

Salem Alqahtani

<https://salemmohammed.github.io/webpage/>

Davis Hall, Buffalo, NY 14260, salemmoh@buffalo.edu, (716) 445-2288.

Education

State University of New York at Buffalo Buffalo, NY.

Ph.D. in Computer Science and Engineering 2022

Thesis title: *Analyzing and improving performance in BFT consensus protocols*

Advisor: [Murat Demirbas](#)

University of Connecticut Storrs, CT.

M.S. in Computer Science and Engineering 2015

Advisor: [Reda Ammar](#)

King Khalid University ABHA, KSA

B.S. in Computer Science 2010

Advisor: [Babusundar Sankaran](#)

Working Experience

University of Utah Salt Lake, Utah.

Research Scientist in Computer Science and Engineering 06-2024-09-2024

Distributed Big Data. Advisor: [Manish Parashar](#)

State University of New York at Buffalo Buffalo, NY.

Post-doctorate in Computer Science and Engineering 2022-2024

Distributed Database. Advisor: [Haonan Lu](#)

Research Interests

I am primarily interested in the field of distributed systems, Machine learning Systems, distributed database systems, and blockchain technology. My focus is on analyzing, designing, and implementing large-scale replication and transactional protocols. To overcome scalability limitations in both BFT and distributed transaction protocols, I have proposed and evaluated innovative solutions.

Professional Experience

22-present Research Assistant State University of New York at Buffalo, Buffalo, NY

Advisors: Haonan lu

- Design a smart ordering layer to improve concurrency control performance in distributed databases.

2017-2022 Research Assistant State University of New York at Buffalo, Buffalo, NY

Advisors: Murat Demirbas

- Led a project that designed a new BFT protocol called BunchBFT for better performance in Geo-Distributed settings.

- Led a project that designed a new BFT protocol called BigBFT for high throughput, which resulted in a publication in IEEE-IPCCC '21.
- Led a project that fundamentally studied the bottleneck in Blockchain protocols and designed an implementation framework called PaxiBFT for system evaluation, which resulted in a publication in IEEE-COINS '21.
- Led a project that studied and evaluated the communication topologies in machine learning systems, which resulted in a publication in IEEE-ICCCN '19
- Collaborated on a project that studied and evaluated machine learning systems, which resulted in a publication in IEEE-ICCCN '17

Conference Publications

- [1] **Salem Alqahtani** , Murat Demirbas. BunchBFT: Across-Cluster Consensus Protocol. **Under Review**.
- [2] **Salem Alqahtani** , Murat Demirbas. BigBFT: A Multileader Byzantine Fault Tolerance Protocol for High Throughput. 40th IEEE International Performance, Computing, and Communications Conference (**IPCCC**), **2021**.
- [3] **Salem Alqahtani** , Murat Demirbas. Bottlenecks in Blockchain Consensus Protocols. IEEE International Conference on Omni-Layer Intelligent Systems (**COINS**), **2021**.
- [4] **Salem Alqahtani** , Murat Demirbas. Performance Analysis and Comparison of Distributed Machine Learning Systems. The 28th International Conference on Computer Communication and Networks (**ICCCN**), **2019**.
- [5] Kuo Zhang, **Salem Alqahtani** , Murat Demirbas. A Comparison of Distributed Machine Learning Platforms. The 26th International Conference on Computer Communication and Networks (**ICCCN**), **2017**.

Ph.D. Thesis

- [6] **Salem Alqahtani**. Analyzing and improving performance in BFT consensus protocols.

Teaching Experience

State University of New York at Buffalo, Buffalo, NY

- Large-scale distributed systems, Undergraduate and Graduate Course, Summer'23 (Instructor).

King Khalid University, Abha, KSA

- Introduction to computer science and data structure in JAVA, Undergraduate Course, Fall10, Spring11, Fall11, and Spring12 (Instructor, 200 students).

Service

2017-2019 Organizer, treasurer, and student club president at the SUNY-Buffalo.

Honors

2010 Second-degree Honor from King Khalid University.

Conference Presentations

- 08/26/2021 IEEE International Conference on Omni-Layer Intelligent Systems (**COINS**)
 Bottlenecks in Blockchain Consensus Protocols, **Blockchain Session**, Spain.
- 10/28/2021 40th IEEE International Performance, Computing, and Communications(**IPCCC**)
 BigBFT: A Multileader Byzantine Fault Tolerance Protocol for High Throughput,
 Blockchain Session, Texas, USA.