Arif ARMAN

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OBJECTIVE

Computer Science and Engineering PhD student with a background in Algorithm Optimization, Big Data Systems, and Information Retrieval, motivated to build research skills by working in leading research labs.

EDUCATION

AUGUST 2018 - PRESENT	Doctor of Philosophy in COMPUTER SCIENCE Department of Computer Science and Engineering **Texas A&M University, College Station, TX**
FEBRUARY 2011 - MARCH 2016	Bachelor of Science in COMPUTER SCIENCE AND ENGINEERING CGPA: **3.88**/4.00 **Bangladesh University of Engineering and Technology (BUET)**, Dhaka Ranked 10th in a graduating class of 142 students Final Four Semesters Average CGPA: **3.97**

RESEARCH INTERESTS

Algorithm Optimization, Big Data and Database Systems, Data Mining, Spatial Databases, Information Retrieval.

EXPERIENCE

JUN 2021 - AUG 2021	Software Engineering Intern at **Google SysInfra** As part of the Data Analytics and Storage Performance team, worked on several projects. (i) Accelerating analytics: Identifying acceleration opportunities in Google's analytics engines such as Dremel and F1. In addition, building an analytical model to perform what-if analysis for different accelerator types. (ii) Spanner IPC variance root cause: Investigating primary cause of variance in IPC for Google's globally distributed database service.
AUG 2018 -	Graduate Research Assistant in **Internet Research Lab (IRL)** with Professor Dmitri Loguinov I am working on a high-performance sort that focuses on reducing bottlenecks caused by several CPU components and inefficient code generation by the compiler. I am also working on a streaming framework that provides the programmer with a seemingly infinite buffer.
AUG 2020 -	Graduate Teaching Assistant in **Department. of CSE, Texas A&M University** Classes: Networks and Distributed Processing, Introduction to Computer System (hon's), Data Structures and Algorithms (hon's).
MAR 2015 - JUL 2018	Research Assistant for **Visibility Query Processing in 3D Spatial Databases** with Professor Mohammed Eunus Ali. Started working as undergraduate thesis focus and continued to extend after graduation. Multiple papers have been published in top conference proceedings. Developed a variant of R*-Tree to improve performance of novel visibility queries, in collaboration with RMIT University, Australia.
JAN 2017 - JUL 2018	Research Assistant for **Active Learning in Big Data** with Professor Dewan Md. Farid. Developing a system to reduce dependency on expert opinion for active learning in big data.
MAY 2016 - JUL 2018	Lecturer of Computer Science and Engineering at UNITED INTERNATIONAL UNIVERSITY, Dhaka, Bangladesh. Courses: Algorithms, Object Oriented Programming, Discrete Mathematics, Structured Programming Language etc.

Honors and Awards

Publications

Dec. 2021 — **Arif Arman** and Dmitri Loguinov. "Origami: A High-Performance Mergesort Framework" Proceedings of the VLDB Endowment Vol. 15 No. 2, 2021.

Mar. 2020 — Carson Hanel, **Arif Arman**, Di Xiao, John Keech, and Dmitri Loguinov. "Vortex: Extreme-Performance Memory Abstractions for Data-Intensive Streaming Applications". ACM ASPLOS 2020. [DOI]

May 2018 — Tamjid Al Rahat, **Arif Arman**, Mohammed Eunus Ali. "Maximizing Reverse k-Nearest Neighbors for Trajectories". In: Databases Theory and Applications. **ADC '18**. Lecture Notes in Computer Science, vol 10837 Pages: 262-274. Springer. [DOI]

Nov. 2017 — **Arif Arman**, Mohammed Eunus Ali, Farhana Murtaza Choudhury, and Kaysar Abdullah. 2017. "VizQ: A System for Scalable Processing of Visibility Queries in 3D Spatial Databases". In Proceedings of the 2017 ACM on Conference on Information and Knowledge Management (**CIKM '17**). [DOI]

Oct. 2016 — **Arif Arman**, Kaysar Abdullah, Ishat E Rabban, and Mohammed Eunus Ali. 2016. "IndVizCMap: Visibility Color Map in an Indoor 3D Space". In Proceedings of the Eighth **ACM SIGSPATIAL** International Workshop on Indoor Spatial Awareness (**ISA** 2016). [DOI]

Sept. 2016 — Ch. Md. Rakin Haider, **Arif Arman**, Mohammed Eunus Ali, and Farhana Murtaza Choudhury. 2016. "Continuous Maximum Visibility Query for a Moving Target". In Proceedings of the 27th Australasian Database Conference, (**ADC**) 2016, Sydney, NSW, 82-94. [DOI]

Notable Projects

- **Dedicated MMU Cache for Virtual to Physical Address Translation**, We studied the page walking process of x86 and implemented several MMU caching mechanisms. We observed that virtually tagged translation caches are superior to physically tagged page table caches.

- **Depression Indication from Tweets**, A supervised machine learning model to identify depression diagnosed users from control users. The model would take as input features such as tweets and their metadata of a user, and output the likelihood of depression of that user.

- **Social Media Analytics**, predicting food habit of Singapore with crawled data from Twitter and Instagram feeds and showing results in a web interface. Created with Java, JSP, MongoDB and Morris-JS.

- **Automation of City Development Authority (RAJUK)**, an information system designed to fully automate work flow of RAJUK. Designed with Sparx Enterprise Architect, Pencil Project.

- **Chain Shop Management System**, a management system of a chain shop with multiple branches including POS feature and a consumer side website to support online shopping. Implemented with Visual C# Windows Form Application, Oracle PL/SQL, PHP CodeIgniter, BootStrap.

- **City Water Supply Control Management**, an agent based simulation engine created to simulate water usage and supply control; implemented with Java MASON.

Additional Information

- **Language and Platform Proficiency**:
  - C/C++, Python, Java, JavaScript, PHP, OpenGL, Oracle PL/SQL, MySQL, django, BeautifulSoup, Pandas, Network Simulator, MongoDB, Scikit-Learn, Sparx Enterprise Architect

- **Leadership and Participation**:
  - ORGANIZER AND MENTOR of UX DESIGN CONTEST, PROJECT SHOWCASING and PROBLEM SETTER at UIU CSE Festival, 2017
  - ORGANIZER, International Conference on Medical Engineering, Health Informatics and Technology, 2016
  - CO-FOUNDER AND FORMER GENERAL SECRETARY, SCIENCE CLUB OF THE LABORATORIANS
  - PARTICIPANT. MICROSOFT IMAGINE CUP 2013, TOP 12 with project Solvencia; a communication platform for supershop and farmers using IVR (Interactive Voice Response)
  - PARTICIPANT. EATL-PROTHOM ALO APP DEVELOPMENT CONTEST 2014 for project Ekattor; a first person shooting game based on histories of 1971.
- **Online Courses**: Machine Learning (Coursera), Big Data Fundamentals (edX), Data Science (DataCamp) etc.

REFERENCES

Dr. Dmitri Loguinov
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