

# Salem Alqahtani

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

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## Education

**State University of New York** . . . . . 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

## Research Interests

My research focuses on analyzing, designing, and implementing Byzantine fault tolerant(BFT) consensus protocols for permissioned Blockchain. Instead of new solutions, my research uses the best possible system properties for addressing scalability limitations.

## Professional Experience

**2017-2022 Research Assistant** University at Buffalo(SUNY), Buffalo, NY  
Advisors: Murat Demirbas

- Led a project that designed a new BFT protocol called BigBFT2 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 IPCCC '21.
- Led a project that fundamentally studied the bottleneck in Blockchain protocols and designed an implementation framework called PaxiBFT for system evaluation.
- Led a project that studied and evaluated the communication topologies in machine learning systems, which resulted in a publication in ICCCN '19
- Collaborated on a project that studied and evaluated the machine learning systems, which resulted in a publication in ICCCN '17

## Conference Publications

[1] **Salem Alqahtani** , Murat Demirbas. BigBFT2: A Geo-Distributed Consensus Protocol with Strong Consistency. **Under Submission**.

[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**.

## Dissertation Proposal

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

## Teaching Experience

**2010-2012 Teaching Assistant** King Khalid University, KSA  
Introduction to computer science and data structure in JAVA.

## Service

2017-2019 Organizer, treasurer, and student club president at university at Buffalo (SUNY).

## 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.