Pradeep K. Khosla

Pradeep Khosla assumed office as the 8th Chancellor of University of California, San Diego, on August 1, 2012. Since January 2016, he also serves as the President of the UC San Diego Foundation which is an independent nonprofit that manages the philanthropic contributions to UC San Diego and has assets in excess of $1.3B. He holds academic appointments as Distinguished Professor in the departments of Electrical and Computer Engineering, Computer Science and Engineering, and Halicioglu Data Sciences Institute.

As Chancellor, he is the CEO of the campus that enrolls more than 43,000 students, employs more than 30,000 faculty and staff members, and has an annual budget of approximately $7.5B including a sponsored research budget of more than $1.6B in FY22-23. The campus is organized into eight undergraduate residential colleges with unique general education requirements, and eleven Schools that offer undergraduate majors and graduate degrees (Engineering, Arts and Humanities, Social Sciences, Physical Sciences, Biological Sciences, Marine Sciences, Global Policy and Strategy, Rady School of Management, Medicine, Pharmacy, Public Health and Human Longevity). The campus is also home to the unique Scripps Institution of Oceanography which includes the Birch aquarium and operates 4 ocean-going international research vessels. The UC San Diego Health System includes two hospitals (Hillcrest and Jacobs Medical Center), multiple outpatient centers, and has an affiliation with Rady Children’s Hospital. With more than 30,000 employees, UC San Diego is the largest employer in San Diego County.

Leadership at UC San Diego
During Chancellor Khosla’s tenure, UC San Diego developed its first ever strategic plan that included input from several thousand people representing students, staff, faculty, donors, alumni, industry, and the local community. Chancellor Khosla’s vision of UCSD as a student/patient-centered research-focused service-oriented public-university that will be a destination for art and culture in addition to research, education, and healthcare for students, patients, and the community has been enabled by a $3B ten-year (August 2012-July 2022) fundraising campaign that achieved its fund-raising goal in June 2022, and raised $1B more than the original goal of $2B. This campaign raised resources to transform the campus physically, intellectually, and culturally by enhancing infrastructure and program support for students, faculty, and staff. The campaign has achieved several milestones including surpassing $300M for three consecutive years, and exceeding $400M in annual fundraising for the first time in FY21.

During his tenure, the campus has experienced significant growth in all aspects. The campus budget has grown from about $3.2B in FY13 to more than $7.5B in FY23. The total endowment for the campus has increased significantly from about $555M on June 30, 2012 to more than $2.6B on June 30, 2022. The annual fundraising has grown from about $130M in FY13 to more than $400M in FY22. The total number of students have grown from about 29,000 to more than 43,000 and the four-year graduation rate has improved from 55% to 74%. The campus received more than 160,000 applications for admission in Fall 22 making it the second highest in the nation and more than double the number it received in 2013.

During the period 2012 to 2022, the campus has invested more than $8.8B in new buildings to support its medical center and to provide state-of-the-art facilities for research and teaching. In addition to building a new 246 bed hospital, the campus has also built several research and teaching buildings. To improve the student experience, the campus has added several thousand beds for both undergraduate and graduate students with the aim of offering 4-year housing guarantee at 20% below market. A complete list of the projects is at https://www.sandiegouniontribune.com/news/list/khosla-era-pol-list

Chancellor Khosla has championed and initiated the creation of 2 new undergraduate colleges (Seventh college and Eighth college), and several multidisciplinary initiatives (such as Robotics, Design, Microbiome, Tata Institute for Genetics and Society, Data Sciences Institute, Institute for Practical Ethics, Center for Gender Equity, Institute for the Arts and Humanities, Meta-Institute for Airborne Disease in a Changing Climate, Institute for RNA-based Therapeutics) that have exploited campus-wide synergies by integrating Scripps Oceanography, Health Sciences, and the General Campus in order to position UC San Diego for the future.

Chancellor Khosla has built and strengthened community relationships and partnerships, and is committed to ensuring and expanding access to, and affordability of, UC San Diego education. He has expanded access for underserved populations by creating the Chancellors Associate Scholarship program that allows for loan-free four-year education for up to 1000 students a year. His focus on diversity and access has resulted in more than a 100% increase in undergraduate students from underrepresented groups (URG/URM) while the total undergraduate population increased by about 40%. At the same time the 4-year graduation rate has increased from 55% (in 2013) to 75% (in 2020) while simultaneously closing opportunity gaps.
His focus on diversifying the faculty, through the strategy of disproportionate hiring, has resulted in significantly increasing the proportion of URM and women faculty members at UC San Diego. While growing the overall faculty by 21%, the number of black faculty have grown by 107%, Latinx/Chicanx faculty have grown by 55%, and women faculty have grown by 43%.

During Chancellor Khosla’s tenure UC San Diego has seen consistent improvement in its rankings. UCSD has been consistently ranked #1 public university by Washington Monthly, and the US News ranks it the 8th best public university (in 22-23) in the USA. QS World University Rankings ranked UC San Diego as 6th best public university in the USA, and the 2020 ARWU rankings placed it as the 5th best university in the USA. The campus research budget that exceeds $1.6B places it in 6th place amongst all research universities in the USA. In order to enhance the impact of the research funding, he has enabled changes in the Office of Innovation and Commercialization to make technology transition frictionless and company creation process easy. Recognizing the role of UC San Diego as an engine of economic development, he has built connections with elected officials, and business and entrepreneurial communities in the county and the State.

Prior Experience at Carnegie Mellon University and DARPA
Carnegie Mellon: Prior to joining UC San Diego, he served as Dean of the College of Engineering, and the Philip and Marsha Dowd University Professor at Carnegie Mellon University. As Dean, a position he held from July 2004 till July 2012, he served as the Chief Academic Officer and the Chief Administrative Officer for the College of Engineering. His previous leadership, administrative, and organization building experience includes serving as: Founding Director, Carnegie Mellon CyLab; Head, Department of Electrical and Computer Engineering; Director, Information Networking Institute; Founding Director, Institute for Complex Engineered Systems (ICES).

During his tenure as Dean of Engineering, the college experienced significant improvement in it’s ranking from 11th in 2004 to 4th in 2012; the total college budget doubled to nearly $180M in FY 2012; and research expenditures, and the MS and PhD programs each grew by nearly 100%. He provided leadership for, developing and implementing strategies to improve quality of life for students, faculty and staff, and increasing diversity; defining several multidisciplinary and multi-college research centers; developing research centers with industry; developing multidisciplinary graduate programs; developing international programs; and developing programs that enhance the undergraduate experience. During his tenure as Dean, the college established visionary international collaborations and programs in Japan, Korea, Portugal, China, and Rwanda.

At Carnegie Mellon, he played a key role in defining the strategy, and fundraising for the university-wide Sustainable Energy Institute, and for the $100M 100,000 square foot College of Engineering Bio-Energy-Nano building in addition to fundraising for other college initiatives (endowed fellowships and scholarships, endowed chairs, and Dean’s Innovation Fund).

DARPA: From January 1994 till August 1996, he served as Program Manager at Defense Advanced Research Projects Agency (DARPA) where he managed a portfolio of programs (a total of $50M per year in 1996) in real-time planning and software systems, internet enabled software infrastructure, autonomous robots and intelligent systems, distributed design and manufacturing, and distributed information systems. The technologies developed in his programs are currently embodied in various autonomous robotic systems (cars and drones), internet-based systems, and design and manufacturing systems.

From 1980 to 1982 he worked for Tata Consulting Engineers and Siemens (in India) in the areas of Power Systems design, specification, and real-time control of distribution. He joined Carnegie Mellon as an Assistant Professor in 1986 and rose through academic and administrative ranks to become University Professor and Dean of Engineering.

Professional Recognition, Honors and Awards
Chancellor Khosla’s leadership in education and research have been recognized by several awards: the ASEE George Westinghouse Award for Education (1999), Silicon India Leadership award for Excellence in Academics and Technology (2000), the W. Wallace McDowell award from IEEE Computer Society (2001), Cyber Education Award from the Business Software Alliance (2007), the ASME Computers in Engineering Lifetime Achievement Award (2009), the inaugural Pan IIT American Leadership Award for Academic Excellence (2009), IBM Faculty Award (2011), and the Light of India award (2012). He was awarded the Philip and Marsha Dowd Professorship in 1998, and elected University Professor (at Carnegie Mellon) in 2008.

For his contributions to technology and education he has been elected member of the US National Academy of Engineering (NAE), Fellow of American Academy of Arts and Sciences (AAAS), Fellow of the National Academy of Inventors (NAI), Fellow of the Indian National Academy of Engineering (INAE), Fellow of the Indian Academy of Science, Fellow of Institute of Electrical and Electronics Engineers (IEEE), Fellow of American Association of Artificial Intelligence (AAAI), Fellow of American Association for Advancement of Science (AAAS), and Fellow of American Society of Mechanical Engineers (ASME).

In September 2012 he was named as the one of the 50 most influential Indian Americans by Silicon India. He is the recipient of the Distinguished Alumnus award from IIT Kharagpur, and also the recipient of honorary doctorates from SRM University (Chennai,
India), IIT (Kharagpur, India), and National University (San Diego, California). He is a frequent keynote speaker at international conferences, and invited to participate in thought leadership forums organized by Fortune Magazine, Advanced Micro Devices (AMD), Milken Institute, Techonomy, Dialog, World Economic Forum, and Blouin Foundation, amongst others. He has served on editorial boards of journals and book series.

Boards and Government Committees
Chancellor Khosla serves and has served as a member of advisory board or board of directors for non-profits, high tech start-ups, and public and private companies.

He currently serves as an Independent Director of Tata Consultancy Services (TCS - traded on Bombay Stock Exchange). He is also a member of the Audit Committee and Chairs the Stakeholders Relation Committee. In the past he has served as Director of Quantapoint Inc., an Independent Director of HCL Infosystems (HCLI - traded on Bombay Stock Exchange), and Independent Director of Avigilon (traded on Toronto Stock Exchange). Chancellor Khosla is a Founding Charter Member of TiE-Pittsburgh, and currently a Charter member of TiE-San Diego.

Chancellor Khosla has served as a Trustee and Chair of the Board of Internet2 LLC – a non-profit that provides high speed internet infrastructure for research universities. His other service on non-profit boards includes Rady Children’s Hospital, Economic Development Corporation of San Diego, CONNECT San Diego, and IIT Startups Palo Alto. He is a member of the executive committee of the Council on Competitiveness and was appointed as Chair of the Global Federal of Competitiveness Councils (GFCC) University Forum in November 2016. In the past he has served as a member of the board of Directors of several non-profit organizations including The Children’s Institute - Pittsburgh, the IIT Foundation, Mellon-Pitt (MPC) Corporation, and the Pittsburgh Technology Council.

He has served on the advisory board of Government organizations and Universities. His current service includes serving on the Board of Governors of Academy for Research and Innovation in India (he was appointed to this by the Prime Minister of India in Feb 2020), member of the Board of Governors of SRM University – Amravati, India, and Director of Reliance Foundation of Education and Research.

His past service includes being a member of the IT advisory committee, CSIRO, Australia, ITU High Level Experts Group (HLEG) for the Global Cybersecurity Agenda (GCA), and member of the congressionally mandated Visiting Committee on Advanced Technology (VCAT) for NIST. He has served as member of the Strategy Review Board for Ministry of Science and Technology, Taiwan; Council of Deans of the Aeronautics Advisory Committee, NASA; National Research Council Board on Manufacturing and Engineering Design; member of e-Treasury Pennsylvania Advisory Board (appointed by Pennsylvania Treasurer Robin Weissman), member of Senior Advisory Group for the DARPA Program on Joint Unmanned Combat Air Systems, and a member of World Economic Forum’s Global Agenda Council on Innovation. In 2016 he was appointed by the Secretary of Commerce as member of the National Advisory Council on Innovation and Entrepreneurship (NACIE).

Chancellor Khosla served as Chair of the Jury for the prestigious Infosys Foundation Prize in Engineering and Computer Science (2013 – 2019), and was a member of the Draper Prize Committee of the National Academy of Engineering till 2017 (as Chair in 14–15). He served as Chair of a congressionally mandated National Academies Study to evaluate ARPA-E – the final report was published in July 2017.

Academic Background
Chancellor Khosla’s educational and research contributions have resulted in 3 books and more than 350 articles in journals, conferences, and book contributions. His research interests are in the areas of autonomous robotic systems, embedded software, cybersecurity of embedded systems, and applications of AI in robotics and design. He received a B. Tech (Hons) degree in Electrical Engineering from Indian Institute of Technology, Kharagpur in 1980, and a MS and Ph.D. in Electrical and Computer Engineering from Carnegie Mellon in 1984, and 1986, respectively.

Links to More Information
UCSD Chancellor Blog: http://chancellor.ucsd.edu/
UCSD Strategic Plan: http://plan.ucsd.edu/
UCSD Campus Transformation: http://chancellor.ucsd.edu/chancellor-khosla/letters/the-transformation-of-uc-san-diego
UCSD Campus Visioning Videos: http://plandesignbuild.ucsd.edu/projects/videos.html
UCSD Women in Leadership: https://ucsdnews.ucsd.edu/feature/women-rising
Pradeep K. Khosla

Education


Positions

2016 – present: President, UC San Diego Foundation. (A non-profit 501(c)3 created to manage the endowment for UC San Diego. The Foundation has more than $1B in assets and is governed by a board of trustees.)

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

2008 (April) – 2012 (July): Philip and Marsha Dowd University Professor, Carnegie Mellon University, Pittsburgh, PA. (The University Professor title is conferred by the President upon election by and recommendation of other University Professors. The number of University Professors are limited to less than 10% of full professors).

2004 (July) – 2012 (July): Dean, Carnegie Institute of Technology (College of Engineering), Carnegie Mellon University, Pittsburgh, PA. www.cit.cmu.edu

2001 (March) – 2003 (October): Founding Director, CyLab, Carnegie Mellon University, Pittsburgh, PA. (CyLab is a university-wide multidisciplinary research Institute focused on Cybersecurity technology and policy). www.cylab.cmu.edu

2003 (August) – 2010 (July): 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.

1999 (July) – 2004 (June): Department Head, Electrical and Computer Engineering, College of Engineering, Carnegie Mellon University, Pittsburgh, PA. www.ece.cmu.edu

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


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, Pittsburgh, PA.


• 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, Autonomous Robots, 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 (NIIP) 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, Pittsburgh, PA.

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, Pittsburgh, PA.

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


- 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.

Membership/Fellowship in Professional and Honor Societies

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

Awards and Honors

- Conferred degree of Doctor of Science (Honoris Causa), National University, May 2022, San Diego, CA, USA.
- Listed in Apolitical’s 100 Most Influential Academics in Government. https://apolitical.co/list/en/apoliticals-100-most-influential-academics-in-government/
- ACE/Fidelity Investment Award for Institutional Transformation, UC San Diego, 2021.
- Innovative leadership Award, IMPACT leadership 21, New York, March 2018.
- Elected Fellow of American Academy of Arts and Sciences (AAAS), April 2017.
- San Diego Urban League, Diversity and Equity Award, November, 2016.
- Conferred degree of Doctor of Science (Honoris Causa), 10th Convocation of SRM University, March 2015, Chennai, India.
- DyNAMC Leaders for a Changing World award for “leadership in increasing diversity, improving the climate for diverse groups, and educating communities to appreciate an increasingly diverse society”, February, 2015.
- Conferred degree of Doctor of Science (Honoris Causa), 60th Convocation of IIT Kharagpur, June 2014, Kharagpur, India.
Asian Heritage Awards Special Recognition honoree for “distinguished academic career, strong dynamic leadership and pioneering efforts to ensure diversity, reform curriculum and promote multidisciplinary research and global outreach,” September, 2013.


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 US 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


• George Tallman Ladd Award for Excellence in Research, Carnegie Institute of Technology, Carnegie Mellon University, October 1989.

**Consulting and For-Profit Advisory Boards**

- June 1989: Modicon/ICC, Pittsburgh, PA.
- May 1997 - May 1999: Beam Technologies Inc., Member of Technology Advisory Board.
- 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 – June 2003, Member, Technical Advisory Board, Eizel Inc. (acquired by Nokia)
- January 2010 – July 2015, Member, Advisory Board, Thar Energy, Pittsburgh, PA.
- January 2011 – December 2014, Member, Advisory Board, PropelIT Inc., Pittsburgh, PA.

**Public and Privately held Company Boards**

- Nov 91 – July 2015: Quantapoint Inc. (previously known as K2T Inc.), Pittsburgh, PA. Co-Founder and Serve on Board of Directors. Also member of Audit Committee and Governance Committee (Acquired by Qualspec Group Inc., July 2015)
- January 1999 – August 2002: Halosoft Inc., Co-Founder and Serve on Board of Directors and consult about strategic technology development for Internet P2P applications.
- January 2010 – July 2015, Member, Board of Directors, Thar Energy, Pittsburgh, PA.
- August 2011 – June 2017, Independent Director, HCL Infosystems, India (Traded on Mumbai Exchange). Also, member and Chair of the Technology Committee, and member of Audit committee.
- January 2016 – June 2017, Independent Director, Board of Directors Avigilon, Vancouver, Canada. Also member of Audit Committee, Compensation Committee, and Governance Committee. (Traded on Toronto Stock Exchange).
- November 2016 – November 2022, Member, Board of Trustees, Internet2 LLC. Vice Chair (April 2020 – Nov 2020), Chair (Nov 2020 – Nov 2022). Served as member of the Nominations committee.
- January 2018 – , Independent Director, Tata Consultancy Services (Traded on Mumbai Stock Exchange). Audit Comm (member), Stakeholders Relations Committee, Chair.

**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, Board of Directors, Pittsburgh Tissue Engineering Initiative (PTEI), January 1999 - January 2001.
• Member, NSF Committee of Visitors, Division of Information and Intelligent Systems, February, 1999.
• Member, Board of Directors, Robotics Industries Association, January 1999 - January 2003.
• Member, Review Committee on Infrastructure Projects, Canada Foundation for Innovation, May, 2000.
• Member, College of Engineering Review/Advisory Board, Michigan State University, East Lansing, MI, October 2000.
• Founding Member, Technical Advisory Board, Indian Institute for Software Engineering (IISE), Mahape, January 2000 – December 2003.
• Member, Technical Advisory Council, MURI on Complex Dynamic Systems, Penn State, May 2001 – May 2006.
• 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.
• Strategic Advisory Committee, Institute for Systems Research, University of Maryland, January 1999 – June 2010.
• 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 – Dec 2005.
• 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, 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, Indian Advisory Committee, PA Senator R. Casey’s Office, January 2008 – 2012.
• Member, Advisory Board, Electronic Privacy Information Center (EPIC), Washington DC, 2009 – 2012.
• Member, Advisory Board, Center for Advanced Security Research (CASED), Technical University of Darmstadt, Germany, September 2009 – 2013.
• Member, International Advisory Board, SRM University, Chennai, India, December 2009 – 2012.
• Member, Advisory Board for Mechanical Engineering, Stanford University, February 2010.
• Member, Board of Visitors, Temple Medical School at West Penn Allegheny Hospital, December 2011.
• Member, External Advisory Board CMU-Rwanda Program, June 2013 – present.
• Chair, Infosys Foundation Prize Jury on Engineering and Computer Science, Infosys Foundation, Bengaluru, India. March 2011 – present.
• Member, Board of Directors, Rady Children’s Hospital, San Diego, 2013 – present.
• Member, Board of Directors, CONNECT, San Diego, 2013 – present.
• Member, Board of Trustees, La Jolla Playhouse, San Diego, 2013 – present.
• Member, Board of Directors, Economic Development Corporation, San Diego, 2013 – present.
• Member, National Advisory Council on Innovation and Entrepreneurship (NACIE), 2016-2018. (Appointed by Secy of Commerce).
• Member, Board of Governors, SRM University, Amravati, Oct 2018 – present.
• Additional Director, Reliance Foundation for Education and Research, Oct 2019 – present.
• Member, Board of Governors, Academy of Scientific and Innovative Research, February 2020 – present. (Appointed by the Prime Minister of India)
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 – 2012.

Editorial Roles


University Committees (Carnegie Mellon)

- 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 1999.
- 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.

Invited Tutorials and Keynote/Plenary Talks

- More than 100 invited tutorials, and keynote or plenary talks as international conferences during the last 30 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**

42. 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.
43. Anne Murray, Development and Evaluation of Haptic Interfaces for Virtual Environments, June, 1999. Employment: Senior Staff Engineer, IBM.
47. Alvaro Soto, Probabalistic Agent-based System for Adaptive Integration of Multiple Visual Cues, December 2002. Employment: Assistant Professor, Pontificia Universidad Catolica de Chile, Santiago, Chile.
48. Poj Tangmachit, Control Strategies and Learning in a Distributed Robot Team, September 03. Employment: Assistant Professor, King Mok University, Bangkok, Thailand.
50. 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.
52. Xiao Feng Wang, Multi Agent Coordination under Untrusted and Uncertain Environments, June 2004. Employment: Assistant Professor, Indiana University.
57. Wei Tech Ang (co-advisor Cameron Riviere), Active Tremor Compensation in Handheld Instrument for Microsurgery, July 2004. Employment: Associate Professor, National Technical University, Singapore.
59. Mahesh Saptarishi, Discriminative Learning for Visual Pattern Recognition, September 05. Employment: Entrepreneur
60. 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

Mr. Phillipe Couvigno, Visiting Researcher, Renault, France. October 1990 - April 1992
Dr. John Dolan, Project Scientist, Carnegie Mellon University, October 1992 - present. (presently Senior Systems Scientist)
Dr. Cam Riviere, Post Doctoral Fellow, The Robotics Institute, September 1995 – July 1997. (presently System Scientist)
Dr. Chris Paredis, Research Faculty, ICES, September 1996 – August 2002.
Mr. Peter Brown, Senior Engineer, ICES, September 1995 – August 1999.
Dr. Han Killicote, Research Faculty, September 1997 – May 2000.
Dr. Ashitey Trebi-Ollenu, September 1997 – Jan 2000. (presently at Jet Propulsion Laboratory)
Michael Bigrigg, May 1999 – April 2002.

List of Publications
Books


Book Contributions


Journal Articles


Conference Articles (Critically Reviewed)


Conference Articles (Invited or Abstract Reviewed)


**Video Proceedings**


**Patents**