

Name Siddhartha Saha

Contact 3393 Lebon Dr. #204,
San Diego, CA 92122.
Cell: (858) 736-6989

Nationality Indian (Currently in F1 Visa)
Email ssaha@ucsd.edu
Webpage <http://siddharthasaha.net>

Graduate Study [Fall 2003 – Present]

Graduate Student, [Electronics and Computer Engineering Department](#), [UCSD](#).

Major: Computer Engineering (MS Degree).

Expected graduation date: April 2006. **GPA:** 3.58/4.00

Undergraduate Study [1998 – 2002]

[Computer Science and Engineering](#), [Indian Institute of Technology, Kanpur, India](#) (May 2002)

CPI: 8.70/10.0.

Previous Work/Experience

- **Summer Internship at Amazon.com Inc. (June 2005 – September 2005):** Worked as a Software Development Engineer Intern at Amazon.com Inc, Seattle WA on Seller Web Applications Technology.
- **Research Associate, IIT Kanpur (June 2002 – July 2003):** Worked as a paid research associate in Indian Institute of technology, Kanpur on 802.11b wireless networking.
- **Summer Internship, INRIA France (May 2001 – July 2001):** Worked as a summer intern as INRIA – Sophia-Antipolis, France on surface reconstruction from 3D point clouds.

Work Area/Research Interests

Computer Graphics/Visualization/Rendering, Wireless Networks, Computer Networks, Algorithms, Computational Geometry and Operating Systems.

Projects/Experiences

- **Architecture:** Currently as my primary research topic, I am working on Network Routers.
- **Computer Architecture:** As an integrated part of the research based course work in the *Advanced Computer Architecture (CSE 240B)* course, I worked on the SMTSIM package which is a cycle accurate simulator for SMT processors and extended it to evaluate the performance gain from our proposed modification of the cache of the processor.
- **Graphics and Simulation:** As a course project in the *Special Topics in Computer Science (CSE 291)* course, I developed a system to simulate and render fracture of brittle materials following few recent research papers. The implementations, screenshots and possibly videos will be available in the academics section of my homepage.
- **Networking:** As a course project in the *Computer Communication Networks (CSE222A)*, I developed an HTTP web server for both Linux and Windows. It had support for performance evaluation logging and access control over directories and files.
- **Graphics:** As a course project of “CSE272: Advanced Appearance Modeling” worked on developing a shader using Kubelka-Munk and Torrent-Sparrow model to perform realistic rendering of natural decay events, such as rusting, weathering etc.
- **Graphics:** I developed a ray tracer from scratch that is capable of Global Illumination with photon mapping, soft shadows, area/directional lights, anti-aliasing, bump-mapping, texturing, Fresnel refraction, several acceleration structures including Adaptive Grids and Bounding Volume Hierarchy. Using this ray tracer, I rendered a scene that won the first prize in UCSD Computer Graphics Rendering Competition 2004.
- **Graphics:** As a course project, I developed (using MATLAB) a system that can reconstruct 3D objects from multiple views of the object.
- **Distributed Systems:** As a course project for the Principles of Distributed Systems, I developed a framework for implementing and simulating Consensus Algorithms.
- **Wireless Network:** My baccalaureate project was on Determination of spatial location of mobile devices, using 802.11 Wireless LAN. [WCNC 2003].
- **Wireless Network:** I worked on evaluating and optimizing the performance of IEEE 802.11b in a wide area grid network. To make the popular NS2 simulator properly simulate an 802.11b network consisting

of long distance (~10-20 km) links, I had to make some modification to NS2 code base.

- **Computational Geometry:** As a summer intern at INRIA, Sophia Antipolis, I worked on surface reconstruction using local surface approximations, segmentation and mesh smoothing.
- **Game Design:** I designed a 3D Racing game using OpenGL. Initially it was a course project, but I later modified it to an extent such that one can create models of terrain/map and cars in 3d studio max, and load the maps/cars in the game and play the game. It won the second prize in Techkriti 2002, IIT Kanpur.
- **Compilers:** Worked on a scheme for Automatic Data Layout in Distributed Memory Machines. [NPDPA 2002].
- **Compilers:** As a course project developed a language converter for converting programs written in the Conversant scripting language (from AT&T) to C.
- **Parallel Computing:** As a course project in we developed A generalized Bitonic Sorting Technique for a Q-Dimensional Mesh Connected Computer. [CIT 2002].
- **Computer Vision:** As a course project of a Computer Vision course, I developed a system to recognize Hindi (Devanagari) letters. It uses a back propagation neural network based approach as well as a decision tree approach.
- **Independent Software Development:** I developed a Logo Language Interpreter in both VC++ and Java, a multi threaded chat utility (which I later improved to have voice support), a Linux kernel module for mounting FTP sites as a local directory.

Publications

- Siddhartha Saha, Kamalika Chaudhuri, Dheeraj Sanghi, Pravin Bhagwat, "Location Determination of a Mobile Device using IEEE 802.11 Access Point Signals", IEEE WCNC 2003, New Orleans, Louisiana, USA, March 2003.
- Siddhartha Saha, Kamalika Chaudhuri, Dheeraj Sanghi, "An Extension of Scalable Global IP Anycasting for Load Balancing in the Internet". ICOIN 2003: 161-170.
- Siddhartha Saha, Kamalika Chaudhuri, R Maloo, Sanjeev K Aggarwal, "A Scheme for Automatic Data Layout in Distributed Memory Machines", IASTED Intl. Conference on Networks, Parallel and Distributed Processing and Application (NPDPA 2002), Tsukuba, Japan, 2002.
- Kamalika Chaudhuri, Siddhartha Saha, Phalguni Gupta, "A Generalized Bitonic Sorting Technique for a Q-Dimensional Mesh Connected Computer" CIT 2002, Bhubaneswar, India. 2002.

Other Achievements

- First position in the Rendering Competition of CSE168 at UCSD. (Spring 2004).
- Represented IIT Kanpur as the first team in the Asia Level ACM International Collegiate Programming Contest, Dec 2000 and secured 9th position.
- National Talent Scholarship by NCERT (National Council for Educational Research and Training), 1996.
- 10th Rank in class X Board Exam, amongst more than 1 million candidates. (1996)
- First position in the state level educational software contest 1994, BITM Kolkata, India

Technical Skills

- **Programming Languages:** C/C++/VC++/Visual Basic/Java. I have the belief in me that I can pick up any programming language/technique that I need to learn pretty quickly.
- **Experience in Coding:** Good amount of experience in MFC, OpenGL, DirectX, Linux Kernel Modules, Network Socket programming in both Win32 and POSIX environment.
- **Systems worked on:** Linux, Windows and Solaris.
- **Misc Experience:** ns-2 (network simulator). 3D modelers like Maya and 3D studio max etc.