institute Bangladesh
  • ITEE FE level-2 – IPA: Information-technology Promotion Agency, Japan

Teaching Experience

Graduate Teaching Assistant   Jan 2021 – Present
University of Texas at Arlington
  • Grading Assignments and Exams, creating assignments, troubleshooting issues in running assignments in distributed clusters

Aspire Teaching Fellowship Jan 2022 – Apr 2022

University of Texas at Arlington and Tarrant Community College
- Observed classroom practices, practiced setting learning goals for classes and creating assessment, and taught classes using different teaching practices and student activities