CHIRAG SANGANI

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OBJECTIVE	To obtain an insight into the development of cutting-edge operating systems, information and cloud services, mobile phones devices and computer hardware.

EDUCATION	**STANFORD UNIVERSITY**, STANFORD, CA
	M.S. IN COMPUTER SCIENCE (EXPECTED SPRING '14)
	Specialization in Systems and Software Theory
	INDIAN INSTITUTE OF TECHNOLOGY KANPUR, INDIA
	B. TECH. IN COMPUTER SCIENCE AND ENGINEERING (FALL '12)
	Cumulative GPA: 9.0/10

RELEVANT COURSEWORK	Computer Architecture, Multi-Core Systems, Networking, Machine Learning, Parallelization of Programs, Software Engineering, Programming Language Concepts, Algorithms, Theory of Computation, Operating Systems, Compiler Design, Logic, VLSI Technology

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RESEARCH PAPERS

SKYNET: PARALLELIZED SIMULATION OF NEURAL NETWORK ARCHITECTURES (NOV '11)

- This paper proposes a framework architecture for the efficient simulation of large feed-forward neural networks by exploiting the inherent parallelism present in the nature of the problem.
- Simulation data from an implementation of the reference framework design shows promising results with marked improvements in performance, often limited only by the system on which the simulation is run.

COMP2P: APPLICATION OF DISTRIBUTED HASH TABLES TO DISTRIBUTED COMPUTING (APR '11)

- This paper proposes a protocol for distributed computing called "ComP2P", which utilizes Distributed Hash Tables (DHTs) at its core to provide a general purpose distributed computing platform.
- The resulting platform is a distributed swarm of nodes sharing computational resources in a provably reliable and efficient manner.

PROJECTS

MOSAIC: A DYNAMIC AND RESPONSIVE JAVASCRIPT IMAGE GALLERY (CURRENT)

- Mosaic is a beautiful, dynamic and responsive image gallery.
- It can convert any list of data, or a series of images of arbitrary size, into a visually attractive rectangular mosaic.
- Mosaic supports metadata that can be viewed in a window-sized theater mode.
- Mosaic is compatible with touch-based devices.

SPECINT2006 BENCHMARK REDUCTION USING SIMPOINT (JUL '11 – APR '12)

B. Tech. Project. Guide: Dr. Mainak Chaudhuri

- Applied the technique presented by T. Sherwood, et al, in the their paper "Basic Block Distribution Analysis to Find Periodic Behavior and Simulation Points in Applications" to SPECINT2006 benchmarks and obtained representative basic block vectors of the benchmark programs.
- Extracted the code and simulation state corresponding to the representative basic blocks and saved it as reusable checkpoints.
- Modified an existing microprocessor simulator, Multi2Sim, to add the ability to use the saved checkpoints.
- Performed various simulations to test the performance of architectural techniques on the reduced benchmark programs, reducing simulation times by factors of up to 100.

CAMPUS MAP (JUL '11 – NOV '11)

Software Engineering Project. Guide: Dr. Sanjeev Aggarwal

- Developed an interactive campus map with zoom, pan, pop-up information box, highlight and search functionality.
- Designed a system to represent maps in vector format with metadata and an HTML/JS client to view the maps.
- Developed an API to integrate the maps with a large-scale campus-wide automation effort.

AVR WIZARD: A CONFIGURATION CODE GENERATOR FOR ATMEL AVR MICRO-CONTROLLERS (APR '11)

Independent Project. http://sourceforge.net/projects/avrwizard

- AVR Wizard is an open-source Windows software developed using the .Net framework.
- It generates C configuration code for various devices of the Atmel AVR ATmega micro-controller family, intended for educational use at IIT Kanpur.

A PARALLELIZED IMPLEMENTATION OF THE CHORD P2P DISTRIBUTED LOOKUP SERVICE (OCT '10)

Computer Networks Project. Guide: Dr. Dheeraj Sanghi

- A complete implementation of the Chord distributed hash table on the Java platform.
- A passive, daemon-based approach allows for reduced bandwidth utilization coupled with greater reliability and scalability.

"DIGITAL DESIGN USING VERILOG AND FPGAS: AN EXPERIMENT MANUAL" (MAY '10)

Summer Project. Guide: Dr. Rajat Moona

- A lab manual for an undergraduate-level course on computer organization.
- It consists of a series of experiments that culminate in the design of a two-stage pipelined processor which is compatible with a subset of the MIPS-I instruction set architecture.

PORTABLE DIGITAL ASSISTANT (MAY '09 – JUN '09)

- A personal digital assistant based on the Atmel AVR platform, featuring a monochrome graphical display, custom QWERTY keypad, internal storage, communication port and custom firmware.
- The device provides features such as text notes, calendar, communication terminal, etc.
- The firmware provides an API for easy development and integration of applications with the firmware.

EXPERIENCE | **STUDENT TRAINEE, SAMSUNG INDIA SOFTWARE OPERATIONS, BANGALORE**

May 2011 – July 2011. Google Android Products Group

- Worked on the implementation of a client-server model for cloud-based services which streamline the process of accessing a user's online content and services.
- Contribution to the project comprised of the development of the server infrastructure, consisting of deploying a graph database for storage, OAuth authentication for accessing services and implementation of a machine learning algorithm for personalization of user content.
- Awarded a Pre-Placement Offer based on the quality of work delivered during the internship period.

ACADEMIC ACHIEVEMENTS

- Awarded a Certificate of Merit for academic excellence in the Bachelor of Technology Programme in Computer Science and Engineering for the year 2008 – 09 by IIT Kanpur.
- Secured All India Rank 96 out of 375000 students in IIT Joint Entrance Examination (IIT-JEE) in 2008.
- Institute 2nd rank in senior secondary school.
- Institute 1st rank in high school.

LEADERSHIP

COORDINATOR ('10 – '11) AND SECRETARY ('09 – '10), ELECTRONICS CLUB, IIT KANPUR

- The Electronics Club is a hobby group that explores modern-day electronics and sees participation from more than 300 students annually.
- My major contribution to the club was the use of FPGA technology for the first time, and the AVR Wizard development tool.

COORDINATOR, FPGA DESIGN CHALLENGE, TECHKRITI '11 AND '10

- Techkriti is the annual national-level science and entrepreneurial festival of IIT Kanpur.

EDITOR AND DESIGNER, SCIENTIA '12

http://students.iitk.ac.in/snt/scientia/

- Scientia is the magazine published annually by the Science and Technology Council of IIT Kanpur.

SKILLS & ABILITIES

PROGRAMMING LANGUAGES

C, C++, C#, Verilog, Java, HTML, CSS, PHP, JavaScript, jQuery, XML, SQL, LaTeX.

HARDWARE DEVELOPMENT PLATFORMS

Atmel AVR micro-controllers, Cypress PSoC1 micro-controllers, Xilinx FPGAs.

EXTRA CURRICULAR ACTIVITIES

- Attended a workshop on Windows Phone 7 Application Development conducted by Microsoft India Software Development Center, Hyderabad.
- Attended a workshop on Cypress PSoC1 development conducted by Cypress India, Bangalore.

INTERESTS & HOBBIES

DIGITAL ART AND WEBSITE DESIGN

http://www.chiragsangani.com/design