

# Dr. Shivkumar Kalyanaraman

## Employment:

- May 2013 – *present*: **Chief Scientist**, IBM Research – Australia, Melbourne, Australia.
- January 2013 – January 2014: **Co-Director**, UBD | IBM Centre, Brunei.
- August 2011 – *present*: **Senior Technical Staff Member (STSM)**, IBM Research.
- July 2009 – May 2013: **Senior Manager, Next Generation Systems & Smarter Planet Solutions**, IBM Research – India, Bangalore
- Jan 2008 – June 2009: **Manager, Next Generation Telecom Research, & Senior Researcher**, IBM Research – India, Bangalore
- 2006-December 2007: **Full Professor**, Department of Electrical Computer Systems Engineering (ECSE), Rensselaer Polytechnic Institute (RPI), Troy NY, USA.
- 2002-2007: **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.
- 1997-2001: **Assistant Professor**, Department of Electrical Computer Systems Engineering (ECSE), Rensselaer Polytechnic Institute (RPI), Troy NY, USA.

## Education

- **B.Tech, Computer Science**, Indian Institute of Technology (IIT), Madras, INDIA [1989-1993] (*ranked All India #3 in IIT JEE, 1989, South Zone 1<sup>st</sup>*)
- **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].

## Selected Awards:

- **Fellow of IEEE**, January 2010
- **ACM Distinguished Scientist**, October 2010
- MIT Technology Review inaugural **TR100, 100 top young innovators for the new millennium**, 1999.

## Publications & Service:

- 190 refereed papers in top journals & conferences (IEEE/ACM Trans. on Networking, SIGCOMM, MOBICOM, INFOCOM, SIGMETRICS, IMC, MOBIHOC, ICNP, IwQoS)
- 7 book chapters; 5 patents granted, 20+ patents pending
- TPC Co-chair of IEEE INFOCOM 2008, General co-chair of ACM SIGCOMM 2010
- Editorial board of IEEE/ACM Transactions of Networking
- Supervised and Graduated 17 Ph.D. students, 40+ M.S. students at RPI
- Online videos of networking & wireless lectures accessed by hundreds of students & professionals worldwide:  
[http://www.ecse.rpi.edu/Hompages/shivkuma/teaching/video\\_index.html](http://www.ecse.rpi.edu/Hompages/shivkuma/teaching/video_index.html)
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## Research & Leadership Summary:

As Chief Scientist of IBM Research Australia, Shiv is currently responsible for the scientific agenda of IBM Research – Australia (a growing 85 person+ organization) and its linkages to business and commercial impact. In India, Shiv established world-class research teams on smarter planet technologies, networking and wireless topics at IBM Research - India. His team conducts research in emerging wireless

technologies, high performance computing, middleware, systems and data center networking with applications to large-scale smarter planet problems (energy, transportation, weather, flooding etc). He was a principal leader of the 2010 Global technology outlook (GTO) on the Convergence of IT and Wireless Infrastructure, an effort that was instrumental in shaping IBM's R&D investments in wireless technologies. He also was part of the leadership team that established a joint research center between Universiti Brunei Darussalam and IBM (UBD | IBM Centre) in Brunei at the intersection of Smarter Planet modeling and High Performance Computing. He leads the worldwide IBM execution of the UBD | IBM Centre.

His technical specialization is in computer networking around themes of high performance wireless networking and traffic management. In particular, he has worked on topics of congestion control, reliability, multimedia networking (including peer-to-peer multimedia systems), connectionless traffic engineering, Quality of service (QoS)/quality of experience (QoE), last-mile community wireless networks, low-cost free-space-optical networks, automated network management using online simulation, multicast, and performance analysis.

Other Professional Activities:

- Principal investigator (or Co-PI) on over 15 Federal Grants, for a budget of over \$10 million.
- Industrial R&D projects: AT&T Labs Research, WIMAX Forum, Intel Labs, Nortel Networks, Packeteer, IBM, Qwest, Reuters, Pulsecom.
- 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
- **Invited Seminars (75+ 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).
- **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).