

Kody Varahramyan

January 12, 2016

Associate Vice President for Research Search Committee
Oakland University

Re: Associate Vice President for Research Search

Dear Members of the Search Committee,

I am happy to have been invited to apply for the position of Associate Vice President for Research at Oakland University. It is with great pleasure that I am applying for this position. Enclosed please find my curriculum vitae, containing information about my professional experience and qualifications. I have a Ph.D. in Electrical Engineering from Rensselaer Polytechnic Institute, ten years of industry experience at IBM Corporation, followed by two decades of academic experience as a faculty member and administrator, first at Louisiana Tech University, and subsequently at Indiana University – Purdue University Indianapolis (IUPUI).

I believe that my qualifications and experience have prepared me well for this position. As highlighted by the information provided below and in my enclosed curriculum vitae, I have a successful record of visionary leadership in complex higher education settings, with extensive experience in strategic planning and resource development, a deep dedication to academic excellence, a passion for preparing students for productive and successful lives, a strong commitment to creating and sustaining a diverse university community, and an effective ability to connect with various constituents, including faculty, staff, students, and community. With respect to the community, I have built valuable relationships with local, state, and national legislative bodies and government agencies, as well as with industry and businesses, civic organizations, and academic institutions.

We are going through a period of great change in higher education, with major forces at work, including growing concerns about college tuition and costs, significant state and federal funding reductions, and the growth of online education. There are calls for colleges and universities to reinvent themselves. Universities need visionary and effective leaders to successfully guide their institutions to address challenges, make needed changes, and pursue opportunities.

I am very familiar with Oakland University through interactions with colleagues, visits to the region, and other means. I find the University having an impressive combination of academic, research, and community engagement programs. Moreover, I find the Rochester campus to be very beautiful, and complemented by the charm and appeal of its surrounding region. I feel very much at home in the Midwest region, having lived for many years in this region.

As Associate Vice President for Research, by working closely with the University community and its external partners, and through visionary and transformational leadership, coupled with strategic planning and budgeting, my primary aim will be to enable the University fully achieve its research mission and aspirations. I will build upon the institution's many strengths to strategically enhance its position as a preeminent metropolitan university that is recognized as a student-centered, doctoral research institution with a global perspective, and is a key contributor to the economic and social advancement of its region and beyond.

I am well positioned for carrying out these activities based on my years of professional experience in industry and academia. Specifically, during my years of employment in industry I have gained invaluable industry experience, getting first-hand exposure to the business world and the inner workings of companies and business

enterprises. As part of this, I have gained invaluable insights that subsequently during my years in academia have been useful at establishing effective relationships with the community, resulting in a multitude of rewarding partnerships and initiatives. Moreover, over the past two decades in academia, I have gained experience in a broad range of university-related activities, from teaching, research, and service, to a spectrum of administrative responsibilities. Specifically, my administrative appointments have consisted of Chair of Electrical Engineering Program, Academic Director of Electrical Engineering, Computer Science, and Physics Programs, Associate Dean for Research and Graduate Studies in Engineering and Science, Director of a university-wide interdisciplinary institute, Vice Chancellor for Research, and Senior Aide to the Chancellor.

At Louisiana Tech University, my efforts were instrumental in the development of innovative undergraduate and graduate degree programs, including the Bachelor of Science in Nanosystems Engineering (the first degree of its kind nationwide), the Master of Science in Micro/Nanosystems Engineering, and the Ph.D. in Engineering with Micro/Nanoscale Systems Concentration. Moreover, my efforts were instrumental in 52% increase in STEM graduate enrollment, and over five times increase in research funding at the Institute for Micromanufacturing. As the Director of this university-wide interdisciplinary institute, I led the efforts in making it the largest, strongest, and most productive research enterprise at the University. I led the development and realization of the Institute's vision and mission, and the growth and expansion of its research and educational efforts from the original micromanufacturing emphasis to five new thrust areas and centers of excellence, organized and identified as Nanotechnology, Biotechnology, Biomedical Nanotechnology, Environmental Technology, and Information Technology. In partnership with colleges and schools, I led the cluster hiring of faculty from a wide range of disciplines for multiple university-wide initiatives, for which I also secured funding from state, federal, industry, and other sources. One of these initiatives was the Governor's Biotechnology Initiative, for which I was instrumental in obtaining funding through a competitive process from the State of Louisiana to cover new faculty positions and acquire resources that enabled realization of innovative biotechnology education and research programs. Another initiative consisted of the Joint Faculty Appointment Program, in partnership Grambling State University (HBCU), which I directed and grew, resulting in the successful recruitment and retention of African American and Hispanic faculty.

The above accomplishments were instrumental in attracting over \$100 million from the state and other sources for the realization of the Louisiana Tech University Enterprise Campus, providing the infrastructure and resources for close engagement of industry, government, and community partners in the educational and research activities of the university.

I have also been a successful senior academic leader at IUPUI, which is a large and rather complex university. It is Indiana's premier urban research university, with close to \$300 million in annual sponsored research funding. With its main site located in the heart of Indianapolis, it includes the main campus of Indiana University School of Medicine, the second largest medical school in the nation. IUPUI has 9000 faculty and staff (2500 faculty), 30,000 students, and an annual budget of \$1.2 billion. It was created through the merger of the Indianapolis campuses and programs of Indiana University and Purdue University, resulting in Indiana's most comprehensive university, with 19 academic schools and colleges, offering degrees in more than 250 programs, and serving 30,000 students, consisting of 22,000 undergraduate and 8000 graduate and professional students. It is Indiana University's home institution for state wide health and life sciences programs in medicine, dentistry, nursing, health and rehabilitation sciences, and social work, while providing Indiana University programs in art and design, business, education, informatics and computing, law, liberal arts, philanthropy, physical education and tourism management, public and environmental affairs, and public health, and Purdue University programs in engineering and technology, and science.

IUPUI has been an excellent training ground for me to successfully lead multifaceted organizations, and create and integrate programs and services in an optimized and streamlined manner. In doing so, I have also established an extensive track record of creating effective leadership teams and bringing together or developing the necessary fiscal and operational resources for achieving the desired goals and objectives. Through these efforts I have led creative initiatives that have enhanced the quality of academic and co-curricular offerings, including initiatives emphasizing student transformation through civic engagement and leadership development.

Moreover, through the senior executive leadership roles at IUPUI, by working closely with two outstanding chancellors, as well as with an exceptional group of vice chancellors and other university colleagues, I have gained a deep understanding and extensive experience with the inner workings and effective administration of a complex multifaceted university, its partnering institutions, and its individual parts, ranging from academics, research, fiscal, and student services, to athletics, housing, parking, and community engagement. As one of the most complex institutions of higher education in the nation, IUPUI has provided me an excellent training ground for enhancing and refining my professional skills and successfully applying them to achieve important institutional goals and objectives. I have the demonstrated ability to lead a complex organization.

I have extensive experience with successful development and implementation of strategic plans at two different academic institutions, including seven years of university-level strategic planning at IUPUI in combination with master planning. These efforts have provided a clear vision for the future of IUPUI, creating a framework for strategic development and decision making grounded in academic and research needs, campus infrastructure and environments, fiscal constraints, and broad campus and community constituencies. Moreover, at both institutions I have established a successful record of working effectively with diverse schools and colleges in the realization of major strategic initiatives and priorities. As part of this, I have worked closely with a multitude of deans and other administrators, as well as with hundreds of faculty, staff, and students in successful development and implementation of a wide range of programs and initiatives, including new undergraduate and graduate programs and services that have significantly contributed to student success, major interdisciplinary institutes and centers of excellence with core facilities and resources available to researchers and scholars from across the university, and major initiatives of significant impact. This includes the Innovation-To-Enterprise Initiative, which I led its creation, and which has become instrumental in instilling a culture of innovation and entrepreneurship at IUPUI, supporting faculty and staff to reach their full potential in contributing to economic development and social advancement, and providing students with opportunities to learn about discovery and innovation, as they aspire to become the next generation of innovators and entrepreneurs.

I have closely collaborated with the Office of Academic Affairs in the successful realization of the IUPUI Academic Plan, a strategic plan emphasizing student success through excellence in teaching and learning, research and civic engagement. Major accomplishments have included significant increase in student recruitment, retention, and degree completion through enhanced academic programs, coupled with high impact experiential learning, community engagement, and career preparation initiatives, including the RISE (Research, International, Service, and Experiential learning) and the Enrollment Shaping Initiatives. RISE has improved the quality of undergraduate education at IUPUI, and has been highly successful in preparing students for graduate school, careers, and citizenship. It provides skills, knowledge, and experiences that are highly prized by employers and establishes the foundation for future leaders. The Enrollment Shaping Initiative has resulted in significant growth in enrollment, attracting a diverse student body, including significant recruitment of out-of-state and international students. It has produced substantial new revenue streams that have supported student success through program and infrastructure enhancements.

Moreover, I have been instrumental in impacting student success through the realization of innovative undergraduate experiential learning programs that integrate research and education to provide students effective pathways for lifelong active learning and professional development. I have overseen and grown these programs in partnership with academic units and community partners. As part of this, I have emphasized closer ties with the external community. These efforts have resulted in thousands of student internships and community-engagement research and service projects with over 200 organizations and sponsors. I have also overseen and supported diversity-oriented programs, as the Diversity Scholars Research Program (DSRP), aimed at attracting first-year students from underrepresented populations, most of whom remain in the program during their undergraduate years and successfully graduate to either pursue graduate studies or rewarding job opportunities.

As the Vice Chancellor for Research, I have been responsible for the oversight and significant growth and development of the IUPUI research enterprise, including close to \$300 million in annual sponsored research funding, thousands of researchers and scholars from health and life sciences to arts and humanities, and close to

100 centers and institutes. Recent accomplishments include a five-year \$30 million renewal of the Indiana Clinical and Translational Sciences Institute from the National Institutes of Health, and a three-year \$30 million award for concussion research from the Department of Defense and NCAA.

I have also contributed to the realization of major inter-institutional initiatives, including the Indiana node of a \$75 million U.S. Department of Defense initiative on advancing flexible hybrid electronics manufacturing (co-led by IUPUI and Purdue University), the Indiana University Network Science Institute, dedicated to complex networks across many domains (co-led by IUPUI and Indiana University Bloomington), and the Addictions Neuroscience Cluster of Excellence, dedicated to understanding the functional and cognitive behavioral consequences of adolescent cannabis use, and development of effective treatment strategies (co-led by IUPUI and Indiana University Bloomington).

During my tenure at IUPUI, major interdisciplinary centers and institutes have also been established in areas ranging from engineering and science to health and life sciences, the sources and extent of external research funding have been diversified and grown, and there has been significant increase in research commercialization and technology transfer outcomes, including with the number of invention disclosures, patent applications, patents issued, licenses executed, and start-up companies formed, in each case increasing by about 100% or more. Key strategic initiatives that I have been instrumental in their development and success include the Signature Centers Initiative, the Innovation-To-Enterprise Initiative, the IUPUI Arts and Humanities Institute, the STEM Education Research Institute, the Integrated Nanosystems Development Institute, and the IUPUI Imaging Research Initiative. These have all been developed in close partnership with academic units.

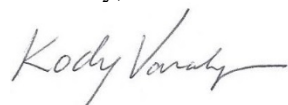
Throughout my academic career, I have responsibly managed and successfully balanced budgets for all the units that I have been responsible for. On more than one occasion I have inherited budget deficits, which I have subsequently eliminated and turned into budget surpluses through generation of increased revenue from multiple sources, and responsible spending and fiscal accountability. Moreover, I have extensive experience with complex university budget models, including seven years of direct experience with the Responsibility Center Management (RCM) budgetary approach at a complex research university.

I also have extensive experience with growth and diversification of revenue sources, including through fundraising, to support the institution and its strategic priorities. I have worked with alumni, friends, and donors to support faculty, students, research, and outreach initiatives. At IUPUI I have actively worked in support of its IMPACT fundraising campaign and subsequently of the Indiana University Bicentennial Campaign, through personal efforts and through mechanisms and initiatives that I have established in the units under my domain. The IMPACT campaign, publicly announced in 2010, raised \$1.39 billion by its June 2013 completion, and the bicentennial campaign, publicly announced in September 2015, has raised about half of its \$2.5 billion goal for its planned 2020 completion.

My record of accomplishments is demonstrative of my qualifications as an energetic, visionary, and entrepreneurial leader, with strong interpersonal and administrative skills, an engaging personality, and years of experience as a successful teacher, researcher, administrator, and fiscal manager. I have an extensive track record of working effectively with diverse groups of stakeholders in the successful realization of a multitude of innovative initiatives, which address needs, respond to challenges, and create opportunities. When necessary, I have also been willing to make hard decisions, after thoughtful consideration of actions and consequences, and taking into consideration the long-term interest of the affected entities.

In conclusion, my qualifications and experience make me a top candidate for the position of Associate Vice President for Research. I will be glad to provide any further information, as may be necessary.

Sincerely,

A handwritten signature in dark ink, reading "Kody Varahramyan". The signature is fluid and cursive, with a long horizontal stroke at the end.

Kody Varahramyan, Ph.D.

Curriculum Vitae

Kody Varahramyan



EDUCATION

Ph.D. Electrical Engineering, Rensselaer Polytechnic Institute, 1983
M.S. Electrical Engineering, Rensselaer Polytechnic Institute, 1979
B.S. Electrical Engineering, University of Illinois, 1977

ADMINISTRATIVE APPOINTMENTS

2015-Present Senior Aide to the Chancellor, Indiana University-Purdue University Indianapolis
2008-2015 Vice Chancellor for Research, Indiana University-Purdue University Indianapolis
2000-2008 Director, Institute for Micromanufacturing, Louisiana Tech University
1999-2001 Associate Dean for Research and Graduate Studies
College of Engineering and Science, Louisiana Tech University
1999-2000 Academic Director of Electrical Engineering and Computer Science Programs
Louisiana Tech University
1998-1999 Academic Director of Electrical Engineering and Physics Programs
Louisiana Tech University
1995-1998 Program Chair of Electrical Engineering, Louisiana Tech University

FACULTY AND OTHER APPOINTMENTS

2008-Present Professor of Electrical and Computer Engineering, Indiana University-Purdue University Indianapolis
1997-2008 Entergy Distinguished Professor, Louisiana Tech University
1992-1997 Associate Professor of Electrical Engineering, Louisiana Tech University
1982-1992 Member of Technical Staff, IBM Corporation, Essex Junction, Vermont

PROFESSIONAL EXPERIENCE

2008-Present: Indiana University – Purdue University Indianapolis (IUPUI)

Vice Chancellor for Research (July 1, 2008 – August 15, 2015) and Senior Aide to the Chancellor (August 16, 2015 – Present): As the Vice Chancellor for Research, responsible for the oversight and advancement of the IUPUI research enterprise. Placed emphasis on research development and growth, through the realization of innovative programs and initiatives that have impacted faculty and student success, while addressing important national and global needs, and significantly contributing to economic development and social advancement. As the Senior Aide to the Chancellor, responsible for the development and implementation of major programs and initiatives of broad impact to the university and its stakeholders.

- **Gained experience with management of a highly complex academic institution** - By working closely with two outstanding Chancellors, as well as with an exceptional group of vice chancellors and other university colleagues, gained a deep understanding and extensive experience with the inner workings and effective administration of a complex multifaceted university, its partnering institutions, and its individual parts, ranging from academics, research, fiscal, and student services, to athletics, housing, parking, and community engagement.
 - Became experienced with budget development, capital planning, and financial management of one of the most complex academic institutions in the nation, operating under the Responsibility Center Management (RCM) budget model.
 - Gained deep exposure to the IUPUI master planning process through the IUPUI Master Plan, consisting of a living document, providing a vision for the future of IUPUI, and creating a framework for strategic development and decision making grounded in academic and research needs, the realities of campus environments, fiscal constraints and broad campus constituencies. It is a comprehensive plan that addresses campus buildings and infrastructure, natural features, public spaces, transportation, and community context.
- **Articulated a new vision and led development of strategic priorities** - Led the creation and implementation of the IUPUI Strategic Research Roadmap, which since 2008 has served as the guidepost for IUPUI to reach its full potential in research and scholarly activity. As part of this created a new vision, and developed the programs and initiatives for its realization.
 - Placed the highest priority on the realization of initiatives that while achieving the goals of the Strategic Research Roadmap, have been highly supportive of the overall vision and mission of the university. These efforts have provided a clear vision for the future of IUPUI, creating a framework for strategic development and decision making grounded in academic and research needs, campus infrastructure and environments, fiscal constraints, and broad campus and community constituencies.
 - Led the realization of an updated IUPUI Research Strategic Plan in 2014. The primary goals

included realization of Grand Challenge Initiatives, expansion of cross-disciplinary research in strategic areas, expansion of undergraduate research experience programs, and development of nationally recognized cross-disciplinary graduate programs in strategic areas.

- Increased capacity for research and significantly contributed to the growth and development of the IUPUI research enterprise, including close to \$300 million in annual sponsored research funding, thousands of researchers and scholars from health and life sciences to arts and humanities in 19 schools and colleges, and close to 100 centers and institutes.
- **Championed and impacted student success** - Closely collaborated with the Office of Academic Affairs in the successful realization of the IUPUI Academic Plan, a strategic plan emphasizing student success through excellence in teaching and learning, research and civic engagement. Major accomplishments have included significant increase in student recruitment, retention, and degree completion through enhanced academic programs, coupled with high impact experiential learning, community engagement, and career preparation initiatives, including the following:
 - Implementation of the RISE (Research, International, Service, and Experiential learning) Initiative. RISE engages undergraduate students more deeply in their learning and contributes to their intellectual and professional development in unique ways. It enhances the teaching and learning process that occurs during formal course work. Each student is challenged to include at least two of the four RISE experiences into their degree programs. Each RISE category incorporates qualified experiences, integration of knowledge, reflection, and assessment and gets documented on students' transcripts. RISE has improved the quality of undergraduate education at IUPUI, and has been highly successful in preparing students for graduate school, careers, and citizenship. It provides skills, knowledge, and experiences that are highly prized by employers and establishes the foundation for future leaders.
 - Implementation of the Enrollment Shaping Initiative, resulting in significant growth in enrollment, attracting a diverse student body, including significant recruitment of out-of-state and international students. This initiative has produced substantial new revenue streams that have supported student success through program and infrastructure enhancements.
 - Organized under the Office of the Vice Chancellor for Research (OVCR) the Center for Research and Learning (CRL), dedicated to exposing undergraduate students to the research experience, through a series of innovative programs and initiatives that integrate research and education to provide students effective pathways for lifelong active learning and professional development. These include diversity-oriented programs, as the Diversity Scholars Research Program (DSRP), aimed at attracting first-year students from underrepresented populations, most of whom remain in the program during their undergraduate years and successfully graduate to either pursue graduate studies or rewarding job opportunities.

- Overseen and grown undergraduate experiential learning programs in partnership with academic programs and community partners. These efforts have resulted in thousands of student internships and community-engagement research and service projects with over 200 organizations and sponsors, and have significantly contributed to student success.
- Led creation of the Innovation-To-Enterprise Central (ITEC) program, conceived as a student-centered, multidisciplinary, active-learning experiential program to provide opportunities for students to become innovators and develop entrepreneurial and valuable professional skills. ITEC facilitates the creation and support of collaborative multidisciplinary teams, consisting of students from multiple academic disciplines, faculty and other participants. The primary purpose is to provide undergraduate students a unique opportunity to work with mentors on learning about solving problems through innovative solutions and investigating opportunities for their transformation into commercial enterprises that contribute to economic growth and social advancement.
- Led creation of the Ideas Solving Social and Economic Challenges (ISSEC) Student Competition, conceived to reward students for their innovative ideas to solve social and economic challenges facing the nation and the world. It challenges students to propose new approaches, products, services, or ventures that provide original solutions to pressing social and economic challenges. Some of the best ideas identified through ISSEC get selected and carried out as projects under the ITEC program, providing an opportunity for ISSEC student ideas reach development and implementation phase.
- **Integrated and optimized resources and services** - Brought together and developed under the Office of the Vice Chancellor for Research (OVCR) the resources and capabilities to best support the realization of the IUPUI Strategic Research Roadmap goals, with emphasis on the creation and expansion of externally-sponsored innovative research programs that align well with institutional mission and strategic plan, address important national and global needs, contribute to social advancement, and through technology transfer and commercialization support the economic development of Indiana and the nation. The synergistic units and programs organized under OVCR include:
 - Research Development and Strategic Initiatives
 - Undergraduate Inquiry-based Learning Programs
 - Student Innovation and Entrepreneurship
 - Professional Development
 - Internal Grants
 - Proposal Development and Grant Writing
 - Research Commercialization and Economic Development
 - Industry Research Development
- **Led realization of major strategic initiatives advancing academic excellence, growth in research, and increase in student success** - Established a successful record of working effectively with diverse schools and units across the university in the realization of major

strategic initiatives and priorities. Worked closely with many deans and other administrators, as well as with hundreds of faculty, staff, and students in successful development and implementation of a wide range of programs and initiatives. These include, 1) new undergraduate and graduate programs and services which have significantly contributed to student success, 2) major interdisciplinary institutes and centers of excellence with core facilities and resources available to researchers and scholars from across the university, and major initiatives of significant impact.

- Oversaw and enhanced the IUPUI Signature Centers Initiative, which has become a key cornerstone of the IUPUI research enterprise, resulting in the development of centers and institutes that are enhancing IUPUI's reputation nationally and internationally. To date there has been a return on investment of over 10 to 1. Examples of the centers that have been developed include the Vascular and Cardiac Center for Adult Stem Cell Therapy, PregMed – Pharmacogenetics and Therapeutics Research Center, Integrated Nanosystems Development Institute, Transportation Active Safety Institute, and Center for Earth and Environmental Science.
- Led creation of the Innovation-To-Enterprise Initiative, which has become instrumental in instilling a culture of innovation and entrepreneurship at IUPUI, supporting faculty and staff to reach their full potential in contributing to economic development and social advancement, and providing students with opportunities to learn about discovery and innovation, as they aspire to become the next generation of innovators and entrepreneurs. The key components of this comprehensive initiative include:
 - o Innovation-To-Enterprise Central - A student-centered, multidisciplinary, active-learning program
 - o Ideas Solving Social and Economic Challenges Student Competition
 - o Research Commercialization Services
 - o Funding Opportunities for Research Commercialization & Economic Success (FORCES) Program
 - o IUPUI Innovation-To-Enterprise Forum and Showcase
- Led creation of the IUPUI Arts and Humanities Institute (IAHI), developed through a partnership between the Office of the Vice Chancellor for Research and participating campus units, consisting of the Schools of Art and Design, Liberal Arts, Informatics, Engineering and Technology, Medicine, and University Library. Supporting innovative inquiry-based arts and humanities creative activities across the institution, and in partnership with community and external sponsors.
- Led realization of the Integrated Nanosystems Development Institute (INDI), created through a partnership between the Office of the Vice Chancellor for Research and the Schools of Engineering and Technology, Science, Medicine, and Dentistry. Dedicated to nanosystems research and instruction, and making a significant contribution to faculty advancement and student success.

- Led development of the IUPUI Nanotechnology Discovery Academy (INDA), implemented through a partnership between the Integrated Nanosystems Development Institute, the Center for Research and Learning, and the Special Programs for Academic Nurturing. Provides summer programs for high-school students and teachers, with emphasis on fostering STEM education through nanotechnology discovery.
- Led creation of the STEM Education Research Institute (SERI), developed through a partnership between the Office of the Vice Chancellor for Research and the Schools of Engineering and Technology, Science, and Education. Dedicated to education research in STEM fields, combining knowledge of teaching and learning with deep knowledge of discipline-specific science content. Successful in development and dissemination of STEM education programs in collaboration with external partners.
- Led realization of the IUPUI Imaging Research Initiative (IRI), developed through a partnership between the Office of the Vice Chancellor for Research and participating campus units, and guided by a council with representation from the Schools of Medicine, Science, Engineering and Technology, Liberal Arts, and Informatics. Dedicated to the realization of major imaging research projects in four priority areas consisting of, 1) Neuroscience Imaging, 2) Cancer, 3) Cardiology, and 4) Molecular Imaging and Probe Development. Over the past four years imaging funded projects have grown by over 300% to about \$37 million.
- **Contributed to the realization of major inter-institutional initiatives**, including the following:
 - Indiana node of a \$75 million U.S. Department of Defense initiative on advancing flexible hybrid electronics manufacturing – Co-led by IUPUI and Purdue University.
 - Indiana University Network Science Institute, bringing together over one hundred investigators from diverse disciplines for pioneering work in understanding of complex networks across many domains – Co-led by IUPUI and Indiana University Bloomington.
 - Addictions Neuroscience Cluster of Excellence, dedicated to understanding the functional and cognitive behavioral consequences of adolescent cannabis use, and development of effective treatment strategies – Co-led by IUPUI and Indiana University Bloomington.
- **Championed and impacted faculty success** – Promoted and grew opportunities for faculty professional development and career advancement, including through the following efforts:
 - Led development and expansion of professional development and recognition programs, including the “Nine Golden Rules to Succeed in Research” program, consisting of a series of

workshops and training sessions. Moreover, by working with campus stakeholders, developed the Research Frontiers Trailblazer Award, which on an annual basis recognizes outstanding IUPUI researchers and scholars, who are at the Associate Professor level, and are showing great promise in becoming nationally and internationally known for their accomplishments in advancing the frontiers of knowledge.

- Led optimization of internal grant programs, consisting of the Signature Centers Initiative Grant, the Research Support Funds Grant, the International Development Fund, and the Release Time for Research Fund, and developed the following internal grant programs:
 - o IUPUI Arts and Humanities Internal (IAHI) Grant Program
 - o Developing Diverse Researchers with InVestigative Expertise (DRIVE) Program
 - o Funding Opportunities for Research Commercialization and Economic Success (FORCES) Program
- Led creation of a faculty mentorship program, called the Enhanced Mentoring Program with Opportunities for Ways to Excel in Research (EMPOWER). This program, which is also highly supportive of faculty from underrepresented groups, aids the participants to become successful in sponsored research and scholarly activity, and to achieve significant professional growth and advancement. It supports optimal attainment of academic career goals and objectives.
- Assembled a team of skilled proposal developers and grant writers to provide proposal development and grant writing services, with particular emphasis on the realization of large grant proposals. This has resulted in significant growth in the number of multi-million dollar awards received by IUPUI investigators.
- **Built strong relationships and created effective engagements with the community** - Placed great emphasis on community engagement through personal efforts and in conjunction with developing and overseeing the teams and the units and initiatives that have resulted in extensive community engagement efforts. These have been comprehensive efforts aimed at building human capital and aiding in economic growth and social advancement. They have been in partnership with businesses and industry, civic organizations, educational institutions, health care providers, and nonprofits and government sectors. Key outcomes have consisted of thousands of student internships and community-engagement research and service projects with over 200 organizations and sponsors. Examples include the following:
 - Making an impact in Central Indiana with the Lilly Endowment Initiative to Promote Opportunities through Educational Collaborations
 - Increasing the quality of life and healthy habits on the Near Eastside of Indianapolis with the JPMorgan Chase Foundation Near Eastside Legacy Initiative
 - Increasing industry productivity and competitiveness in life sciences and advanced

manufacturing through product lifecycle management, in partnership with Siemens and participating companies.

- Advancing educational technologies and learning environments, in partnership with CourseNetworking (CN)
- **Enhanced revenue diversification and fundraising** – Emphasized growth and diversification of revenue sources, including through fundraising, to support the institution and its strategic priorities. Worked with alumni, friends, and donors to support faculty, students, research, and outreach initiatives. Actively supported IUPUI's IMPACT fundraising campaign and subsequently the Indiana University Bicentennial Campaign via personal efforts, as well as through mechanisms and initiatives established through the units associated with the Office of the Vice Chancellor for Research. The IMPACT campaign, publicly announced in 2010, has raised \$1.39 billion, exceeding its initial goals of \$1.25 billion by its June 2013 completion. The Bicentennial campaign, publicly announced in September 2015, has raised about half of its \$2.5 billion goal for its planned 2020 completion.
- **Significantly grew intellectual property generation** – Created the Research Commercialization Services to serve as a ready source of support and information for faculty, staff, and students engaged in research with potential for commercial development, and to work closely with the Indiana University Research and Technology Corporation (IURTC), which is responsible for Indiana University research commercialization. Over the past five years there has been a significant growth across the institution in intellectual property generation, as evidenced by the number of invention disclosures, patent applications, patents issued, licenses executed, and start-up companies formed, which in each case has increased by about 100% or more. The programs and services that have been created include an internal grant program (i.e. Funding Opportunities for Research Commercialization and Economic Success (FORCES)), as well as group workshops and individualized training sessions by expert staff.
- **Considerably improved communications** – Created multiple modes of communication by which a wide range of important information on research and scholarly activity has been made available on a regular basis to a broad range of audiences both inside and outside IUPUI, including by the following means:
 - IUPUI Annual Research Day
 - IUPUI Annual Research Report
 - IUPUI Monthly Research Enterprise e-Newsletter
 - IUPUI New Research Webpage

1992-2008: Louisiana Tech University, Ruston, Louisiana

1992: Hired as Associate Professor of Electrical Engineering

1995: Tenured and designated as Entergy Associate Professor of Electrical Engineering

1995: Chosen as Program Chair of the Electrical Engineering Program

1997: Promoted and designated as the Entergy Professor of Electrical Engineering
1998: Chosen as Academic Director of Electrical Engineering and Physics Programs
1999: Chosen as Academic Director of Electrical Engineering and Computer Science Programs,
1999 Chosen as Associate Dean for Research and Graduate Studies
2000: Chosen as Director of the university-wide interdisciplinary Institute for Micromanufacturing.

Designated in 1995 as the Entergy Associate Professor of Electrical Engineering, and in 1997 as the Entergy Professor of Electrical Engineering, in recognition of accomplishments and contributions made to the University in the areas of teaching and curriculum development, research and scholarly activities, and service.

As Associate Professor and later as Professor of Electrical Engineering:

- Envisioned and led the efforts for the realization of a new program in microelectronics and microtechnologies, supportive of the University efforts in the microsystems area, and established microelectronics as one of the main areas of emphasis in the Electrical Engineering Program, and the interdisciplinary Ph.D. in Engineering Program. As part of these efforts, developed and taught six new undergraduate and graduate level courses, which have served hundreds of students in electrical engineering as well as other engineering and science degree programs, including bachelor and master of science programs in biomedical, chemical, and mechanical engineering, and the interdisciplinary MS in Microsystems Engineering, and the Ph.D. in Engineering programs. These courses are:
 - ELEN 334 - Solid State Electronics
 - ELEN 437 - Microfabrication Principles
 - ELEN 438 - Microfabrication Applications and Computer-Aided Design
 - ELEN 535 - Advanced Topics in Microelectronics
 - ELEN 537 - Advanced Microfabrication with Computer-Aided Design
 - ELEN 538 - Advanced Microelectronic Devices with Computer-Aided Design.
- Subsequently, as the Director of the Institute for Micromanufacturing, was instrumental in the development of curricula in the science and engineering of micro/nano scale systems, covering materials, processes, devices, and systems. As part of this, envisioned and led the efforts in the development and offering of a comprehensive set of new undergraduate and graduate level courses in the science and engineering of micro/nano scale systems. These interdisciplinary courses have supported a multitude of engineering and science degree programs, ranging from bachelor and master of science programs in electrical, biomedical, chemical, and mechanical engineering, to physics, chemistry, and biological sciences. These courses are:
 - MSE 401/501 – Microsystems Principles
 - MSE 402/502 – Microfabrication Principles
 - MSE 403/503 – Microfabrication Applications and Device Fabrication
 - MSE 404/504 – Advanced Materials for Micro/Nano Devices and Systems
 - MSE 405/505 – Nanotechnology Principles

- MSE 406/506 – Micro/Nano Scale Materials Measurements and Analysis
 - MSE 512 – Biotechnology Principles
 - MSE 609 – Microsystems Analysis with Computer-Aided Design
 - MSE 610 – Microsystems Design with Computer-Aided Design
- The above-mentioned efforts have laid the foundation and been instrumental in the realization of innovative undergraduate and graduate degree programs, including the Bachelor of Science in Nanosystems Engineering (the first degree of its kind nationwide), the Master of Science in Micro/Nanosystems Engineering, and the Ph.D. in Engineering with Micro/Nanoscale Systems Concentration.
 - Established, in support of the microelectronics and microtechnologies efforts, the Technology Computer-Aided Design (TCAD) Training and Research Laboratory, and secured leading-edge computer hardware and software resources, including a comprehensive set of TCAD software (e.g. TSUPREM-4, MEDICI, TAURUS, and SENTAURUS). Subsequently, as the Director of the Institute for Micromanufacturing (IfM), further expanded the resources and the capabilities of this laboratory, making it into the IfM Modeling and Simulation Laboratory, with a wide range of capabilities for modeling and simulation of micro/nano scale processes, materials, devices, and systems. As part of this, secured and made available a comprehensive suite of microsystems, fluidic, nanotechnology and biotechnology modeling and simulation software (e.g. Coventor, Ansys, Fluent, and Accelrys).
 - Developed and steadily expanded externally-sponsored research activities in the microelectronics area, including realization of state-of-the-art two- and three-dimensional models and simulations of ULSI deep submicron processes and devices, gaining industrial recognition, including from SEMATECH and its member companies (e.g. Motorola, Texas Instruments, and IBM).
 - Received research sponsorship and support from SEMATECH, Texas Instruments, and TMA. The SEMATECH multi-year research project was sponsored by SEMATECH's Strategic Technologies Division, and constituted an integral part of SEMATECH's national program on Silicon-On-Insulator for low power electronics, involving other institutions as DARPA, NIST, MIT, UCLA, and IBM. This project also included a series of collaborations with IBM, Motorola, and MIT's Lincoln Laboratory.
 - Served as the Chair of the Ph.D. in Engineering Steering Committee, and previously served as a key member of the team that was instrumental in the realization and establishment of this interdisciplinary Ph.D. program. Led the efforts in the development and implementation of the micro/nano scale systems area of concentration, which constitutes the largest area of concentration associated with the given Ph.D. program (with respect to the number of participating faculty, enrolled students, research projects, and courses offered).

Chosen in 1995 as the Electrical Engineering Program Chair, in 1998 as the Academic Director of the Electrical Engineering and Physics Programs, in 1999 as the Academic Director of the Electrical

Engineering and Computer Science Programs, and simultaneously as the Associate Dean for Research and Graduate Studies in the College of Engineering and Science, and in 2000 as the Director of the university-wide Institute for Micromanufacturing, in recognition of proven technical and administrative abilities, and demonstrated vision, leadership, energy, and enthusiasm contributed towards the achievement of the mission, vision, and strategic objectives of the College of Engineering and Science, and of the University.

As Academic Director:

- Assumed the directorship of multiple engineering and science programs in the College, managing a diverse group of faculty and staff from multiple programs, and leading the efforts for the betterment and vitalization of the Electrical Engineering, Physics, and Computer Science Programs, and serving in excess of 400 undergraduate and graduate students.
- Served on the College Leadership Team, and contributed to a wide range of efforts, including betterment of academic programs (e.g. complete redesign of undergraduate Electrical Engineering curriculum, and development and implementation of new interdisciplinary Ph.D. programs), development and expansion of research efforts and laboratory resources (e.g. Microelectronics Laboratory and related initiatives), budgeting and allocation of resources, performance reviews of personnel from different programs (i.e. program chairs, faculty, and staff), tenure and promotion evaluations and recommendations, development and execution of college-wide strategic plan, assessment of programs and activities, enhancement in student enrollment and retention of undergraduate and graduate students, recruitment of faculty for multiple engineering and science programs within the College, and development of industrial and corporate relationships.

As Associate Dean for Research and Graduate Studies:

- Guided and led the efforts associated with research and graduate studies in the College of Engineering and Science, resulting in increased level of research productivity and betterment of graduate programs in the College, including 52% increase in STEM graduate enrollment.
- Worked closely with the College Leadership Team, the Graduate School, and the College programs, faculty, staff, and students, in providing the best possible service in research and graduate studies.
- Served on the Louisiana Tech University Graduate Council, contributing to the betterment of graduate studies at the University.
- Served on the Louisiana Tech University Research Council, contributing to the advancement of research efforts at the University.
- Developed and oversaw complete reorganization of the College of Engineering and Science Research and Graduate Studies Office, guiding efforts in the streamlining and optimization of

processes and procedures, resulting in effective operation of the office and in noticeable cost savings.

- Led the development and implementation of enhanced guidelines for the preparation and submission of research proposals by faculty in the College of Engineering and Science.
- Provided mentoring and guidance to the College faculty in their efforts in research and graduate studies.
- Provided mentoring and guidance to graduate students in receiving maximum benefit from the educational opportunities provided by the College and in performing well in their graduate studies.
- Led efforts leading to noticeable increases in graduate student recruitment and retention.
- Served as the Chair of the Ph.D. in Engineering Steering Committee, and previous to that served on the team which was instrumental in the realization and establishment of this interdisciplinary Ph.D. program.

Served, from 2000 to 2008, as the Director of the university-wide interdisciplinary Institute for Micromanufacturing, and contributed since 1992 to the growth and development of the Institute, including through planning and setting up of laboratory resources and facilities, development and implementation of major sponsored research initiatives, and envisioning and creation of academic courses and curricula, on the science and engineering of micro/nano scale processes, materials, devices, and systems. The Institute for Micromanufacturing is an integrated nanomanufacturing and micromanufacturing research and development facility, dedicated to micro/nano scale systems research, education, and commercialization. It consists of three components, totaling 65,000 sq. ft. of facilities. These are the R & D facility (housed in a 41,000 sq ft specially designed building) at Louisiana Tech University in Ruston, LA; the X-ray beam lines at the Center for Advanced Microstructures and Devices (CAMD) in Baton Rouge, LA; and the Technology Transfer Center in the Shreve Industrial Park in Shreveport, LA.

As the Director of the University-wide interdisciplinary Institute for Micromanufacturing:

- Led the efforts in making the Institute the largest and most productive research enterprise at the University. As part of this, led the development and realization of the Institute's vision and mission (as of year 2000). The Institute's vision is *to be a world-class resource for the realization of commercially-viable micro- and nanosystems, contributing to the economic infrastructure of Louisiana and the nation and benefiting humanity as a whole*. The Institute's mission is:
 - *To research and develop novel micro and nanosystems for biomedical, biological, environmental, chemical, information technology, and other applications*
 - *To generate and harness commercially viable intellectual property*
 - *To partner with industry, government, and academia in economic development*

- *To transfer new technology and provide technical training to industry and government*
 - *To develop curricula and educate students in micro and nanotechnologies*
- Led the growth and expansion of the Institute's research and educational efforts from its original micromanufacturing emphasis to five thrust areas and centers of excellence, organized and identified as Nanotechnology, Biotechnology, Biomedical Nanotechnology, Environmental Technology, and Information Technology. These accomplishments were instrumental in attracting over \$100 million from the state and other sources for the realization of the Louisiana Tech University Enterprise Campus, providing the infrastructure and resources for close engagement of industry, government, and community partners in the educational and research activities of the university.
 - Developed, coordinated, and managed major interdisciplinary research initiatives, attracting substantial support from external funding agencies.
 - Built alliances and partnerships with various units on campus (e.g. departments, colleges, and centers), as well as with external organizations and institutions, including local, state, and federal agencies and government, corporations, universities, alumni and donors.
 - Reversed years of budget shortfalls, through generation of increased revenue, and responsible spending and fiscal accountability. Each year, developed and responsibly managed the Institute's multi-million dollar operating budget, and the associated research funds and accounts.
 - Developed and expanded the administrative structure of the Institute to best serve its on-going growth and advancement. As part of this, established the Institute's Leadership Team, consisting of the director, heads of the research thrust areas, heads of the facilities and administrative/clerical sections, and senior staff.
 - Led the recruitment of the Institute faculty from a wide range of disciplines, ranging from biomedical, chemical, electrical, and mechanical engineering to biology, chemistry, physics, and computer science. Tripled the number of the Institute faculty and staff, and achieved high retention rate.
 - Developed and oversaw comprehensive organization and staffing of the Institute's facilities and administrative/clerical sections, designed to meet the high level of growth and the associated needs experienced by the Institute in recent years.
 - Developed and led major sponsored research projects and initiatives with federal and state funding agencies, including as:
 - The leader of a team of six universities (including Louisiana State University and Tulane University) in a \$15.8 million National Science Foundation Research Infrastructure Improvement Consortium, overseeing research, educational, and industrial outreach projects on microsystems, nanotechnology, biotechnology, and environmental technology.

- The principal investigator of the research program on Integrated Micro/Nanomanufacturing for Miniaturized Micro/Nano Scale-Based Systems for Broad Military and Civilian Applications, receiving a \$1.0 million grant from the Defense Advanced Research Projects Agency (DARPA).
- The principal investigator of a research program on New Technologies for Polymer and Bio-optic Systems for Broad Military and Civilian Applications, receiving a \$1.0 million grant from DARPA. Led a team of the Institute faculty and staff in the realization of three main projects on, 1) New Technologies for Realization of All-Polymer Microelectronic and Optoelectronic Systems, 2) Ultra-Sensitive Polymer Tunneling Sensor Platform for Physical Sensing, 3) Bio-Inspired Micro-Optical System with Dynamically Varying Refractive Index.
- The leader of a team of the Institute faculty and staff, partnering with multiple colleges in the development of a competitive proposal to the State of Louisiana, resulting in a \$1.95 million award for the realization of the Governor's Biotechnology Initiative (GBI) at Louisiana Tech University. As part of this, oversaw the recruitment of new GBI faculty, and the development and acquisition of new biotechnology laboratories and resources, resulting in leading-edge biotechnology education and research infrastructure and programs at the University.
- The co-principal investigator of the research program on Engineering Smart Cyber Centric Sensor Surveillance Systems for Large Geographic Domains, receiving a \$3.6 million grant from the P-KSFI Program of the Louisiana Board of Regents. This initiative centered on research and education in cyber security, sensors, and networks.
- The principal investigator of two National Science Foundation Major Research Instrumentation (MRI) grants, and as co-principal investigator of a third MRI grant, resulting in close to \$1.5 million for the acquisition of major research instrumentation.
- The principal investigator of the research program on Nanotechnology for Nuclear Nonproliferation Applications, receiving a \$200,000 grant from the US Department of Energy (DOE). The main objectives of this work included development of a roadmap on nanotechnology research and development for nuclear nonproliferation applications.
- The co-principal investigator of a research program on Innovative Ventures for Emerging Micro/Nanotechnologies, receiving a \$600,000 grant from the National Science Foundation Partnerships for Innovation program. This initiative built on several micro/nano scale systems technology platforms developed at the Institute for Micromanufacturing, and focused on the transformation of research outcomes to economic development, with emphasis on intellectual property development and commercialization, establishment of university, state, and private sector partnerships, and development of business plans by working with venture capital and business development specialists.

- The principal investigator of a multitude of research projects on advanced semiconductor technologies, receiving over half a million dollars of grants and contracts from industry, including Texas Instruments, Motorola, and SEMATECH.
- The principal investigator of the Joint Faculty Appointment Program (JFAP) Third Hire Opportunity program at Louisiana Tech University and Grambling State University (HBCU), securing close to half a million dollars in funding support from the National Science Foundation and the Louisiana Board of Regents. Grew and directed this program, resulting in the successful recruitment and retention of African American and Hispanic faculty.
- Developed technical training programs tailored to meet the needs of working professionals to maintain their technical vitality and expand their knowledge in technological areas of importance. The programs developed are on subjects ranging from microelectronics and microelectromechanical systems, to nanotechnology and technology computer-aided design. These programs have been offered, as short courses, in-house and at customer locations, and have served professionals from a wide range of industrial and governmental organizations, including Texas Instruments, Motorola, SEMATECH, Delphi Corporation, NASA, and the Air force Institute of Technology.
- Successfully promoted the protection, transfer, and commercialization of intellectual property generated at the Institute. Demonstrated a long-standing commitment to innovative research that addresses state and national needs, and serves as a catalyst for commercialization and economic development. Made the generation and harnessing of commercially viable intellectual property, and the transfer of technology and contribution to economic development among the top priorities of the Institute.

1982-1992: IBM Corporation, Essex Junction, Vermont

Member of Technical Staff, Microelectronics Research, Development, and Manufacturing: Ten years of industry experience, getting first-hand exposure to the business world and the inner workings of companies and business enterprises. As part of this gained invaluable insights that subsequently during the years in academia have been useful at establishing effective relationships with the community, resulting in a multitude of rewarding partnerships and initiatives.

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SERVICE ACTIVITIES

Service to the University

Over the years, has carried out a wide range of university service activities, as highlighted in the above sections on Professional Experience. Moreover, from 2000 to 2008 served, as a founding member, on the Board of Directors of the Louisiana Tech University Research Foundation, and in October 2001 received the Foundation's award for contributions to the inventor spirit at Louisiana Tech University. The Foundation was established to promote commercialization of intellectual property associated with Louisiana Tech University, and is administered by its Board of Directors.

Service to the Profession

Over the years, has carried out a wide range of service activities supportive of the profession, including:

- Reviewed numerous papers for publication in scientific journals (e.g. Solid-State Electronics, IEEE Transactions on Electron Devices, IEEE Electron Device Letters, IEEE Transactions on Antennas and Propagation, Journal of Microelectromechanical Systems, Journal of Applied Physics, and COMPEL - International Journal for Computation & Mathematics in Electrical Engineering).
- Reviewed textbooks (e.g. Semiconductor Devices, J. Singh, McGraw-Hill Publishers, 1998, and Fundamentals of Semiconductor Processing Technologies, B. El-Kareh, Kluwer Academic Publishers, 1992).
- Served as external reviewer to academic institutions, including on resource allocation to academic units, taking into consideration fiscal constraints, accountability pressures, and the influence of various conflicting constituencies.
- Reviewed major research proposals and evaluated major research centers (e.g. for the National Science Foundation, including in 2003 when invited to serve on the Blue Ribbon Panel to review Nanoscale Science and Engineering Center (NSEC) full proposals in Manufacturing Processes at the Nanoscale, and in 2004 and 2005 when invited to serve on panels to conduct site visits and evaluate select Nanoscale Science and Engineering Centers).
- Nominated and selected to the European Science Foundation (ESF) to carry out assessment and evaluation of ESF proposals and reports.
- Served on numerous conference scientific committees and boards, and organized or invited to chair numerous conference sessions. Moreover, in 2002 organized and chaired the Louisiana Conference on Commercial Applications of Microsystems, Materials and Nanotechnologies, and in 2005 organized and chaired the Louisiana Materials and Emerging Technologies Conference. For both of these conferences secured funding support and sponsorship from the Louisiana Board of Regents and the National Science Foundation.

- Other service efforts include numerous presentations, projects, and activities rendered in support of professional societies, student organizations, and industry, business, and community groups.