

# VARUN SINGH

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## Education

- **Helsinki University of Technology**—Espoo, FI  
*Majoring in Multimedia networks and Signalling, 2006–2009*
  - Projected Graduation Date: May, 2009
  - Thesis: *A novel rate adaptation technique using standardized signaling for video communication in a mixed wireless environment, expected Spring 2009*
- **Visvesvaraya Technological University**—Bangalore, IN  
*Majoring in Telecommunication, 2000–2004*
  - Minor: Mobile Communication and Embedded System Design
  - Thesis: *Data synchronization and management techniques for a mobile terminal., May 2004*

## Research Experience

- **Helsinki University of Technology**—*Communication and Networking Laboratory, Helsinki, FI*  
*Researcher: January 2007–Present*
  - Under the guidance of Prof. Jörg Ott.
  - Rate Adaptation schemes (signaling and algorithm) for conversational video in mixed environments.
  - Error Resilience Schemes in conversational video communication in mixed environments and algorithms to mitigate them.
  - Bluetooth for near contact message hopping between individuals or groups in a Disruption/Delay Tolerant Networks.
  - Privacy, disclosure of information between individuals in closed groups.
  - *Evaluation of Error Resilience Mechanisms for 3G Conversational Video*; Devadoss J., Singh V., Ott J. et al. ,Proceedings of IEEE International Symposium on Multimedia (ISM), Berkeley, CA, USA, 2008.
  - *Context-awareness: Control over disclosure and privacy in a social environment*, Singh V, Proceedings of the Seminar on Internetworking, Antti Ylä-Jääski, Laura Takkinen (eds.), TKK, FI, Spring 2008.

## Work Experience

- **Nokia Research Center**—*Multimedia and Transports, Helsinki/Tampere, FI*  
*External Researcher: Nov, 2007 – June, 2008*
  - Developed Movable multimedia proof of concept/prototype for Nokia N95 using SIP/UPnP (DLNA).
  - Research work concerning Error resilience and Rate adaptation done in close collaboration with the team.
- **STMicroelectronics NV**—Noida, IN/Paris, FR  
*System Software Programmer: August 2004–July 2006*

- **Cellular Platform Team**, Noida, India, May 05 – Jul 06
- Implemented the Still capture and Video Recording Sub-system (ECAM, DevVideo)
- Integration of the above to the S60 application suite: Video communication, Camcorder and associated device drivers.
- Symbian OS 9.x and Nokia S60 3.x Framework; Product: **LG KS 10**.
- **Cellular Terminal Division, Middleware**, Paris, France, Aug 04 – Apr 05
- Implemented the Video and enhanced still-picture capability for 1.3Mpx Camera.
- Carried out bug fixes in the middleware.
- Solaris Workstations, Mobile OS: Micro-chorus OS (ST Proprietary), Product: **Alcatel Low cost mobile-phone**.
- **LG Electronics—Convergent Technology Group**, Bangalore, IN  
*Products Intern: March, 2004 – August, 2004*
  - Developed and tested modules (Archiver, Tree Management) for the SyncML Client and tools such as SyncML Test Server.

## Skills

- **Operating Systems:** Linux, Solaris, Mac OS X, Windows, Symbian 9.x (Series 60 3.x)
- **Computer Languages:** C, C++.
- **Tools:** Trace32, Lauterbach, Clearcase, ARM RVCT/ADS, GDB/DDD, Ns-2 (network simulator), DTN (ref simulator)
- **Technology:** RTP/RTCP, SIP, UPnP, DLNA, GSM, SyncML DM

## Project Work

- **New Venture Development-I:** Basic market research and business plan writing, (Autumn 2008).
- **Protocol Design:** Designing a protocol for providing reliability over UDP, extending the protocol to provide extended reliability by adaptive FEC, Checking for Robustness and Scalability, (Spring 2007).
- **Embedded Systems:** Coding an algorithm for a self steering car, by detecting a line as track (ATmeg32), (Spring 2007).
- **Network Multimedia Protocols and Systems:** Developed a SIP Proxy to eavesdrop on a conversation using KPhone, SIP Express Router, VLC Player (for RTSP), (Autumn 2006).
- **jEclipse v1.0:** Undergrad Special Project. P2P Secure Messaging using RSA, MD5 and random circular positive shift cipher, (Summer 2003).
- **Multimedia Laboratory:** Optimization of JPEG Algorithm in C, IR Receiver using PIC16F84A to control WMPayer, Printer interface using 80C51, (2002-03).

## Achievements and Activities

- Couple of patents pending and invention reports filled in collaboration with Nokia Research Center, 2008
- Active member at the Mobile Monday, New Delhi Chapter.

- EESTEC/IAESTE member (2006-\*).
- Invited to a student developer workshop at Skype, Summer 2007
- Outstanding intern awarded by LG Elect. at the end of the summer internship, 2004.
- Member of university programming team, won inter-collegiate programming contests, 2001-03.
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- Presided over the Computer Club at school (1998-2000).
- Appointed School House Captain, (11<sup>th</sup> Grade), 1999.
- Won 1<sup>st</sup> prize in inter-school programming contest in "dBase" (1998) and "C" (1999).
- Won 1<sup>st</sup> prize in Poster making competition on *Non-renewable sources of energy*, awarded by the Govt. of Delhi, India, (1998).
- Member of the Delhi Amateur Astronomers Association, helped build an 8" reflector for the school over the summer of 1997.
- Was awarded the Annual All India EROSE Open scholarship for the year 1996-97.
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- Hobbies: *Cartooning, Photography, Reading.*