

# SHIVKUMAR KALYANARAMAN

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(or **Google**: "Shiv RPI")

## EDUCATION

**B.Tech, Computer Science**, Indian Institute of Technology (IIT), Madras, INDIA [1989-1993]

{ranked **All India #3** (south zone 1<sup>st</sup>) in IIT-JEE }

**M.S., Computer and Information Sciences (CIS)**, The Ohio State University, Columbus, OH, USA [1993-1994]

**Ph.D., Computer and Information Sciences (CIS)**, The Ohio State University, Columbus, OH, USA [1994-1997]

**Executive M.B.A.**, Rensselaer Polytechnic Institute (RPI), Troy, NY, USA. (Specialization: *Innovation and Technological Entrepreneurship*) [2003-2005].

CITIZENSHIP: United States of America (USA);

Overseas Citizen of India (OCI Card & permanent Indian visa).

## EMPLOYMENT:

2006-present: **Full Professor**, Department of Electrical Computer Systems Engineering (ECSE), Rensselaer Polytechnic Institute (RPI), Troy NY, USA.

[*Joint Appointments*:

Computer Science Department,  
School of Information Technology]

2002-present: **Deputy Director**: Center for Pervasive Computing and Networking, RPI.

2001-2006: **Associate Professor (with tenure)**, Department of Electrical Computer Systems Engineering (ECSE), Rensselaer Polytechnic Institute (RPI), Troy NY, USA.

Promoted on *fast-track* to full professor.

1997-2001: **Assistant Professor**, Department of Electrical Computer Systems Engineering (ECSE), Rensselaer Polytechnic Institute (RPI), Troy NY, USA.

Promoted on *fast-track* to associate professor.

1993-1997: **Teaching and Research Associate**, Computer and Information Sciences (CIS), The Ohio State University, Columbus, OH, USA

## Research Interests:

My specialization is computer networking around themes of high performance wireless networking and traffic management. In particular, I work on topics of congestion control, reliability, multimedia networking (including peer-to-peer multimedia systems), connectionless traffic engineering, quality of service (QoS), last-mile community wireless networks, low-cost free-space-optical networks, automated network management using online simulation, multicast, and performance analysis. My special interest lies in developing the interdisciplinary connections between network architecture and fields like control theory, economics, scalable simulation technologies, databases, machine learning, video compression and optoelectronics.

### Professional Activities:

- Principal investigator (or Co-PI) on over 15 Federal Grants, for a cumulative budget of over \$7 million.
- Industrial R&D funding: AT&T Labs Research, WIMAX Forum, Intel Labs, Nortel Networks, Packeteer, IBM, Qwest, Reuters, Pulsecom.
- Supervised and Graduated 14 Ph.D. students, 40+ M.S. students
- Awards:
  - MIT Technology Review inaugural **TR100, 100 top young innovators for the new millennium**, 1999.
  - IEEE Senior Member, ACM Senior Member
  - Rensselaer School of Engineering (SoE) Research Award, 2003
  - Rensselaer Faculty Early Career Award, 2001
  - Ameritech Presidential Dissertation Fellowship award, The Ohio State University, 1997
  - Indian Institute of Technology Merit Award, 1989, For being **All India Rank #3**, out of 100,000+ students in the IIT-JEE entrance
- **Invited Seminars (selected from 40+ talks):** MIT, UC Berkeley, Caltech, CMU, U Illinois Urbana Champaign (UIUC), Univ. of Wisconsin, Madison, U. Mass (Amherst), Purdue, Columbia Univ., U. Penn, Ohio State University, INRIA (France), Politecnico Di Torino (Italy), KTH (Sweden), Chinese Univ. of Hong Kong (CUHK), National Univ. of Singapore (NUS), Indian Inst. Of Science (Bangalore, India), I.I.T Mumbai, Tsinghua Univ (Beijing, China).
- **Consulting and training activities (selected):** Cisco, Intel, Packeteer, AT&T, Nortel Networks, Infosys, Tata Elxsi, TCS, HCL, BPL Telecom.
- **Entrepreneurship activities:** co-founder of Premonitia, 2001. Funded by Lazard Freyer Ventures, Castile Ventures, Paul Severino (former CEO, Bay Networks), Marty Schoffstall (former CTO and founder, PSInet).

### Publications & Patents: (over 120 refereed publications in top conferences/journals)

- 35+ refereed journal articles in top IEEE/ACM/Elsevier journals
- 100+ refereed conference publications (including top networking conferences: SIGCOMM, MOBICOM, INFOCOM, SIGMETRICS, IMC, MOBIHOC, ICNP, IwQoS)
- **Co-author of a graduate networking textbook with Prof. Jim Kurose, in progress.**
  - 7 other book chapters
- 8 patents granted or pending

### Technical direction or management

- Built and led the networking research group at Rensselaer Polytechnic Institute since 1997 (including hiring and mentoring four successful faculty members).
- Invited seminars and talks: 40+ (including top universities: MIT, UC Berkeley, CMU, Caltech, University of Illinois, Urbana Champaign and many more)
- Co-founded the Center for Pervasive Computing and Networking (CPCN),
  - First deputy director (2003-present)
- \$6+ million in cumulative federal and industry research grants (30+ grants, 13 federal grants).
  - Sources: DARPA-IPTO, NSF, ARO, AT&T Research, WIMAX Forum, Intel Research, IBM, Nortel Networks, Reuters, Packeteer.

### External Service:

- *Technical Program (TPC) Co-Chair, IEEE INFOCOM 2008 (a top networking conference)*
- Technical Program Co-Chair, IFIP Tridentcom 2005
- Area Editor, ACM Computer Communications Review (CCR), 2002-2005
- Editor, ACM/Springer Wireless Networks Journal, 2005-present
- Guest Editor, Journal of Network and System Management, Special Issue on Active Networks, 2005
- Guest Editor, Computer Networks and ISDN Systems, Special Issue on ATM Traffic Management, 1998.
- Technical Program Committee (TPC) member in several IEEE conferences (IEEE INFOCOM, IEEE IwQoS, IEEE ICNP, IEEE Globecom, ACM SIGMETRICS)

#### Courses Developed & Taught:

Online Videos of my lectures have been downloaded by hundreds of students & professionals worldwide:

[http://www.ecse.rpi.edu/Homepages/shivkuma/teaching/video\\_index.html](http://www.ecse.rpi.edu/Homepages/shivkuma/teaching/video_index.html)

- ECSE-6961 Fundamentals of Wireless Broadband Networks, 2007
- ECSE-6600 Internet Protocols, graduate networking course: 1998, 1999, 2000, 2001, 2002, 2004, 2006, 2007.
- ECSE-4963, Experimental Networking, senior undergraduate lab/studio course: 2002, 2003
- ECSE-6660: Broadband and Optical Networking: 2003
- ECSE-4670: Computer Communications Networks, 1999, 2001
- ECSE-2610: Computer Components and Operations, 2000
- 35.473: Computer Systems Architecture, 1997, 1998

#### Educational Funding and Activities:

- \$150,000 funding by CAIDA, Intel for experimental networking class
- Co-PI in \$3.86 million NSF IGERT program for graduate fellowships
- Session Co-Organizer, ACM SIGCOMM Education Workshop, 2002, 2003

#### Other Activities:

- Created a south Indian (carnatic) music audio archive/podcast, including 200+ free downloadable MP3 audio classes (that draws over 500,000 hits/year and > 20K unique users):

<http://www.ecse.rpi.edu/Homepages/shivkuma/personal/music/index.html>

A (very!) detailed resume is available at:

<http://www.ecse.rpi.edu/Homepages/shivkuma/rpi-biosketch2007.pdf>

Papers/Professional details:

<http://www.ecse.rpi.edu/Homepages/shivkuma/>

(or Google: Shiv RPI)