# Aftab Hussain

PhD Candidate
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Department of Computer Science,
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## Research Interests

Programming Languages, Static Program Analysis Scalability, Security.

## Education

2015 - present — PhD Candidate in Computer Science,
**University of California, Irvine**, United States
Focus: "Programming Languages and Systems" | Advisor: Prof. Anton Burtsev
Gpa: 3.80/4

2013 - 2015 — M.Sc. in Software Engineering,
**University of California, Irvine**, United States
Gpa: 3.74/4

2010 - 2012 — M.Sc.Engg. in Computer Science and Engineering,
**Bangladesh University of Engineering and Technology**, Dhaka, Bangladesh
Thesis: "Software Restructuring using Hierarchical Clustering"
Advisor: Prof. Md. Saidur Rahman
Gpa: 3.83/4

2005 - 2009 — B.Tech. in Computer Science and Engineering,
**Institute of Engineering and Management**, Kolkata, India
Thesis: "Steganography" | Advisor: Prof. Himadri Nath Saha
Gpa: 8.01/10

## Experience

### Research Experience

March 2015 to *present* — Graduate Researcher at Department of Computer Science, University of California, Irvine
*Mars Systems Research Group, PLSys Group*
Research Focus: Static program analysis, cyber security, graph processing
Key projects:

- IDL generation for light-weight capability domains in Linux kernel
- Cloud vulnerabilities
- Graspan - Big data system for big code analytics
- Scaling path sensitive analysis and symbolic execution

September 2013 to March 2015 — Graduate Researcher at Department of Informatics, University of California, Irvine
*Big Data Mondego Lab*
Research Focus: Big data analytics, mining software repositories
Key projects:

- StackOverflow code usability
- GitHub follow and watch relationship analysis

December 2012 to August 2013 — Research Associate at Department of Computer Science, Bangladesh University of Engineering and Technology

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| | *Graph Drawing and Information Visualization Lab,*<br>*Samsung Innovation Lab*<br>Research Focus: Graph Clustering, Software Visualization |
| September 2010 to June 2011 | Research Assistant at Department of Computer Science, Bangladesh University of Engineering and Technology<br>*Graph Drawing and Information Visualization Lab*<br>Research Focus: Planar Graph Drawing, Wireless Sensor Networks |

### Teaching Experience

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|---|---|
| | Teaching Assistant at Bren School of Information and Computer Sciences, University of California, Irvine |
| Spring 2018 | *ICS 53 - Principles of System Design* |
| Winter 2018 | *CS 142 - Compilers and Interpreters* |
| Fall 2017 | *CS 141 - Concepts in Programming Languages* |
| Winter 2017 | *CS 142 - Compilers and Interpreters* |
| Winter 2014 | *ICS 31 - Introduction to Programming* |
| Winter 2014 | *INF 113 - Requirements Analysis and Engineering* |
| | Reader at Bren School of Information and Computer Sciences, University of California, Irvine |
| Fall 2013 | *INF 43 - Introduction to Software Engineering* |

### Industry Experience

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|---|---|
| March 2010 to April 2010 | Software Engineering Intern at NextTel Communication, Dhaka, Bangladesh |
| July 2008 | Software Engineering Trainee at CMC Kolkata, (A TATA Enterprise), Kolkata, India |

## Publications

### Conferences

1. K. Wang, A. Hussain, Z. Zuo, G. Xu, and A. A. Sani. Graspan: A single-machine disk-based graph system for interprocedural static analyses of large-scale systems code. In *22nd ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '17)*, Xi'an, China, 2017 (paper)

2. D. Yang, A. Hussain, and C. V. Lopes. From query to usable code: An analysis of stack overflow code snippets. In *13th International Conference on Mining Software Repositories (MSR '16, Co-located with ICSE '16)*, Austin, Texas, US, 2016 (paper)

3. I. Hossain, S. Sultana, A. Hussain, N. N. Moon, and M. S. Rahman. L-shaped drawings of series-parallel graphs. In *International Mathematics Conference*, Dhaka, Bangladesh, 2013 (paper)

4. A. Hussain and M. S. Rahman. A new hierarchical clustering technique for restructuring software at the function level. In *6th India Software Engineering Conference (ISEC '13)*, New Delhi, India, 2013 (paper)

### Workshops

1. A. Hussain. Graspan: A single-machine disk-based graph system for interprocedural static analyses of large-scale systems code. In *17th Southern California Workshop on Programming Languages and Systems (SoCal PLS '16)*, Irvine, California, US, 2016

2. A. Hussain and M. S. Rahman. A new clustering technique using (k,w)-core decomposition for restructuring software functions. In *Workshop on Graph Drawing and Graph Algorithms (GDGA '13)*, Dhaka, Bangladesh, 2013

## Poster Presentations

1. A. Hussain. Graspan: A single-machine disk-based graph system for interprocedural static analyses of large-scale systems code. In *Student Research Competition, 37th ACM SIGPLAN conference on Programming Language Design and Implementation (PLDI '16)*, Santa Barbara, California, US, 2016 (poster)

2. A. Hussain. Graspan: A single-machine disk-based graph system for interprocedural static analyses of large-scale systems code. In *Computer Science Research Showcase, University of California, Irvine*, Irvine, California, US, 2016

## Technical Reports

1. A. Hussain and A. Burtsev. Common vulnerabilities and exposures in the cloud (under preparation). Technical report, Department of Computer Science, University of California, Irvine, 2018

2. A. Hussain, V. Narayanan, and A. Burtsev. Dsa-idl-generator : Execution flow and indirect call handling (under preparation). Technical report, Department of Computer Science, University of California, Irvine, 2018

3. H. Xu, Z. Zuo, K. Wang, A. Hussain, and K. Nguyen. Systemized program analyses: A big data perspective on scaling large-scale code analyses. Technical report, Department of Computer Science, University of California, Irvine, 2017 (report)

4. A. Hussain and I. Scherson. A study on memory consistency approaches in distributed shared memory systems. Technical report, Department of Computer Science, University of California, Irvine, 2016

5. A. Hussain, O. Asadi, and D. Richardson. A holistic look at requirements engineering practices in the gaming industry. Technical report, Department of Informatics, University of California, Irvine, 2015 (report)

6. D. Yang, A. Hussain, and C. V. Lopes. Effect of follow and watch relationships in pull requests (in github). Technical report, Department of Informatics, University of California, Irvine, 2014 (report)