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Research Objectives

To study, understand and build large scale distributed systems, focusing on developing new models of computation in distributed systems.

Education

1. PhD. UC, Santa Cruz, 2018 – Present
   Advisor: Dr. Faisal Nawab, Assistant Professor, Baskin School of Engineering, UC, Santa Cruz
2. Master's Degree in Engineering (Distinction), Information Technology, 2011-2013,
   University Visvesvaraya College of Engineering, Bangalore University, India

   Dissertation title: "Traffic Splitting in Hybrid Multi-Radio Ad-hoc Networks"
   Advisor: Dr. Kiran K, Assistant Professor, Department of CSE, UVCE
3. Bachelors Degree in Engineering, Electronics and Communication Engineering, 2003-2007
   Anna University, India

Work

1. **R&D Engineer**: Nokia Networks, Mobile Broadband Division, **(July 2013-August 2018)**
   - Exploring and developing proof of concepts for solutions to technical challenges in network management systems.
   - Design and development of communications interface middleware for Nokia's NetAct Product.
   - Re-designing existing software components in Nokia's Network Management Software(NMS) NetAct with the objective of porting the components into a cloud system.
   - Awarded: "Everyday Excellence Award" for software design and engineering in 2014.
   - Won: Business Unit Microservices Hackathon in December 2017 and January 2018.
2. **Research at UVCE (October 2011-Present)**
   During this period, I was part of the Wireless Networks Research group at University Visvesvaraya College of Engineering during my Master's Degree. This research deals with Traffic Splitting over Wireless Mesh networks comprising nodes with both WiMAX and Wi-Fi radios. The objective of the research was to analyze the effect of traffic splitting over wireless networks where range of the radios, end-to-end delay, throughput and mobility affect data transfer. The results and insights gathered as part of this research were published in the following papers. I was a co-author of these papers.

   **Papers Published**
   - *"Analysis of Traffic Splitting over a Multi-Hop Network with Hybrid WiMAX and Wi-Fi Nodes",* at IEEE International Conference on Parallel, Distributed and Grid Computing - December 2012, Shimla, pp 609-613
   - *"Throughput Enhancement by Traffic Splitting over an Ad-Hoc Network with Hybrid Radio Devices",* at IEEE TENCON April 2013, Sydney, Australia, pp 371-375
   - *"Traffic Splitting in Mobile Ad-hoc Multi Radio Network",* at IEEE IndiCon, December 2013, Mumbai, pp 1-4
   - *"Performance Analysis of Beehive Routing in Multi radio Networks",* at IEEE Advance Computing Conference(IACC), February 2014, Gurgaon, pp 360-364
   - *"Dynamic Traffic Splitting in a Multi Radio Multi hop Network",* in Journal of Networking and Communication Engineering, Volume 6, No. 3, 2014
   - *"CFT: Co-operative file transfer algorithm for multi network interface sessions",* in 2015 Annual IEEE India Conference (INDICON), New Delhi, 2015, pp. 1-5.
3. Internship at Alcatel Lucent, India, WCDMA Division (July 2012 – June 2013)
   - Development of an Iuh-SIP protocol translation system for Femtocells**:** C++, Asterisk PBX 1.8, PJSIP 2, RHEL
   - Developed GUI application for Call Load testing of Radio Network Controllers for Cluster Level Testing Team. Software used: Perl/Tk, Solaris
   - Development of RNC Security automation scripts in TCL/Expect in Solaris
   - Automation Testing for Cluster Level Testing Team for different call scenarios

4. Lecturer: Rajiv Gandhi Institute of Technology, Bangalore **(September 2007 – September 2011)**
   - Teaching 8086 and 8051 assembly language programming, Programming C, C++, MATLAB
   - Worked with students to develop Robotic projects using 8051 and Arduino microcontrollers.
5. Project Repositories
   - https://bitbucket.org/alfredd/transmission : A fork of Transmission Bit torrent client. The fork was created to try out some ideas in enabling distributed torrent downloads. Currently I've implemented a "Pause and resume state" feature which allows only currently running downloads to be paused and resume only those torrents when trying to resume all. Presently transmission bit torrent client resumes all torrents in the list. [Language: C]
   - https://bitbucket.org/uvcenpg/musics : Repository of research work conducted with students from UVCE Computer Networks research group. A paper "*CFT: Co-operative File Transfer Algorithm for Multi Network Interface Sessions*" has been accepted for publication in IEEE INDICON, Dec, 2015. [ Language: Python]
6. Other teaching experience (2011-2012):
   During my studies at UVCE, I took up teaching assignments in the Department of CSE. I taught undergraduate students x86 Microprocessor programming and Unix system programming.

## Technical Exposure & Skills

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| Programming Languages | Java, Go, C, C++, Python, Shell Scripting(bash), MATLAB, Perl |
| Development Environments | GNU/Linux (Ubuntu, RHEL 7),<br>Spring Boot, Network Programming in GNU/Linux, Web Server design, GLib, GDK 3, GTK 3, SNMP(snmp4j), Software design, BitTorrent protocol |

## Other Interests

I enjoy playing the Piano and, after a gap of nearly 14 years, joined Piano performance studies at the Bangalore School of Music (BSM) in early 2016. I received a Level 2 Certificate (Grade 5) in Piano performance by the Trinity College of Music, London, in late 2016. I continue to study Piano performance and occasionally perform in student Recitals at BSM.

I also enjoy playing and analyzing strategies in board games and card games. Among the games I love most are Othello (Reversi), Risk, Cluedo(Clue), Scotland Yard and Monopoly Deal (listed in no particular order).