Pradeep K. Khosla

Biography

Pradeep K. Khosla, an internationally renowned electrical and computer engineer, is the eighth Chancellor of the University of California, San Diego, and a Distinguished Professor. At UC San Diego, he initiated and led a comprehensive, all-inclusive strategic planning process to unify the campus and define UC San Diego's future. The initiative resulted in a Strategic Plan that outlines five overarching goals, four grand research themes, and 13 strategies to fulfill our mission and vision as a student-centered, research-focused, service-oriented public university.

Before his current appointment, Khosla served as Dean of the College of Engineering and Philip and Marsha Dowd University Professor at Carnegie Mellon University. There, he set the strategic direction for undergraduate and graduate education and research, and initiated undergraduate curriculum reform, successful diversity efforts, multidisciplinary research centers and graduate offerings, and international programs. Khosla spent the majority of his career at Carnegie Mellon, rising through the ranks from his first position as Assistant Professor in 1986 to his appointment as Dean in 2004. From 1994 to 1996, he also served as a Defense Advanced Research Projects Agency (DARPA) Program Manager in the Software and Intelligent Systems Technology Office, Defense Sciences Office and Tactical Technology Office, where he managed advanced research and development programs.

Administrative

Chancellor Khosla serves as chief executive officer for UC San Diego, one of 10 campuses in the world-renowned University of California system. Located on 1,200 acres on the cliffs overlooking the Pacific Ocean and in the heart of the biotech community on the La Jolla mesa, UC San Diego is home to the world-renowned Scripps Institution of Oceanography and the UC San Diego Health System, which includes a School of Medicine, Skaggs School of Pharmacy and Pharmaceutical Sciences, two hospitals, and multiple primary and specialty care outpatient centers.

The campus encompasses six undergraduate colleges, five academic divisions, and five graduate and professional schools. UC San Diego’s programmatic offerings – more than 130 academic degree programs – are both impressive and highly ranked, ranging from science, management, engineering and medicine to social science, international studies, and arts and humanities. In addition to its highly rated graduate research programs, UC San Diego offers professional degrees in medicine, management, pharmacology and pharmaceutical science, and international studies. Specialized campus resources include the San Diego Supercomputer Center; Qualcomm Institute for Telecommunications and Information Technology, the UC San Diego Division of Calit2; Center of Interdisciplinary Science for Art, Architecture, and Archaeology (CISA3); Center for Research in Computing and the Arts; Center for U.S.-Mexican Studies; Institute of the Americas; Institute on Global Conflict and Cooperation; and UC San Diego Extension.

UC San Diego is the third largest employer in San Diego County with annual revenues of $3.8 billion in fiscal year 2013-14. UC San Diego enrolls more than 30,000 students, nearly 24,000 of whom are undergraduates. All incoming freshmen graduated in the top 10 percent of their high school graduating class. The exceptional quality of UC San Diego’s 1,900 Academic Senate faculty is reflected in the range of faculty honors among the campus faculty, including: Nobel Prize, Fields Medal, Balzan, National Medal of Science, Pulitzer Prize, Kyoto Prize, MacArthur Fellows (“genius award”), Tony Award, and Academy Award. UC San Diego’s research prowess has catapulted the campus to the top ranks of national and international academic standings. U.S. News & World Report ranks UC San Diego as the 8th best public university in the nation, and the National Science Foundation lists the campus 5th among top U.S. universities in total research and development expenditures for fiscal year 2012. UC San Diego is also ranked 1st in the nation by Washington Monthly, for five consecutive years, based on three criteria: social mobility, research and service.

Teaching

In addition to his appointment as Chancellor in 2012, Khosla is a distinguished professor in the Department of Electrical and Computer Engineering and the Department of Computer Science and Engineering at UC San Diego. He began his teaching career at Carnegie Mellon as an Assistant Professor of electrical and computer science engineering in 1986; he was promoted to Associate Professor in 1990 and Professor in 1994. Having been awarded the Philip and Marsha Dowd Professorship in 1998, he was elected University Professor in 2008, the highest distinction a faculty member could achieve.

In 1999, he received the George Westinghouse Award for Education “in recognition of distinguished contributions to teaching for students of engineering.” He also received the Academic of the Year Award “for excellence and leadership in technology, education and business” from SiliconIndia in 2000.
Research

Khosla's research interests encompass the areas of internet-enabled collaborative design, collaborating autonomous systems, agent-based architectures for distributed design and embedded control, software composition and reconfigurable software for real-time embedded systems, reconfigurable and distributed robotic systems, integrated design-assembly planning systems and distributed information systems. His research has resulted in three books and more than 350 journal articles and conference and book contributions. He is also the founding director of the Carnegie Mellon CyLab and the Institute for Complex Engineered Systems, which pursues interdisciplinary projects.

Khosla is an elected member of the National Academy of Engineering (NAE) and the American Society for Engineering Education (ASEE). He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), the American Society of Mechanical Engineers (ASME), the American Association for Advancement of Science (AAAS), the American Association of Artificial Intelligence (AAAI) and the Indian Academy of Engineering. He is an Honorary Fellow of the Indian Academy of Science. His other awards include the 2012 Light of India Award, a Lifetime Achievement Award from the American Society of Mechanical Engineers, and the W. Wallace McDowell Award from the Institute of Electrical and Electronics Engineers Computer Society. In 2012, he was named as one of the 50 most influential Indian-Americans by SiliconIndia.

Service

Khosla currently serves on numerous San Diego regional advisory boards, including Rady Children's Hospital and Health Center, La Jolla Playhouse, the Cecil and Ida M. Green Foundation for Earth Sciences, and the Sanford Consortium for Regenerative Medicine. He also serves on advisory boards for other non-profit and government organizations, venture capital firms, and high-tech start-up companies. He is a member of the Visiting Committee on Advanced Technology for NIST and Chair of the Jury for the prestigious Infosys Foundation Prize in Engineering and Computer Science. He has served as a member of the Strategy Review Board for the Ministry of Science and Technology, Taiwan; the Council of Deans of the Aeronautics Advisory Committee, NASA; the National Research Council Board on Manufacturing and Engineering Design; the Pennsylvania Treasury Advisory Board; and the Senior Advisory Group for the DARPA Program on Joint Unmanned Combat Air Systems.
Pradeep K. Khosla

Education


Positions

2012 (August) – present: Chancellor and Distinguished Professor of Electrical and Computer Engineering, University of California, San Diego.

2008 (April) – 2012 (July): Philip and Marsha Dowd University Professor, Carnegie Mellon University. (The University Professor title is conferred by the President upon election by and recommendation of other University Professors).

2004 (July) – 2012 (July): Dean, Carnegie Institute of Technology (College of Engineering), Carnegie Mellon University.

2001 (March) – 2008 (October): Founding Director, CyLab, Carnegie Mellon University.

2003 (August) – present: Adjunct Professor, Faculty of Computer Science, Tata Institute of Fundamental Research (TIFR), Mumbai, India. (This is an honorific position).

2000(October) – 2004 (June): Director, Information Networking Institute (INI), Carnegie Mellon University, Pittsburgh, PA.


1998 (December) – 2012 (July): Philip and Marsha Dowd Professor of Engineering and Robotics, College of Engineering and School of Computer Science, Carnegie Mellon University.


1994 (July) – 2012 (July): Professor of Electrical and Computer Engineering and Robotics, College of Engineering and The Robotics Institute (School of Computer Science), Carnegie Mellon University.


• Responsibilities included conceptualization, development, and execution of advanced research and development programs in the areas of Real-Time Planning, Artificial Intelligence, Real-Time Software, Sensor-based Control, Robotics, Manufacturing, and Design. Managed the following programs in the above areas: Real-Time Planning and Control (RTPC), Manufacturing Automation and Design Engineering (MADE), National Intelligent Integration of Information and Protocols (NIIIP) TRP, Software Interoperability Testbed TRP, and Focus HOPE Center for Advanced Manufacturing Technologies. The total budget for these programs exceeded $50M in Fiscal Year ’96.

1990 (July) - 1994 (June): Associate Professor of Electrical and Computer Engineering and Robotics, Engineering Design Research Center (College of Engineering), and The Robotics Institute (School of Computer Science), Carnegie Mellon University.
1986 (September) - 1990 (June): Assistant Professor of Electrical and Computer Engineering and Robotics, Engineering Design Research Center (College of Engineering), and The Robotics Institute (School of Computer Science), Carnegie Mellon University.

1983 (September) - 1986 (August): Graduate Research Assistant. The Robotics Institute, and Department of Electrical and Computer Engineering, Carnegie Mellon University.

   - Worked in the area of Real-Time Control of Power Systems. Developed control algorithms and software for load flow analysis and load frequency control. Worked on the specifications of a computer for real-time monitoring and control. Bid analysis of switchgear and instrumentation for a 210 MW power plant. Developed a graphics package on a DEC 20 system for automating the design of a Power distribution substation.

   - Worked in the area of Real-Time Control of Power Systems and Load Flow Analysis. Developed real-time control software for a Load Dispatch Center. Developed graphics software for design of transmission lines.

Awards and Honors

- Light of India Award, Jury Award in Science and Technology category, June 2012.
- Elected Honorary Fellow, Indian Academy of Science, January 2012. (The number of foreign fellows is limited to 60).
- Elected Fellow of Indian National Academy of Engineering, September, 2011.
- IBM Faculty Award, January 2011.
- Elected Fellow of American Society of Mechanical Engineers (ASME), January 2010.
- (Inaugural) Academic Excellence Award, Pan IIT American Leadership Awards, October, 2009.
- Lifetime Achievement Award, ASME Computers in Engineering Division, September, 2009.
- Appointed University Professor, April, 2008. (Elected by other University Professors and appointed by the President of Carnegie Mellon).
- Cybereducation Champion Award, Business Software Alliance (BSA), March 2007, Washington, DC.
- Distinguished Alumnus Award, Indian Institute of Technology, Kharagpur, India, July, 2006.
- Elected Member of the National Academy of Engineering (NAE), February 2006.
- Elected Fellow of American Association for Advancement of Science (AAAS), November, 2004.
- Elected Fellow of American Association of Artificial Intelligence (AAAI) “for significant contributions to automated modeling, reconfiguration, and design of robotic and real-time software systems, and for encouraging the field through professional leadership” April, 2003.
- W. Wallace McDowell Award, “for significant contributions to the design of reconfigurable real-time software systems, and for significant contributions to undergraduate and graduate education in electrical and computer engineering and robotics”, IEEE Computer Society, 2001.
- Awarded Philip and Marsha Dowd Chair in Engineering, College of Engineering, December, 1998.
- Focused Giving Program Award, “in recognition of outstanding research toward the advancement and science and technology in healthcare”, Johnson and Johnson, 1997-1999.
• Elected Fellow of IEEE “for contributions to reconfigurable manipulators and reconfigurable software for sensor-based control and leadership in undergraduate and graduate education”, January 1995.
• Finalist (one of five) for the Best Student paper Award, “Improved Force Control Through Visual Servoing”, 1995 American Control Conference, Seattle, WA. June 1995
• Class I NASA Tech Brief Award, “Integration of Reusable Software Control Modules for Multiprocessor Systems” January, 1993.
• George Tallman Ladd Award for Excellence in Research, Carnegie Institute of Technology, Carnegie Mellon University, October 1989.

Consulting and Board Membership

• June 1989: Modicon/ICC, Pittsburgh, PA.
• Nov 91 - present: Quantapoint Inc. (previously known as K2T Inc.), Pittsburgh, PA. Co-Founder and Serve on Board of Directors.
• May 1997 - May 1999: Beam Technologies Inc., Member of Technology Advisory Board.
• January 1999 – August 2002: Halosoft Inc., Co-Founder and Serve on Board and consult about strategic technology development for Internet P2P applications.
• May 1998 – January 2000: Raytheon Inc., VA.
• January 2001 – December 2007, Member, CIO’s Advisory Board, Alcoa, Pittsburgh, PA 15213.
• March 2001 – Dec 2008, Advisor, ITU Ventures (VC Fund), Los Angeles, CA
• June 2001 – Dec 2006, Member, Board of Directors, Intellions Inc., Pittsburgh, PA.
• June 2001 – June 2003, Member, Technical Advisory Board, Eizel Inc.
• January 2003 – present, Member, Advisory Board, iNetworks LLC, Pittsburgh, PA.
• July 2004 – Dec 2008, Member, Board of Directors, BitArmor Systems, Pittsburgh, PA.
• August 2004 – March 2007, Advisory Board, iPolicy Networks, Palo Alto, CA.
• October 2009 – present, Member, Technical Advisory Board, Pantheon Inc., Pittsburgh, PA.
• January 2010 – present, Member, Advisory Board, Thar Energy, Pittsburgh, PA.
• August 2011 – present, Independent Director, HCL Infosystems, India (traded on Mumbai Exchange).
January 2011 – present, Member, Board of Directors, PropelIT Inc., Pittsburgh, PA.

**Government and Non-Profit Committees/Panels/Boards**

- Member of Technology Review Board, Next Generation Controller Project (NGC), Wright Patterson Airforce Base, January 1990 - October 1991.
- Member, Carnegie Science Center Committee, Buhl Science Center, Pittsburgh, PA, January 1991 - August 1991.
- Member, Peer Review Committee, Center for Advanced Technology in Automation and Robotics, Rensselear Polytechnic Institute, Troy, NY, December, 1992.
- Member, Site Visit Team, Institute for Systems Research, National Science Foundation Engineering Research Center (NSF-ERC), University of Maryland, March 1994.
- Served as a member several DARPA and interagency review panels and committees during my tenure at DARPA, January 1996 - August 1996.
- Member, Panel Review Team, Several Programs during the last 15 years, National Science Foundation.
- Member, NSF Committee of Visitors, Division of Information and Intelligent Systems, February, 1999.
- Member, Review Committee on Infrastrucuture Projects, Canada Foundation for Innovation, May, 2000.
- Member, College of Engineering Review/Advisory Board, Michigan State University, East Lansing, MI, October 2000.
- Member, Board of Governors, Biomedical Security Institute (BMSI), May 2001 – Jan 2003.
- Member, Blue Ribbon Panel to review Computer Science, Virginia Commonwealth University, Richmond, VA, January 2002.
- Member, External Review Committee, EECS Department, Vanderbilt University, February 2002.
- Member, Department of Electrical and Computer Engineering Advisory Board, Michigan State University, February 2002.
• Member, PA State Boterrorism Preparedness Planning Advisory Committee (appointed by Pennsylvania State Secretary of Health), March 2002 – March 2006.

• Member, Advisory Board, Computer Engineering Program, San Diego State University, November 2002.

• Member, Advisory Board for Athens Information Technology Institute (AIT), March 2002 – December 2008.

• Member, Transition Team of PA State Governor elect Ed Rendell, December 2002 – February 2003.


• Member, Pittsburgh Digital Greenhouse Taskforce to evaluate the economic development potential of Cybersecurity for the region, January 2003 – Dec 2004.

• Member, Board on Manufacturing and Engineering Design (BMED), National Research Council (NRC), Feb 2003 – March 2006.

• Member, Senior Advisory Group, DARPA Program on Joint Unmanned Combat Air Systems, SRS Technologies, March 2004 – March 2006.

• Member, Advisory Board, Prabhu Goel Internet and Computer Security Research Center, IIT Kanpur, June 2004 – July 2011.

• Member, Board of Directors/Trustees, The Children’s Institute, Pittsburgh, PA., Sept 2004 – July 2012.

• Member, Board of Directors, Internet Security Alliance (ISA), Washington DC, September 2004 – present.

• Member, Strategy Review Board (SRB), Cabinet of Taiwan, August 2004.

• Member, IT Advisory Committee, CSIRO, Australia, July 2004 – December 2009.

• Member, Board of Directors, Mellon-Pitt Corporation (MPC) Corporation, Pittsburgh, July 2004 – July 2012.


• Member, IIT Foundation Board of Directors, Sept 2004 – present.

• Member, Board of Directors, Pittsburgh High Technology Council, January 2007 – July 2012.

• Member, Board of Directors, Doyle Center for Manufacturing, January 2007 – December 2011.


• Member, High Level Experts Group (HLEG) for Global Cyber Security Agenda (GCA), ITU, Geneva, Switzerland. (Appointed by the Secretary General of ITU).

• Member, Visiting Committee on Advanced Technology (VCAT), National Institute of Standards and Technology (NIST), June 2008 – present. (This committee is mandated by the US Congress and appointed by the Director of NIST).


• Member, Indian Advisory Committee, PA Senator R. Casey's Office, January 2008 – present.

• Member, Advisory Board, Electronic Privacy Information Center (EPIC), Washington DC, 2009 – present.

• Member, Advisory Board, Center for Advanced Security Research (CASED), Technical University of Darmstadt, Germany, September 2009 – present.

• Member, International Advisory Board, SRM University, Chennai, India, December 2009 – present.

• Member, Advisory Board for Mechanical Engineering, Stanford University, February 2010.

• Chair, Jury for the Infosys Prize in Science and Engineering, 2011 – present.

• Member, Board of Visitors, Temple Medical School at West Penn Allegheney Hospital, December 2011.

Positions in Professional Societies

- At-large Member, Board of Directors, ECE Department Heads Association (ECEDHA), July 2002 – July 2004.
- Member, Electorate Nominating Committee, Engineering Section, AAAS, January 2009 – present.

Editorial Roles


CMU Committees

- Member of the Program Committee for the Carnegie Institute of Technology, Graduate School of Industrial Administration, and School of Computer Science joint Ph.D. program in Robotics and Intelligent Systems. The output of this committee was a curriculum for the interdisciplinary Robotics Ph.D. program - the first of its kind in the country.
- Ad Hoc Committee on Ph.D. Qualifiers, Dept. of Electrical and Computer Engineering, 1989. The charge to this committee was to develop a recommendation for a Ph.D. qualifier structure. The proposed structure was adopted (with minor changes) and implemented in Spring 1989.
- Curriculum Committee, Interdisciplinary Robotics and Intelligent Systems Engineering Ph.D. Program, September, 1987 - 1990. The charter of this committee is to update the curriculum.
- Member of Faculty Search Committee of the Interdisciplinary Robotics Ph.D. program, January 1989 - 1993
- ECE Representative, Carnegie Institute of Technology Strategic Planning Committee, May 1989. The goal of this committee was to create a strategic plan for the next 5 years for the college of engineering.
- Carnegie Institute of Technology Manufacturing Assessment Committee, 1989 - present. The goal of this committee is to develop a recommendation for a graduate program in Manufacturing Engineering within the college of engineering.
- Member of "Wipe the Slate Clean Committee". This committee was charged with creating from scratch an undergraduate program in Electrical and Computer Engineering. October 1989 - December 1990.
- Member of The Robotics Institute Strategic Planning Committee, October 1991. This 4 member committee was charged with creating a strategic plan for The Robotics Institute.
- Member, CMU Board of Trustees Committee on Educational Affairs and Enrollment, October 1991 - October 1993.
- Member, Sub-Task Force to Evaluate Teaching Center and Undergraduate Education, October 1991 - May 1992. (Chairman Harry Paxton).
- Member of Advisory Board, Eberly Teaching Center, Susan Ambrose (Director). September 1996.
- Member of Faculty Search Committee, Department of Electrical and Computer Engineering, Sept 1996 – July 1999.
- Member, Ad-hoc Committee to Evaluate CMU-Caterpillar Collaboration, August 1998.
- Member, School of Computer Science Dean Search Committee, Sept 1998 - April 1999.
- Member, DSSC Director Search Committee, College of Engineering, Sept 1998 - February 1999.
- Chair, Committee on Faculty Expectations, September 1999 - June 2000.
- Member, CMU Board of Trustees Committee on Development, September 1999 - 2005.
- Member, CMU Board of Trustees Committee on Research and Technology Commercialization, 2005 – July 2012.
- Member, Committee to Evaluate the Director of SEI, Fall 2001.
- Member, CIT Committee for Cost of Graduate Students in Research, September 2001 – August 2002.
- Member, Search Committee for the Robotics Institute Director, January 2004 – May 2004.
- Member, Campus IT Advisory committee, December 2006 – July 2012.
- Member, HR Advisory Committee, September 2006 – July 2012.
- Member, Leadership Academy Selection Committee, Dec 2008.
- Member, Board on Administration, Regulation, and Finance (Appointed by President Cohon), October 2009 – July 2012.
- Member, Institutional Master Plan Steering Committee, April 2010 – July 2012
Conference Organization Committees

- Program Vice-Chairman, IEEE International Conference on Systems Engineering, August, 1989, Dayton, Ohio.
- General Co-Chair, 1995 Conference on Intelligent Robotics and Systems (IROS), USA.
- Served as a Panelist in several international conferences.
- Served as session chair/co-chair in several international conferences.
- Served on Program Committees of several international conferences.

Memberships in Professional Societies

- Member, National Academy of Engineering (NAE).
- Fellow, Institute of Electrical and Electronics Engineers (IEEE).
- Fellow, American Association for Artificial Intelligence (AAAI).
- Fellow, American Association for Advancement of Science (AAAS).
- Fellow, American Society for Mechanical Engineering (ASME).
- Member, American Society for Engineering Education (ASEE).
- Honorary Fellow, Indian Academy of Science (The number of foreign fellows is limited to 60).
- Fellow, Indian National Academy of Engineering

Invited Tutorials and Keynote/Plenary Talks

- More than 50 invited tutorials, and keynote or plenary talks as international conferences during the last 10 years.

Undegraduate Students

Supervised more than 50 undergraduate research projects (from 1986-2004) including Honors Thesis.

M.S. Theses Students

6. M. Raju, Determining the Assembly Sequence from a 3-D Model, August 1989.
8. Dean Hering, Neural Networks: Applications in Tactile Sensing and Manipulator Control, December 1989. (Co-Advisor: Professor Vijaya Kumar).

Ph.D. Students


12. Richard Voyles, Multi-Agent based Composition of Software for Gesture-based Programming, August 1997. Employment: Associate Professor, Department of Computer Science, Univ of Minnesota, MN.


18. Poj Tangmachit, Control Strategies and Learning in a Distributed Robot Team, September 03. Employment: Assistant Professor, King Mok University, Bangkok, Thailand.


20. Marios Savvides (co-advisor with Vijaya Kumar), Robust Face Recognition for Biometric Authentication, April 2004. Employment: Associate Research Professor, CyLab and ECE department, Carnegie Mellon University


27. Wei Tech Ang (co-advisor Cameron Riviere), Active Tremor Compensation in Handheld Instrument for Microsurgery, July 2004. Employment: Associate Professor, National Technical University, Singapore.


29. Mahesh Saptarishi, Discriminative Learning for Visual Pattern Recognition, September 05. Employment: Entrepreneur

30. Yaron Rachlin, Target Tracking and Hand-off in a Distributed Visual Surveillance Systems, May 07. Employment: Senior Member of Technical Staff, Draper Laboratory.


Visitors/PostDocs/Staff Supervised

1. Mr. Phillipe Couvigno, Visiting Researcher, Renault, France. October 1990 - April 1992
5. Dr. John Dolan, Project Scientist, Carnegie Mellon University, October 1992 - present. (presently Senior Systems Scientist)
11. Mr. Peter Brown, Senior Engineer, ICES, September 1995 – August 1999.
17. Dr. Ashithey Trebi-Ollenu, September 1997 – Jan 2000. (presently at Jet Propulsion Laboratory)
List of Publications

Books


Book Contributions


Conference Articles (Critically Reviewed)


Conference Articles (Invited or Abstract Reviewed)


**Video Proceedings**


the 1997 IEEE Int. Conf. on Robotics and Automation, 1997.