

**GAURANG KHETAN**  
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**Objective:**

Technical Leadership in the area of systems programming in an intellectually challenging work environment involving interesting technology.

**Education:**

*Master of Science in Computer Science* May 2004  
University of Southern California (USC), Los Angeles, CA.

*Bachelor of Engineering in Electronics* July 2001  
University of Pune, India.

**Computer Skills:**

- Development languages: Expertise in C, Skilled at C++, Familiar with Perl, Assembly, Java
- Experience in: Multi-threaded Multi-Core Network Processor programming, Linux/FreeBSD/IOS kernel programming, device drivers, new hardware board bring-up, platform level software, file-systems, operating systems, embedded systems.
- Network Programming: Network processor programming, Ethernet driver, Socket programming, Client-Server, various networking protocols like TCP, IP, UDP, Ethernet, ARP, etc, file sharing systems, ad-hoc networks
- Web: Perl, PHP, Ruby on Rails, HTML, CSS, JavaScript, XML, Web Services (SOAP, WSDL), SQL, Oracle.

**Work Experience:**

*Sr Software Engineer* **Apple Inc, Cupertino, CA** May '11-present  
Working on a new scalable server side service for iOS devices.

*Cofounder* **iNumbr** Jan '08-Dec '08  
Developed a website, in part-time, with a friend in the area of consumer VOIP telephony, which managed to reach 400,000 users. The website allowed consumers to obtain free, disposable phone numbers that route calls to their personal phone, and thus allow them to maintain privacy when needing to reveal phone numbers in non-private settings like craigslist, ebay, matrimonial/dating websites, etc We also sold our solution to a few businesses, earning annual revenues over \$100,000.

*Sr Software Engineer IV* **Cisco Systems, San Jose, CA** Feb '05-Apr'11

Worked on several complex systems projects in the general area of Platform Software in a business unit dedicated to making Mobile Internet gateways like GGSN, PDSN, LTE, Wimax, etc. The role involved intricate system design and development (often at product architectural level), complicated debugging through a large codebase, in an important role while showing leadership in several technical areas in the team. The main language used was C, and some assembly. Work included:

- Development of software running on Intel IXP network processor in the data plane of the product to process packets optimally at high speeds in a multi-core and multi-threaded architecture with both parallel and pipeline designs, requiring low-level coding that extracted most computing power off the processor architecture.
- Worked on porting and bringing up Cisco IOS and Linux operating systems on a new hardware platform, a complex system involving several processors (Intel IXP, MIPS, PowerPC, Xscale ARM, Nitrox, etc) and several custom FPGAs/CPLDs. This provided experience in kernel bringup, hardware/processor initialization/configuration/architecture, Linux kernel powerpc platform code, device drivers including Ethernet driver, bootloaders, networking protocols, etc. Also developed offline diagnostics software for the board.
- Developed numerous platform features for our product, including linux user-space device driver infrastructure, multi-threaded health-monitoring software, statistics and control protocol software on QNX operating system, control packet prioritization in linux network driver, etc.

- Provided leadership in “all things Linux” in the team, and assisted in bigger picture work – like analyzing linux operating systems within cisco to identify useful components, evaluating software architecture options for next platform (virtualization of IOS on Linux, etc)

*Software Engineer* **Paypal (eBay Inc), San Jose, CA** Mar ‘04-Oct ‘04

- Worked on implementing new product features in C++ and SQL in a Apache/Oracle/Linux environment within an industrial-strength code base of a scalable, reliable, multi-tiered, multi-component website that impacts more than 50 million customers.
- Worked on Paypal’s industry-leading anti-fraud system with features like implementing anti-fraud card models, address authentications, third party communication in XML, client-servers, etc. which required understanding of web protocols and skills in programming at application, database and network levels; and involved working closely with other engineering, product, content, design, QE and other groups in the product development lifecycle.

*Software Developer (Internship)* **Lightline Software Inc, Palo Alto, CA** Aug ‘03-Dec ‘03

In an exciting fast-paced Storage Security startup, worked on storage system software involving kernel programming in FreeBSD UNIX, with major features being:

- Designed and implemented non-volatile caching in FreeBSD UNIX ATA/IDE disk device driver.
- Wrote a simple volume manager used to form a higher capacity logical volume by doing software RAID Level 0 over existing hardware RAID Controller (3ware Escalade) storage units.
- Developed a configuration system consisting of a Java Applet front-end and Perl back-end.
- Developed a client-server system with a simple communication protocol.
- Assisted creation of a stack of pre-allocated inodes in the file system.

*Research Assistant (Part-time)* **Prof. Massoud Pedram, EE Dept, USC** Jun ‘02-Aug ‘03

- In a team of two, ported Linux kernel to an XScale-based embedded system, which involved modifying low-level details like configuration of memory controller, PCI bridges, interrupt routing, and device drivers of PCMCIA, etc.
- Implemented a power manager in Linux kernel for an embedded system, using a dynamic power management algorithm to shut down devices. Modified device drivers of PCMCIA and IDE.

**Programming Projects:** (University Requirements or Personal projects)

- *Implemented an ad-hoc wireless network of embedded systems:* Implemented Ad-hoc Positioning System which involved forming an ad-hoc network of embedded Berkeley notes and implementing a communication protocol so as to perform localization using hop-based distance estimation. Used C on TinyOS embedded operating system with resource constraints and low wireless network reliability.
- *Parts of Nachos Operating System:* Implemented core parts of Nachos Operating System, an instructional operating system - thread synchronization, virtual memory, file systems, and multiprogramming. Used C++ on UNIX.
- *Built a Peer-to-Peer Network File System:* Developed a distributed file sharing system using peer-to-peer mechanism (like Kazaa). Used C++ on UNIX.
- *Retail Website:* Developed a retail website with frontend in Perl/PHP and backend in Java/MySQL
- *Computer Virus in MS-DOS (Personal):* Developed a self-encrypted, polymorphic computer virus that self-replicates by infecting MSDOS executable files. Used x86 assembly language.
- *Othello-playing computer program (Personal):* Developed a program that plays Othello, a strategy board game. Uses Artificial Intelligence Game Playing algorithms. Used VC++ on MS Windows.

**Papers:**

- *Comparison of Memory Management Systems of BSD, Windows and Linux* May 2002  
A course term paper. Not a publication.

**Notable:**

- Represented USC in the regional ACM International Collegiate Programming Contest held on November 10, 2001. Competition tests problem solving and programming skills.
- Presented Apollo Testbed 2 research project with Prof. Massoud Pedram at Design Automation Conference 2003, Anaheim, CA.

- Scored in GRE (Graduate School Entrance Test): 2290/2400 (Verbal: 97% Quantitative: 98% Analytical: 98%). And GMAT: 740/800 (97%).
- Member of Glia Society, society of people with IQ higher than 99.9% of human population.
- Came 1st in city-wide IQ and Aptitude test in Pune, India, conducted by DataPro in 2000, and was awarded a first prize of Rs 20,000.

**Positive Qualities:**

- Natural programming skills, conceptual thinking and memory, ability to understand complex concepts, fine logical/analytical thinking, passion to work.

**Other:**

- Worked as Contributing Writer to Daily Trojan, the USC student newspaper.
- Have a Green Card. No visa required to work in the United States.