CHIRAG JAMADAGNI

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EDUCATION

National Institute of Technology Karnataka, Surathkal, India
Bachelor of Technology   GPA: 8.82/10
Major: Computer Engineering   Relevant Courses: Data Structures and Algorithms, Operating Systems, Software Engineering, Distributed Computing Systems, Computer Networks, Advanced Computer Networks, Wireless Networks.

TECHNICAL EXPERIENCE

Full Stack Developer, Concat, Mangalore, India   [8/15 – Present]
- Concat is an online platform which simplifies the process of finding and organizing engineering conferences.
- The platform is built with AngularJS, Django Rest Framework with PostgreSQL and is deployed on AWS.
- I contribute to every stage of the development lifecycle, from data and requirement analysis to developing and deploying production quality code.

Student Trainee, Samsung Research Institute, Bangalore, India   [5/16 – 7/16]
- Member of the SDK and Reference Applications team of the Tizen PF & Protocol division.
- Built a new native Voice Recorder application for the mobile suite of the Tizen OS. Was responsible for development of the entire application, from the system APIs to the User Interface.
- Also added a circular image cropping patch to the existing Image Editor application.
- This will be the new default application in the next Tizen release.

Research Intern, MOOG India Technology Center, Bangalore, India   [5/15 – 7/15]
- Designed a real-time multicore scheduling algorithm for flight systems.
- Developed a Linux-based, multicore operating system for NVIDIA's Jetson TK1 chip.
- Verified whether MOOG's flight control systems could adapt to multicore architectures.

Software Engineer Intern, Xerox, Bangalore, India   [5/14 – 7/14]
- Developed test cases using Selenium WebDriver, and Liferay portlets to monitor servers and onboard new customers.
- Integrated Nagios system monitoring tool with the Xerox cloud portal.
- Worked on load balancing and redundancy mechanisms for the Xerox data center.

PUBLICATIONS

VirtTorrent: BitTorrent for Inter-VM File Distribution
- Authors : Amita Ajith Kamath, Chirag Jamadagni, K Chandrasekaran
- Conference : International Conference on IoT & Cloud (ICC 2016), University of Cambridge, United Kingdom
- Publisher : ACM Digital Library

Dynamic 3D Graph Visualizations in Julia
- Authors : Chirag Jamadagni, Abhijith Anilkumar, Kevin Mathew, Manjunath M, Shashidhar Koolagudi
- Conference : Summer Simulation Multi-Conference (SCSC 2016), Montreal, Quebec, Canada
- Publisher : ACM Digital Library

RESEARCH & PROJECTS

NetworkViz.jl
A Julia module to render graphs in 3D, tightly coupled with LightGraphs. This package was demonstrated at JuliaCon 2016 which was held at Massachusetts Institute of Technology.

GCPiN
GCPiN or Group Caching for Privacy in NDN (Named Data Networking) is a novel approach to securing the Content Store without sacrificing much performance.

Secure Chat
A web-based, secure P2P messaging, file transfer and video conferencing tool which uses OTR encryption and SMP authentication.

Emulation on ORBIT Testbed
Integrated ns-3 with ORBIT, a testbed maintained by Rutgers University. Performed ns-3 emulations and analyzed network performance & power consumption.

Wormhole Attack
Simulated a wormhole attack in ns-3, modifying the AODV routing protocol in order to induce the attack. This simulation has been released as a patch with an example and can be found on the ns-3 mailing list.

Bachelor's Thesis
Aiming to improve the throughput in Wireless Networks by designing a new TCP variant which uses the concept of ACK Division, an attack proposed by Prof. S Savage (UCSD).

TDoS
TDoS or TTL-based Denial-of-Service Attack is a novel packet drop attack in computer networks which is easy to implement but difficult to detect. The source code (ns-3) can be found on my Github page.

Survey of Multicore Operating Systems
Comparing existing multicore operating systems (e.g. Barrelfish and Akaros) on the basis of use, scheduling, inter-core communication, network stack, etc.

Process Scheduling
Built an adaptive process scheduler for nachOS and an adaptive round robin scheduler for multicore operating systems.

VMSIM
VMSIM is a virtual memory simulator written in C++. It is primarily used to demonstrate page faults and compare different page replacement algorithms.

TECHNICAL SKILLS

Languages: C, C++, Java, Python, Julia, JavaScript, PHP, HTML, CSS
Operating Systems: Linux (Debian), Windows
DBMS: MySQL, PostgreSQL, MongoDB
Familiar with: Android Studio, Eclipse, git, JavaScript libraries, jQuery, Liferay, Nagios, ndnSIM, ns-2, ns-3, R, XML

ACTIVITIES & ACHIEVEMENTS

- Head of the Crypt Special Interest Group (SIG) at the Indian Society of Technical Education NITK Chapter. This SIG focuses on developing solutions to everyday problems using computers and code.
- Third place at Fidelity Hackathon 2015.
- Finalist at Samsung R&D Hackathon 2015.
- Open source contributor to ns-3 and the Julia programming language.
- Member of the Wireless Information Networking Group (WiNG). This group focuses on research in wired and wireless networked systems.
- Member of the NITK Basketball and Debating clubs.
- Participant in various fundraisers, charity events and cleanup drives.
- Award for academic excellence in 12th and 10th grade.