
ALI BEN ALI

University at Buffalo

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EDUCATION

University at Buffalo (UB-SUNY)

Buffalo, NY, USA

Ph.D. Student, Department of Computer Science and Engineering

Fall 2014-present

The City College of New York (CCNY-CUNY)

New York, NY, USA

M.S. Computer Science

Spring 2011-Fall 2012

Kuwait University

Kuwait City, Kuwait

B.S. Computer Science

Fall 2000-Summer 2005

Minor in English Language and Literature

RESEARCH INTERESTS

- Systems
- Machine Learning

RESEARCH PROJECTS

Mobile Systems & Machine Learning

Summer 2015-present

Recognize personal device usage patterns using wearable device sensors.

Advisor: Dr. Geoffrey Challen

Mobile Systems & Compiler Design

Spring 2015

Structuring uncertainty using the [maybe](#) statement.

Advisor: Dr. Geoffrey Challen

Advanced Data Structures & Geographic Information System

Spring 2012

Implemented a system that provides an efficient orthogonal range query on polygon data. Given geographical data, the system will extract the polygon data out of it and pre-process it in such a way that makes it capable of supporting window query.

Advisor: Dr. Peter Brass

ACADEMIC PROJECTS

Mobile Systems

Fall 2015

Modified Android Open Source Project (AOSP) to provide notification queuing feature in the "Interruption Settings" of "Priority Mode". This feature will queue all received notifications when enabled and push them back to screen when disabled. It is also possible to customize this feature by limiting the number of notifications to queue and also by enabling this feature for specific apps only.

Computer Networking

Spring 2015

Implemented and evaluated a wireless MAC (Medium Access Control) protocol for sensor networks using network simulator (NS-2).

Distributed Systems

Fall 2014

Implemented several algorithms using TLA+ specification language and PlusCal algorithm language to model check their correctness properties.

Artificial Intelligence

Fall 2012

Implemented a software to evaluate the performance of several AI algorithms like Simulated Annealing, Genetic Algorithms, Tabu Search, and Hopfield Networks to solve the n-queens problem.

Advanced Data Structures

Fall 2011

Implemented a text editor that provides create text, text length, get, append, set, insert, and delete line operations in an efficient time of $O(\log n)$.

Advanced Data Structures

Fall 2011

Implemented a measure tree which is a dynamic structure that keeps track of a set of n intervals, supporting insertion and deletion of intervals in time $O(\log n)$, and that answers queries for the measure of the union of the intervals in $O(1)$ time.

Advanced Data Structures

Fall 2011

Implemented a structure that uses height balanced search tree with two-level structure to maintain a linear order with $O(1)$ amortized time of insert and delete and $O(\log n)$ worst case time of compare.

Advanced Data Structures

Fall 2011

Implemented a Bloom filter for 2,000,000 strings with an error rate of around 2.5%, using only 2MB of memory. It will support a query of whether a string q is contained in the set or not.

Graph Algorithms

Spring 2011

Implemented a software that discovers a labyrinth of 1,000,000 vertices and finds shortest path between two points in an efficient time by using breadth first search (BFS) algorithm.

Computational Geometry

Spring 2011

Implemented a software that takes set of line segments, checks if it is connected, then constructs a tree of minimal length touching all segments using worst-out greedy algorithm.

Computational Geometry

Spring 2011

Implemented a software that takes a set of lines and finds the largest perimeter bounded convex k -gon described by these lines. This is achieved by a dynamic-programming type algorithm combined with a line sweep over the intersection points of the lines.

Divide & Conquer

Spring 2011

Created set of functions that realize fast matrix arithmetic on recursively presented matrices.

CPU Design

Spring 2011

Designed a processor which accepts four instructions move, move immediate, add, and subtract using VHDL language, Altera ModelSim and Quartus II software on Altera DE2 Board.

EXPERIENCE

Teaching Assistant

Fall 2015

University at Buffalo
CSE 486/586 Distributed Systems (Dr. Murat Demirbas)
CSE 442 Software Engineering (Dr. Jesse Hartloff)

Buffalo, NY, USA

Research Assistant

Summer 2015

University at Buffalo
Advisor: Dr. Geoffrey Challen
Recognize personal device usage patterns using wearable device sensors.

Buffalo, NY, USA

Research Assistant

Spring 2015

University at Buffalo
Advisor: Dr. Geoffrey Challen
Structuring uncertainty using the [maybe](#) statement.

Buffalo, NY, USA

Teaching Assistant

Fall 2006

Public Authority for Applied Education and Training
CS Computer Programming II (C++)

Kuwait City, Kuwait

RESEARCH GROUPS

Member of [blue](#) Systems Research Group

Fall 2014-present

University at Buffalo
Advisor: Dr. Geoffrey Challen

Buffalo, NY, USA

Member of Computational Geometry Research Group

Spring 2011-Fall 2012

The City College of New York
Advisor: Dr. Peter Brass

New York, NY, USA

SKILLS

- **Languages:** Java, Python, C, TLA+, PlusCal, SQL, VHDL.
- **Platforms:** Android Open Source Project (AOSP), Linux.
- **Suites:** Waikato Environment for Knowledge Analysis (WEKA).
- **Tools:** Git, \LaTeX , Vim.

EVENTS

ACM HotMobile 2015

February 12-13, 2015

The Sixteenth Workshop on Mobile Computing Systems and Applications
Presented "[maybe](#) We Should Enable More Uncertain Mobile App Programming" paper.

Santa Fe, NM, USA

2012 Joint Mathematics Meetings

January 02-03, 2012

Attended MAA Discrete and Computational Geometry Course.

Boston, NY, USA

21st Fall Workshop on Computational Geometry

November 04-05, 2011

Member of Organizing Team.

Manhattan, NY, USA

Second FINA Mens World Water Polo Development Trophy

April 05-11, 2009

Member of Public Relations Team.

Kuwait City, Kuwait

First Olympic Council of Asia Sport Congress

March 12-14, 2009

Member of Public Relations Team.

Kuwait City, Kuwait

Olympic Council of Asia Headquarters Inauguration Ceremony

March 11, 2009

Member of Public Relations Team.

Kuwait City, Kuwait

REFERENCES

- References available upon request.