

Siddharth Aggarwal

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Areas of Interest:

- Systems and kernel programming
- Network applications and security
- Wireless sensor networks and embedded systems
- Systems administration

Skills:

Domains	:	Systems programming, databases, software internationalization
Hardware	:	Intel x86 assembly programming, MICA2 motes
Operating Systems	:	FreeBSD, Windows NT/2000, Linux, Solaris, TinyOS
Languages	:	C/C++, Java, Tk Python
Tools	:	MS Visual Studio, Visual Source Safe, gdb/dbx debugger for Unix, Bugzilla, Rational Purify, CVS
Databases	:	SQL Server, Oracle, MS Access, Sybase, IBM DB2, Lotus Notes
Directory Servers	:	IPlanet Directory Server, Critical Path Injoin Directory Server
Quality Standards	:	Rational Unified Process, CMM

Education:

UNIVERSITY OF UTAH

Salt Lake City, UT

08/2003 – present Master of Science (Computer Science) – In progress

- Research assistant (Flux research group – <http://www.emulab.net>) (01/2004 – present)
- Projects & Research:
 1. Developed a pseudo disk driver for FreeBSD to provide block-level disk checkpointing for user experiments and capability to time-travel for debugging.

Abstract:

Emulab is a time and space shared network testbed. Time sharing implies the ability to re-allocate the same machines to different experimenters over time. This requires the ability to "swap out" or save the complete state of a machine to some external storage. An important part of experiment swap out is the ability to capture and save the current contents of the disk so that it can be restored ("swapped in") later. In addition to providing for disk swapout, this mechanism is a first step toward a "time travel" system in which the state of a distributed application can be reverted to an earlier time. The swapout scheme can be naturally extended to allow the system to save off intermediate snapshots of the disk, thereby allowing the user to restore to any image. This is especially useful for debugging, where a user can revert to previous checkpoints. These features are implemented using a Copy On Write disk driver to perform disk checkpointing. The main challenges in the project include time and space efficient management of checkpoint information in memory and on disk, fast network transfer of large number of blocks, and minimal latency penalty on normal disk operations.

2. Integration of MICA2 motes into the Emulab testbed and development of an event system
 3. Analysis of various techniques for measuring network internal delays in the internet
- Teaching assistant – Database systems (Fall 2003)
 - Recipient of USENIX student stipend award to attend LISA 2003
 - Coursework:

Operating systems, Advanced Computer Architecture, Advanced Operating Systems, Advanced Networks, Network Security, Advanced Computer Graphics, Foundations of Computer Science

UNIVERSITY OF PUNE**Pune, India**

07/1997 – 06/2001 Bachelor of Engineering (Computers) – First Class with Distinction

➤ Project & Research:

1. Designed and Implemented a Web Caching system which was a college entry at Impetus and Concepts exhibition 2001, Pune
 2. Researched and presented a seminar on “Dense Wave Division Multiplexing”.
- Ranked 1st, 2nd and 8th in University of Pune in 2nd, 3rd and 4th year (approx 1000 students)

Industry Experience:**PERSISTENT SYSTEMS PRIVATE LIMITED****Pune, India**

1. 07/2002 – 07/2003 Storability – Storage Resource Manager

- Project Description : Storage Resource Manager (SRM) monitors the file system usage on a host and estimates relative significance of input data.
- Role/Responsibilities : Designed/developed a SRM agent using WIN32 APIs
 Ported SRM agent to Solaris
 Research and development of Storage Filter Driver prototype

2. 09/2001 – 07/2002 Critical Path – Meta-Directory Internationalization

- Project Description : InJoin Meta-Directory (IMD) technology integrates multiple data sources into an LDAP directory and enables exchange the information between the Meta-Directory and the various data stores.
- Role/Responsibilities : Implementation of Oracle and DB2 data access components.
 White box testing of the IMD against SQL, Oracle, Sybase, DB2 on Unix, Windows and OS390, Lotus Notes DB and LDAP data sources
 Internal point of contact for interaction with Critical Path’s engineering / Tech-support team for project maintenance
 Support for UTF-8 in IMD (Internationalization)

3. 07/2001 – 08/2001 Netezza – Graphical User Interface. Pilot project

- Project Description : Netezza has created a breakthrough platform that transforms slow and expensive business intelligence (BI) activities into agile information. Persistent Systems was required to develop a GUI to specify database query execution plans using Netezza APIs
- Role/Responsibilities : Developed the required GUI using Tkinter package in Python

References:

Available upon request