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DOB 5th April 1980
Father's Name Raj Kumar Bhargava
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Nikhil Bhargava

Objective

To do active Research and Development in Computing.

Primary Skills and Expertise

Programming languages

C (POSIX shell), C++, assembly language (Motorola and arm core 9/11), HTML, Java, python.

System programming

POSIX 1003.1c system call interface, Network programming (sockets API)

Programming tools

gcc, gdb, make, matlab, simulink

Operating Systems

Linux, RT-Linux, Nucleus, Symbian

Modeling Tools

SA-2001 by Popkin's (UML and Business Modeling)

Version Control Tools

RCS, CVS, Clear Case

Technologies

UMTS 3G (Radio side as well as core network side), WiMAX, Wi-Fi, WLAN, Bluetooth, Satellite communication, GPRS, ATM and IP switches, GMR-3G, MPEG4, H263.

Primary Expertise and Related work experience

Satellite receiver algorithm development and hardware realization for physical layer of VSAT, Mobile system. → 1 year

Protocol stack development in UMTS 3G, GMR 3G → 2 years,

Satellite Communication and system software development, Embedded Device Drivers for DSL and Wireless networks → 2 years

Mpeg4 Encoder plugin development on Symbian and Arm platform → 1.5 year

Education

1995 – 1996 AISSE (10 th standard) Total agg. 88%	Ramjas Public School	New Delhi, India
1997 – 1998 AISSCE (12 th standard) Total agg. 84	Ramjas Public School	New Delhi, India
1998 – 2002 B.E in Computer Science total agg. 79%	N.S.I.T (DCE/DIT),	New Delhi, India
2004 – 2009 MTECH (with extended research) in Computer Science CGPA 7.1/10	IIT (DELHI),	New Delhi, India

Professional experience

TOTAL EXP : 7+ years

07/2009 – Till date Aircom International, Senior System Engg.

- Currently working on developing a suite of network planning and optimization tool to be used by network operators in real time usage for all kinds of wired/wireless networks.

08/2007 – 05/2009 Hughes Systique, Gurgaon, Principal Engg.

- Worked on GMR-3G protocol stacks for a satellite mobile UE. Primarily leading a team of 4 on RRC Idle mode procedures development, coding and testing and looking after BSP porting and sub system level software development like device drivers, init scripts etc.
- Developed mpeg4 based file reader and composer for video share engine for a high end Motorola mobile handset. This was used to read or composer a 3gp file of any media format in manner that network transmission and storage is very efficient.
- Worked with a research lab in Hughes System LLC, Maryland on development and hardware realization of a SCMA based receiver module of a VSAT or a mobile system. Worked on designing and developing core FPGA and writing device driver for the system. A patent is being filed for this work.
- Part of the SEPG group there by forming the engineering and support processes of the company to make it complaint to ISO:9000 and CMMI level 5. I have written the Estimation SDP and contributed to Configuration management SDP. Helped company achieve ISO as well as CMMI conformance certificate

11/2005 – 07/2007 STMicorelectronics, Greater Noida

Senior Software Engineer

- Designed, developed and tested MPEG4/H263 Video Encoder plugin on Symbian operating system over ARM platform for high end mobile equipments.
- Worked on Kernel drivers and wrapper layer for above Plug in. Have good working knowledge Series 60. Hands on experience of developing

applications for Mobile handsets using Symbian OS.

01/2005 – 10/2005 Conexant Systems Inc., Noida

Senior Software Engineer

- Designed and coded a USB ADSL modem for Linux platforms (both 2.4 and 2.6 releases of Linux Kernel) that is a distributed running on host as well as on a DSL PHY card
- Designed, coded and tested an ATM device driver providing full end Qos and controlling a separate DMA engine for SAR operations full a SOC router device. The driver contains QOS, OAM and SNMP support for ATM
- Worked on writing a wrapper on Nucleus, GCOS for internal application developers

07/2002 – 01/2005 Center for Development of Telematics, Delhi

Research Engineer

- Designed and coded Performance module in project CWDM which is an 8 channel coarse wavelength division multiplexing system at STM-16 bit rates; to be deployed in the telecom network.
- Designed its Performance management module and customizing some Operating system routines.
- Worked in **IMT 2000** (International Mobile Telephony 2000) OS group, which is working towards the development of 3G mobile systems for India for more than a year.
- Designed Device driver for PCI interface for an in house development card based on Motorola processor 826X.
- Designed, developed and tested **GTP-U** protocol layer in Iu-PS interface of UMTS network.
- Designed, developed and tested **SAAL-NNI-LM** protocol layer in Iu-CS interface of UMTS network.
- Designed the message routing part of **MTP 3B** protocol layer for IU interface in UMTS 3g mobile network.

Patents and publications

- “Switching Gap Analysis for generalized butterfly networks,” WPMC 2007.
- “Mechanisms to Maintain Confidentiality of Business Information,” NWIP 2007.
- “Application of Artificial Neural Networks in Business Applications,” submitted at crossroad magazine, ACM.
- “IPR protection for Software in current era,” submitted at CSC 2009 annual conf.
- “Applicability of Wimax in e-governance,” IUGNET 2009, B’lore.
- An algorithm to optimize network information flow rate by network switching in single source multicast networks using a graph based approach (currently writing as part of MTECH Thesis work)

- Designed soft interface for a fully automated computer controlled controller card driving any motor driven machine. It would decrease time, cost and efforts for general operations like cutting, drilling and shaping a work piece in Automation industry. (**Awarded best project in NSIT, MPA division in 2002**, In process of filing a patent after major feature enrichments and feedback).
- Designing and implementation of a **Feed back controlled scheduler for Real time Systems**, which is based on Earliest Deadline First RT scheduling algorithm with PID feedback control. It can flexible schedule for both soft RT tasks and rigid Multimedia tasks, which have unpredictable workload parameters. It constantly adjusts the PID parameters dynamically according to the system load. (Research paper selected in **GSPX 2004** conference, Santa Carla).
- Designing and implementation of an efficient **Traffic Shaper** which based on an **improved version of Leaky Bucket algorithm** which is used for Congestion Control at Data link layer which can shape both the short term and long term bursty traffic and the CBR traffic up to a certain limit efficiently. I have done its performance analysis and comparative study with leaky bucket algorithm. (Technical report published in **NSIT magazine**)
- "**Linux as an RTOS**" was published in November 2003 edition of **Linux Gazette** web journal.
- Research article on "**A Guide to Writing Portable and Efficient C Programs**" was published in January 2004 edition of **Linux Gazette** web journal.
- Technical article on "**Debugging Tools for C on Linux Platform**" was published in February 2004 edition of **Linux Gazette** web journal.
- Implementation paper on "**UDP Sockets-based Client Server Programs**" was published in February 2004 edition of **Linux Gazette** web journal.
- Implementation paper on "**Protocol Stack Implementation using IPC as shared memory**" was published in February 2004 edition of **Linux Gazette** web journal.
- Technical article on "**Timers in Linux**" was published in May 2004 edition of **Linux Gazette** web journal.
- Technical article on "**Spinlocks as locking construct in SMP systems**" was published in August 2004 edition of **Linux Gazette** web journal.
- Technical article on "**An introduction to Softirqs, Bottom halves and Tasklets**" was published in August 2004 edition of **Linux Gazette** web journal.

- Technical article on “**Interrupt Management in an Embedded System**” was published in August 2004 edition of **Linux Gazette** web journal.
- Technical article on “**Scheduler design in Linux**” was published in December 2004 edition of **Linux Gazette** web journal.
- Technical article on “**Memory issues in Linux**” was published in December 2004 edition of **Linux Gazette** web journal.
- Wrote an article on “**Linux debuggers**” for Linux online portal **LinuxLick.com**

Additional professional activities

- Reviewed and given written contribution in two of the recent books of William Stallings, Stallings publishing group.
- Currently working in review panel of the same and co-authored a supplement exercise book on computer architecture book by William Stallings.
- Cleared advanced patent exam from WIPO distance learning academy.

Languages

English, Spanish

Professional memberships

ACM, WIPO certified IPR professional, ILI certified IPR professional.

Extracurricular activities

- Represented Delhi state netball team in three national games in.
- Organized Samasaya (On Spot Programming Contest), Chintan (Case Study on Industrial problems), examined in Vichaar-Coe (Technical paper presentation of computer science) during DITECH-2002, technical cum cultural fest, organized by NSIT.
- Organized and networked the CAD lab for Death Match (network gaming) and Samasaya (On Spot Programming Contest) during DITECH-2001, technical cum cultural fest, organized by NSIT.
- Captained College and School basketball team and led them to victory in many state level championships in basketball.
- Won bronze medals in 100m, 200m, and 4X100m relay in state level championship held in December 1997.
- Awarded the best outgoing sports person of the year in 1998 by Ramjas public school.