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## EDUCATION

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<b>Ph.D., Electrical Engineering (Communications and Signal Processing)</b>	<b>1996</b>
Iowa State University, Ames, Iowa <i>Dissertation: Invariance Transformations for Processing NDE Signals</i>	
<b>M.S., Electrical Engineering</b>	<b>1993</b>
Iowa State University, Ames, Iowa <i>Thesis: Finite Element Modeling of Electrodynamical and Magnetostrictive Systems</i>	
<b>B.E., Electronics Engineering</b>	<b>1990</b>
Bangalore University, Bangalore, India <i>Project: Microprocessor Based Data Acquisition System for Wind Tunnel</i>	

## PROFESSIONAL EXPERIENCE

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<b>Rowan University, Glassboro, New Jersey</b>	<b>1997–present</b>
<i>Professor of Electrical &amp; Computer Engineering (ECE)</i>	2009–present
<i>Vice President for Research</i>	2014–2018
<i>Executive Director, South Jersey Technology Park at Rowan University</i>	2011–2018
<i>Associate Provost for Research</i>	2011–2013
<i>ECE Department Chair</i>	2006–2011
<i>Associate Professor of ECE</i>	2001–2009
<i>ECE Graduate Studies Chair</i>	2002–2006
<i>Assistant Professor of ECE</i>	1997–2001
<b>NASA, Stennis Space Center, Mississippi</b>	<b>August–December 2005</b>
<i>Senior Research Associate, The National Academies</i>	
<b>GE Global Research, John F. Welch Technology Center, Bangalore, India</b>	<b>May–July 2005</b>
<i>Research Consultant</i>	
<b>Iowa State University, Electrical &amp; Computer Engineering Department, Ames, Iowa</b>	<b>1991–1997</b>
<i>Assistant Professor</i>	1996–1997
<i>Research Associate</i>	1995–1997
<i>Graduate Research Assistant</i>	1991–1995
<b>R.V. College of Engineering, Electronics Engineering, Bangalore, India</b>	<b>1990–1991</b>
<i>Assistant Lecturer</i>	

## SELECTED ACCOMPLISHMENTS

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### **Rowan University, Glassboro, NJ**

*Vice President for Research (2014–2018) Associate Provost for Research (2011–2013)*

Reporting to the President and as a member of the Cabinet, responsible for leading the Division of University Research and supporting the research, scholarly and creative activity of faculty, staff and students across all five campuses of Rowan University and eight research centers of excellence. Oversee the Offices of Sponsored Programs, Proposal Development, Research Compliance, Graduate Research Services, Technology Commercialization and Rowan Innovations.

#### *Served as chief architect of expansion of the Office of Sponsored Programs*

- Hired new management and staff, and promoted existing staff as appropriate to effectively support the Office's pre-award, post-award, compliance and contract functions.
- Developed and implemented a strategic operating plan to address issues related to personnel, operations, finances, compliance, advocacy and customer-service.

#### *Created the Office of Proposal Development*

- Established a new office and hired the first Proposal Development Manager to work with faculty in increasing the number of proposal submissions and the amount of award funding requested.
- The office identifies funding opportunities, links these with potential Principal Investigators, facilitates the creation of faculty teams as necessary, and works with faculty to develop proposals conforming to sponsor requirements. The office also conducts internal competitions and reviews for limited submission opportunities and manages the internal Seed Funding program for new investigators.

#### *Created the Office of Technology Commercialization*

- Established a new office and hired the first Director of Technology Commercialization to manage the university's expanding intellectual property (IP) portfolio.
- Facilitated the office's role of faculty outreach to educate and solicit invention disclosures and advocate to outside companies for licensing the university's IP.

#### *Created the Office of Research Compliance*

- Established a new office and the position of Chief Research Compliance Officer in response to the merger of a second medical school with the university.
- Facilitated the office's oversight of the university's clinical trial protocols and support of the research regulatory committees including the Institutional Review Board, Institutional Animal Care and Use Committee, Institutional Biosafety Committee and Export Control.

#### *Accelerated external advocacy and outreach*

- Developed a marketing campaign to identify the research strengths of the faculty. Engaged faculty in every department, deans, senior administration and stakeholders including the Board of Trustees and the Board of Directors of the South Jersey Technology Park.
- Established connections with the offices of the university's Congressional representatives, program directors at major funding agencies and counterparts at neighboring institutions.
- Hired a Washington, D.C.-based business development and lobbying firm to advocate for the university with the Federal government.

#### *Facilitated Internal Advocacy*

- Reduced the cost to Rowan faculty for doing research on campus by successfully partnering with the Division of Administration and Finance to negotiate with the Federal government to establish a competitive overhead (indirect) rate for sponsored programs to reduce the cost to faculty for doing research on campus.

- Successfully advocated to the President to allocate the entirety of the University's indirect funds recovered from externally sponsored programs, for a period of 10-years, to be managed by the Division of University Research to be used for providing research support, matching faculty grant proposals and start-up funds.

### **ACHIEVEMENT HIGHLIGHTS**

- Increased externally sponsored research project awards by 56% in the first year; doubled in two years.
- In first three years leading the Division of University Research, tripled externally sponsored projects on the main campus and increased the amount of annual awards received by the entire university five-fold.
- **Led the growth of externally sponsored awards in the University from \$5M to \$40M per year.**
- Increased invention disclosures at the University by 85%—twice the rate relative to research universities in the nation. Increased the number of patents issued to the university to three times the national average.
- **Led the increase in the number of patents held by Rowan faculty from 1 to 28**
- Helped the university secure its first royalties from three separate technology-licensing agreements.
- **Successfully negotiated the purchase of a faculty spinout company by a multinational pharmaceutical**
- Following the Governor's Executive Order and subsequent legislative action, led the successful integration of the research and intellectual property portfolio of the UMDNJ School of Osteopathic Medicine into Rowan University.
- Following the merger, managed a research award portfolio that has quadrupled, an IP portfolio that has expanded ten-fold and a staff that has quadrupled.
- **Led the creation of two research centers of excellence – the Virtual Reality Center and the Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs), by leveraging Federal, State and private industry support.**

### **South Jersey Tech Park at Rowan University, Mullica Hill, NJ**

*Executive Director (2011–Present)*

Reporting to the President, responsible for managing the South Jersey Technology Park (SJTP), a collaborative effort between the State of New Jersey and Rowan University to lead the economic revitalization of southern New Jersey through an integrated strategy of science and technology initiatives. The Tech Park is situated on a 180-acre campus and consists of 16 university research labs, a Business Incubator with 15 tenant companies engaged in collaborative educational and R&D activities with the university.

#### *Board Management*

- Recruited new members to the Board of Directors with expertise in entrepreneurship, economic development and government relations. Strategically expanded the Board to include representatives from Philadelphia and New York metropolitan areas to increase SJTP's impact in these entrepreneurial ecosystems.
- Increased the connections between the main campus of Rowan University and the Tech Park by engaging the Board in operations related to intellectual property, technology transfer and marketing of the university faculty's technology credentials.

#### *Marketing and Expansion*

- Capitalized on Board member experience to launch a marketing initiative to recruit companies to locate in the Tech Park.
- Developed a prospectus that addresses not only the technology benefits gained by associating with a major university in the region, but also competitive and flexible real estate arrangements and tax incentives from the State and County.
- Led an aggressive marketing and recruiting campaign to target potential tenants as candidates for

locating in the Park.

*Created the Office of Rowan Innovations*

- As a component unit of the South Jersey Tech Park, the objective of Rowan Innovations is to incentivize faculty, students and entrepreneurs in the Rowan University community and beyond to engage with industry, economic development organization and local, regional and federal government agencies seeking technological expertise.
- As a benefit, to expand the portfolio of the SJTP beyond its current real-estate operations to provide technology development and support services to the Southern New Jersey community.
- Finally, to establish a common portal in order to support and host the non-traditional, revenue generating pieces of our Centers of Research Excellence.

## **ACHIEVEMENT HIGHLIGHTS**

- **Successfully recruited over 19 companies, including a major European pharmaceutical to locate at the SJTP.**
- Executed tenancy agreements with faculty spin-outs and spin-ins,
- Currently executing a public-private partnership arrangement for a major 200,000 square foot expansion of Park over 20 acres.
- Successfully recruited one of the leaders from the Philadelphia business development community to lead the newly launched Rowan Innovations enterprise.

### **Rowan University, Electrical & Computer Engineering (ECE) Department, Glassboro, NJ**

*Professor (2009–Present)*

*Department Chair (2006–2011)*

*Associate Professor (2001–2009)*

*Assistant Professor (1997–2001)*

As Department Chair of the Electrical & Computer Engineering program at Rowan University, led a team of eight full-time faculty, three adjunct faculty, three staff and 160 undergraduate and graduate students.

- During my appointment as Department Chair, the Rowan ECE department has been consistently ranked in the top 10 in the nation by *US News & World Report* (for programs whose highest degree is a Masters).
- During my appointment as Department Chair, research awards and expenditures for the ECE department have doubled (FY2011 research awards exceeded \$1.4 million). The ECE department has led the College of Engineering in annual research expenditures.
- The ECE department led the College of Engineering in faculty publications, with two book chapters, 15 journal articles and 27 conference proceedings in fy2009.
- In 2008, the ECE department expanded its research lab facilities by over 3,200 square feet with the opening of the South Jersey Technology Park. As an anchor tenant, ECE faculty and graduate students currently lead the College in occupancy and activity at the facility.
- Launched a targeted student recruitment campaign, showing consistent yields in excess of 45%; providing healthy enrollments of quality ECE students every year.
- Led a special Task Force created by the Provost to establish a multi-disciplinary program on Systems Engineering, combining faculty from the College of Engineering, College of Business and Department of Computer Science (the first students enrolled in Spring 2010).
- The ECE program partnered with the Department of Music to offer the College of Engineering's first general education course in Music, Signals & Systems, targeting freshmen engineering and music students (the first offering was in Spring 2010).
- Partnered with University Advancement and the President's Office to launch a development campaign targeting major employers of our students, with the objective of raising external funds to support endowed Chairs and named laboratories. Launched an alumni-giving campaign in 2008 that resulted in a 10% donation rate by ECE alumni.

- Since being hired as the first faculty member in the ECE department at the newly created College of Engineering at Rowan University, led the development of a laboratory-based curriculum and designed unique, collaborative learning environments. Developed laboratory experiences for teaching graduate and undergraduate courses in communications, digital image processing, artificial neural networks and engineering electromagnetics.
- Secured research funding of \$12 million from the National Science Foundation, NASA, U.S. Department of Energy, U.S. Department of Commerce, National Institutes of Health, U.S. Navy, U.S. Army, Water Environment Research Foundation, American Institute of Cancer Research, New Jersey DOT, and others.
- Developed a state-of-the-art Imaging & Virtual Reality Laboratory with x-ray, optical, ultrasonic, acoustic-emission, magnetic and thermal interrogation and advanced visualization including a CAVE® virtual reality system.
- As Assessment Activities Coordinator for the ECE department, developed novel program assessment tools. Led the organization of a successful ABET (EC-2000) Accreditation visit for the ECE department in October 2000 and was Department Chair during the successful September 2006 visit.
- As the ECE Graduate Studies coordinator, recruited and enabled the largest increase to date in the size of our graduate program. The ECE department has consistently led the College of Engineering in external funding for graduate student support.

#### **Iowa State University, Ames, Iowa**

*Assistant Professor (1996–1997)*

*Research Associate (1995–1997)*

*Graduate Research Assistant (1992- 1995)*

- Taught freshman engineering course with computational laboratory in C and graduate course in digital image processing.
- Managed research projects, wrote proposals, generated technical reports, supervised research of graduate students (areas included digital signal processing, wavelet neural networks, automatic pattern recognition and interactive computer graphics).
- Conducted research in applied to nondestructive evaluation: wavelet neural networks, texture-based image processing.

#### *As Graduate Research Assistant*

- Co-taught: communications systems (junior level), pattern recognition principles (graduate level), and electrical circuits (sophomore level).
- Developed novel signal processing algorithms and invariant pattern techniques for characterizing gas pipeline inspection data. Project was funded by the Gas Research Institute, Chicago, IL.
- Designed neural network-based models for characterizing hysteresis curves of railroad wheel samples.
- Optimized a 3-D finite element code for computing the current density profile inside a railroad wheel, for the Cray C-90 supercomputer.
- Assisted in the development of an automated test system for scanning the wheel for defects. Project was supported by the Association of American Railroads.
- Developed a computationally efficient numerical model for simulating electrodynamic vibration absorbers and magnetostrictive actuators. Project was funded by the Carver grant, Iowa State University.
- Designed a phase shifter network for an inflatable spherical antenna for lunar astronomy. Project was sponsored by NASA.
- Investigated spectral estimation techniques for discrete time stochastic processes.
- Developed Monte Carlo methods to model electromagnetic NDE phenomena.

**R.V. College of Engineering, Bangalore, India**  
*Assistant Lecturer (1990–1991)*

Taught courses in electronic devices and circuits, microelectronics and electromagnetics.

## PROFESSIONAL MEMBERSHIPS

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**Institute of Electrical and Electronics Engineers (IEEE)**  
*Senior Member*

**American Society for Engineering Education (ASEE)**

## SERVICE TO THE PROFESSION

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<b>IEEE Systems Council</b> <i>Administrative Committee Member (2020–present)</i> <i>Vice President for Conferences (2013–2016)</i>	<b>2009–present</b>
<b>IEEE Instrumentation and Measurement Society</b> <i>Vice President for Publications (2011–2012)</i> <i>Vice-President for Finance (2009–2010)</i> <i>Chair, Educational Activities (2008–2009)</i>	<b>2008–present</b>
<b>IEEE Region 2 (Eastern United States)</b> <i>Student Activities Chair (2004–2008)</i> <i>Executive Committee (2004–2008)</i>	<b>2004–2008</b>
<b>IEEE Instrumentation and Measurement Society Administrative Committee</b> <i>Member (2007–2010)</i>	<b>2007–2010</b>
<b>IEEE Sensors Applications Symposium</b> <i>Chair (2008–2013)</i> <i>Vice Chair (2007)</i> <i>Technical Program Chair (2006)</i>	<b>2006–2012</b>
<b>Reviewer</b> <i>IEEE Transactions on Instrumentation &amp; Measurement</i> <i>IEEE Sensors Journal</i> <i>IEEE Transactions on Magnetics</i> <i>IEEE Sensors Applications Symposium</i> <i>International Conference on Electromagnetic NDE</i>	
<b>Midwest Electrotechnology Conference, Ames, Iowa</b> <i>Session Chair</i>	<b>1996</b>
<b>American Society for Nondestructive Testing, Iowa Chapter</b> <i>Treasurer</i>	<b>1996–1997</b>

## AWARDS & HONORS

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<b>NSF New Century Scholars Fellowship, Stanford University</b>	<b>1999</b>
<b>Research Excellence Award, Iowa State University</b>	<b>1996</b>
<b>National Merit Scholar, India</b>	<b>1983</b>

## TEACHING EXPERIENCE

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Digital Image Processing (S21, F09, F07, S06, F03, F01, S99)

*Taught one section of the graduate/senior-elective project-based course in digital image processing.*

Artificial Neural Networks (F10, F08, F06, F04, S02, S00, F98)

*Taught one section of graduate/senior-elective project-based course in artificial neural networks.*

Electrical Communications Systems (S20, F20, S19, F19, S11, S10, S09, S08, S07, S06, S04, S03, S02, S01, S00, S99)

*Taught one section of senior-core lab-lecture course in analog and digital communications systems and circuits.*

Digital Communications (F02)

*Taught one section of graduate/senior-elective lab-lecture course in advanced digital communications.*

Computer Architecture II: Specialized (F01)

*Taught two sections of senior-core lab-lecture course in specialized computer architectures.*

Engineering Electromagnetics I (F04, F02, F00, F99, F98)

*Taught two sections of junior-core lab-lecture course in electrostatics, magnetostatics and quasistatics.*

Engineering Frontiers: Seminar (S04, S00)

*Coordinated senior core seminar course.*

Principles of Nondestructive Evaluation (F99)

*Taught one section of the graduate/senior-elective project-based course in nondestructive evaluation.*

Networks II (S98)

*Taught one section of sophomore-core lab-lecture course in AC circuits.*

Sophomore Engineering Clinic II (S98)

*Taught one project module of sophomore level design course—students developed a portable NDE device for aircraft skin inspection.*

Networks I (F97)

*Taught one section of sophomore-core lab-lecture course in DC circuits.*

Statics (F97)

*Taught one section of sophomore-core statics course.*

## PROPOSAL & GRANT ACTIVITY (as Faculty in Electrical & Computer Engineering)

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### Funded (total at Rowan: \$12 million)

1. "Turret Gunner Survivability Simulation Environment," Principal Investigator, US Army Picatinny Arsenal, Award Amount: \$2,398,493, 2021-2023
2. "Innovative Technologies and Materials to Protect National Security Interests in the Arctic Region," Co-Principal Investigator, US Army, Award Amount: \$3,400,000, 2019-2021
3. "Visualization of Rotorcraft Safety within a CAVE Virtual Reality Environment," Co-Principal Investigator, FAA, Award Amount: \$100,000, 2020-2021.
4. "Virtual Reality Vaccination Site Simulation Training for Nurses," Principal Investigator, David Kotok Foundation, Award Amount: \$50,000, 2020-2021.
5. "Rowan University COVID-19 PPE Innovation Initiative," Principal Investigator, Gloucester County Planning Division, Award Amount: \$50,000, 2020-2021.
6. "Teaching and Learning about the Holocaust through VR and AR: Exploring Place and Lived Experience in Warsaw," Principal Investigator, Paul and Sunitha Grand Endowment, Award Amount \$200,000, 2019-2020.
7. "Art, Engineering and Medicine for Enhancing Orthopedic Resident Entrustability: Bringing VR and AR Technology to Camden," Co-Principal Investigator, Camden Health

- Research Initiative, Award Amount: \$150,000, 2019 – 2021.
8. "Visualization of Rotorcraft Safety within a CAVE Virtual Reality Environment," Co-Principal Investigator, FAA, Award Amount: \$87,054, 2019-2020.
  9. "Joint Virtual Reality Laboratory for Integrative Neuroimaging," Co-Principal Investigator, Elekta Instrument AB, Award Amount: \$298,110, 2013–2015.
  10. "Application of a 3-D Virtual Reality Tool for Community Planning and Economic Development," Principal Investigator, US Department of Commerce–Economic Development Administration, Award Amount: \$424,962, 2011–2012.
  11. "An Immersive, Interactive and Navigable Tool Using 3-D Virtual Reality Systems for Modeling Flooding and Remediation of Urban Environments," Principal Investigator, AT&T Foundation, Award Amount: \$50,000, 2011–2012.
  12. "Development of a Virtual Green School Simulation in the Rowan University CAVE®," Principal Investigator, Educational Information Resource Center, Award Amount: \$20,390, 2012.
  13. "A Virtual Walkthrough of the Rohrer College of Business Living and Learning Center," Principal Investigator, Rohrer College of Business, Award Amount: \$5,000, 2011–2012.
  14. "Development of a Teleplace® Enabled On-Board Trainer (OBT) Console," Principal Investigator, US Navy– Naval Surface Warfare Center, Award Amount: \$69,238, 2011.
  15. "Acquisition of an X-ray Computed Tomography System with Loading Capabilities," Co-Principal Investigator, National Science Foundation, Award Amount: \$296,650, 2010–2012.
  16. "Acquisition of an Immersive Virtual Reality System for the South Jersey Technology Park at Rowan University," Principal Investigator, National Science Foundation, Award Amount: \$392,000, 2008–2011.
  17. "US-France Planning Visit; Study of Granular Material Crushing Through Imaging and Discrete Element Modeling Simulation," Co-Principal Investigator, National Science Foundation, Award Amount: \$ 15,297, 2010–2011.
  18. "Intelligent Valves for Integrated Systems Health Management," Principal Investigator, NASA–Stennis Space Center, Award Amount: \$100,000, 2008–2010.
  19. "Multi-Sensor Data Fusion for Integrated Systems Health Management (ISHM) in a Rocket Engine Test Stand," Principal Investigator, NASA–Stennis Space Center, Award Amount: \$30,000, 2009–2010.
  20. "Evolutionary Integrated Awareness Platform for Integrated Systems Health Management (ISHM)," Principal Investigator, NASA–Stennis Space Center, Award Amount: \$60,000, 2008–2010.
  21. "Development of Video Sensor Systems for Monitoring Ship-Board Equipment," Principal Investigator, US Navy–Naval Surface Warfare Center, Award Amount: \$50,000, 2009–2010.
  22. "Development of a Virtual Reality Simulation of the Flooding Characteristics for the Cramer Hill Neighborhood in the City of Camden," Principal Investigator, Cooper's Ferry Development Association, Award Amount: \$68,971, 2009.
  23. "Development of a Video Sensors Laboratory Protocol for Monitoring Ship-Board Systems," Principal Investigator, US Navy–Naval Surface Warfare Center, Award Amount: \$50,000, 2008–2009.
  24. "Virtual Reality Visualization for an Integrated Systems Health Management of the E-3 Test Facility," Principal Investigator, NASA–Stennis Space Center, Award Amount: \$90,000, 2007–2010.
  25. "Integrated Systems Health Management Visualization Interfaces," Principal Investigator, NASA–Stennis Space Center, Award Amount: \$4,500, 2006–2007.
  26. "Acquisition of a Desktop, High-Resolution, Three-Dimensional X-Ray Computed Tomography (CT) System," Principal Investigator, National Science Foundation, Award Amount: \$238,698, 2004–2006.
  27. "A Data Fusion System for the Non-Destructive Evaluation of Non-Piggable Pipes," Principal Investigator, US Department of Energy, Award Amount: \$215,866, 2002–2005.
  28. "Acquisition of a Portable Large Scale Visualization System for Nondestructive Evaluation," Principal Investigator, National Science Foundation, Award Amount: \$171,292, 2002–2005.
  29. "Development of an Acoustic Emission Test Platform with Biaxial Stress Loading System,"

- Principal Investigator, ExxonMobil Inc., Houston, TX, Award Amount: \$41,607, 2002–2004.
30. “An Ensemble Based Incremental Learning Algorithm for Early Diagnosis, Confidence and Severity Estimation of Alzheimer’s Disease,” Co-Principal Investigator, National Institutes of Health, Award Amount: \$343,075, 2003–2006.
  31. “Three Dimensional Characterization and Modeling of Angular Materials,” Co-Principal Investigator, National Science Foundation, Award Amount: \$146,000, 2003–2005.
  32. “Digital Imaging Across the Curriculum,” Co-Principal Investigator, National Science Foundation, Award Amount: \$74,998, 2003–2005.
  33. “Development of an Advanced Visualization Protocol for Simulating Ship-Board Fuel Cell Systems,” Principal Investigator, Naval Surface Warfare Center, Carderock Division, Award Amount: \$11,880, 2004.
  34. “Development of a Magnetic Flux Density Mapping System for Internal Magnetic Shields,” Principal Investigator, Thomson Consumer Electronics, Lancaster, PA, Award Amount: \$59,169; 2001–2002.
  35. “Advanced Technology Vehicle Demonstrators,” Co-Principal Investigator, New Jersey Department of Transportation/ New Jersey State Police, Award Amount: \$350,000; 2001–2002.
  36. “Ultrasonic Based Defect Characterization in Wastewater Concrete Pipelines Using Invariance Transformation Techniques,” Principal Investigator, Water Environment Research Foundation, Award Amount: \$70,206; 1999–2000.
  37. “Development of a Configurable Thermal Imaging System for Nondestructive Evaluation of Materials,” Co- Principal Investigator, National Science Foundation, Award Amount: \$91,935; 2000–2002.
  38. “Dietary Patterns and Breast Density,” Co-Investigator, American Institute of Cancer Research, Award Amount: \$55,000; 2000–2002.
  39. “Communications, Signal Processing and VLSI: Education Under a Common Framework,” Co-Principal Investigator, National Science Foundation, Award Amount: \$74,939; 2001–2003.
  40. “Hands on the Human Body,” Co-Principal Investigator, National Science Foundation, Award Amount: \$162,326; 2001–2003.
  41. “Macroelectronics: A Gateway to Electronics Education,” Co-Principal Investigator, National Science Foundation, Award Amount: \$74,987; 1999–2000.
  42. “Development of a Position Tracking System for a Handheld Scanner,” Principal Investigator, Physical Acoustics Corporation and US Army TACOM, Award Amount: \$18,000; 1999.
  43. “Low Cost Automated Crash Notification System,” Co-Principal Investigator, New Jersey Department of Transportation, Award Amount: \$111,092; 1999–2000.
  44. “Detection and Characterization of Stress-Corrosion Cracks in Gas Pipelines,” Principal Investigator, The Lindback Foundation, Award Amount: \$15,000; 1998.
  45. “An Artificial Neural Network for Characterizing Residual Stress from Photothermal NDE Shearography Images,” Principal Investigator, Karta Technologies, Inc., San Antonio, TX, Award Amount: \$7,500; 1998.
  46. “A Venture Capital Fund to Encourage Rapid Product Development with Multidisciplinary E-Teams in the Junior Engineering Clinic II,” Co-Principal Investigator, National Collegiate Inventors and Innovators Alliance/Lemelson Foundation, Award Amount: \$30,000; 2000–2002.
  47. “A Venture Capital Fund to Encourage Rapid Product Development with Multidisciplinary E-Teams in the Junior Engineering Clinic II,” Co-Principal Investigator, National Collegiate Inventors and Innovators Alliance/Lemelson Foundation, Award Amount: \$11,000; 1998–2000.
  48. “A Venture Capital Fund to Promote Rapid Product Development in the Engineering Clinic at Rowan University,” Co-Principal Investigator, National Collegiate Inventors and Innovators Alliance/Lemelson Foundation, Award Amount: \$10,000; 1998–2000.
  49. “Development of a Software Validation Protocol for the IBM AS400 System,” Principal Investigator, Electric Mobility, Award Amount: \$5,000; 2000.
  50. “Development of Numerical Models for a Maglev System,” Principal Investigator, Cooper Grant, Award Amount: \$2,500; 2000.
  51. “A Data Fusion Imaging System for In-Line NDE of Ferromagnetic Objects,” Principal Investigator, Rowan University SBR Grant, Award Amount \$2,700; 1997–1998.
  52. “A Real-Time Computer Vision/Object Recognition System,” Principal Investigator, Rowan University Sponsored Creative Research Activity Grant, Award Amount: \$4,700; 1998.

## PUBLICATIONS

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### *Published Journal Articles*

1. M. Russell, S. Mandayam and S. Jensen, "The "Intelligent" valve: A diagnostic framework for integrated systems health management of a rocket engine test stand," IEEE Transactions on Instrumentation and Measurement, Volume 60, Issue 4, March 2011, Page(s): 1489–1497  
Digital Object Identifier: 10.1109/TIM.2010.2101350
2. P. Jansson, R. P. Ramachandran, J. L. Schmalzel and S. Mandayam, "Creating an agile ECE learning environment through engineering clinics," IEEE Transactions on Education, Volume: 53, No. 3, August 2010, Page(s): 455–462  
Digital Object Identifier: 10.1109/TE.2009.2027431
3. M. Bloom, M. Russell, A. Kustau, S. Mandayam and B. Sukumaran, "Measurement of porosity in granular particle distributions using adaptive thresholding," IEEE Transactions on Instrumentation and Measurement, Volume: 59, Issue 5, May 2010, Page(s): 1192–1199  
Digital Object Identifier: 10.1109/TIM.2010.2040902
4. P. Giordano Jr., J. Corriveau, M. Bloom, G. D. Lecakes, Jr., S. Mandayam and B. Sukumaran, "Imaging systems and algorithms for the numerical characterization of 3D shapes of granular particles," IEEE Transactions on Instrumentation and Measurement, Volume: PP, Issue 99, Dec 2009, Page(s): 1–11  
Digital Object Identifier: 10.1109/TIM.2009.2034579
5. G. D. Lecakes, Jr., J. A. Morris, J. L. Schmalzel and S. Mandayam, "Virtual reality environments for integrated systems health management of rocket engine tests," IEEE Transactions on Instrumentation and Measurement, Volume 58, Issue 9, Sept. 2009, Page(s):3050–3057  
Digital Object Identifier 10.1109/TIM.2009.2016823
6. J. L. Schmalzel, F. Figueroa, J. Morris, S. Mandayam and R. Polikar, "An architecture for intelligent systems based on smart sensors," IEEE Transactions on Instrumentation and Measurement, Volume 54, Issue 4, Aug. 2005 Page(s):1612–1616  
Digital Object Identifier 10.1109/TIM.2005.851477
7. K. Hwang, S. Mandayam, S. S. Udpa, L. Udpa, W. Lord, M. Afzal, "Characterization of gas pipeline inspection signals using wavelet basis function neural networks," NDT & E International, Volume 33, Issue 8, Pages 531-545, December 2000.
8. M. Yan, S. Udpa, S. Mandayam, Y. Sun, P. Sacks and W. Lord, "Solution of inverse problems in electromagnetic NDE using finite element methods," IEEE Transactions on Magnetics, Volume 34, Issue 5, Part 1, Sept. 1998 Page(s):2924–2927  
Digital Object Identifier 10.1109/20.717682
9. S. Mandayam, L. Udpa, S. S. Udpa and W. Lord, "Monte Carlo methods for modeling magnetostatic NDE phenomena: a feasibility study," Magnetics, IEEE Transactions on, Volume 32, Issue 3, Part 1, May 1996 Page(s):1425–1428  
Digital Object Identifier 10.1109/20.497515
10. S. Mandayam, L. Udpa, S. S. Udpa and W. Lord, "Invariance transformations for magnetic flux leakage signals," Magnetics, IEEE Transactions on, Volume 32, Issue 3, Part 1, May 1996 Page(s):1577–1580  
Digital Object Identifier 10.1109/20.497553
11. M. Yan, M. Afzal, S. S. Udpa, S. Mandayam, Y. Sun, L. Udpa and P. Sacks, "Iterative algorithms for electromagnetic NDE signal inversion," Electromagnetic Nondestructive Evaluation (II) - Studies in Applied Electromagnetics and Mechanics, Vol. 14, pp. 287-296, IOS Press, 1998.
12. S. Mandayam, L. Udpa, S. S. Udpa and W. Lord, "Wavelet based permeability compensation technique for characterizing magnetic flux leakage images," NDT & E International, Vol. 30, No. 5, pp. 297-303, 1997.
13. L. Udpa, S. Mandayam, S. Udpa, Y. Sun and W. Lord, "Developments in gas pipeline inspection technology," Materials Evaluation, Vol. 54, No. 4, pp. 467-472, April 1996.
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  10. G. D. Lecakes, J. A. Morris, J. L. Schmalzel and S. Mandayam, "Virtual reality platforms for integrated systems health management in a portable rocket engine test stand," Instrumentation and Measurement Technology Conference Proceedings, 2008. IMTC 2008. IEEE, 12-15 May 2008 Page(s):388–392  
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#### *Graduate Students Advised*

1. Alexander Wise, PhD, Electrical & Computer Engineering (current)
2. Michael Ciocco, PhD, Electrical & Computer Engineering (current)
3. Grant Morfitt, Master of Science, Electrical & Computer Engineering (current)
4. Scott Wood, Master of Science, Electrical & Computer Engineering (current)
5. Alexander Wiese, Master of Science, Electrical & Computer Engineering, Thesis: Image Processing Algorithms for the Detection of Anomalies in Orthopedic Surgery Implants, August 2021
6. Ardit Pranvoku, Master of Science, Electrical & Computer Engineering, Thesis: Enhancing Situational Awareness for Rotorcraft Pilots using Virtual and Augmented Reality, August 2021.
7. George D. Lecakes, PhD, Electrical & Computer Engineering, Dissertation: The Matrix Revisited: A Critical Assessment of Virtual Reality Technologies for Modeling, Simulation and Training, May 2021
8. Zachary Nicholas, Master of Science, Electrical & Computer Engineering, 2017
9. Michael Bucceroni, Master of Science, Electrical & Computer Engineering, 2017
10. Mark Locuson, Master of Science, Electrical & Computer Engineering, 2017
11. Benjamin Wenger, Master of Science, Electrical Engineering, Thesis: A Framework Based on Gaussian Mixture Models and Kalman Filters for the Segmentation and Tracking of Anomalous Events in Shipboard Video, December 2010.
12. Michael Russell, Master of Science, Electrical Engineering, Thesis: An Intelligent Valve Framework for Integrated Systems Health Management on Rocket Engine Test Stands, December 2010.
13. George D. Lecakes, Jr., Master of Science, Electrical Engineering, Thesis: Integration of Multiple Data Types in 3-D Immersive Virtual Reality (VR) Environments, May 2009.
14. Steven Latman, Master of Science, Electrical Engineering, May 2009.
15. Michael Bloom, Master of Science, Electrical Engineering, Thesis in progress.
16. Patrick Giordano, Master of Science, Electrical Engineering, Thesis: Optimization of Optical Computed Tomography Techniques for the Synthesis of Particle Aggregate Models, December 2007.
17. Rafael Marañón-Abreu, Master of Science, Thesis: Mejora De La Fiabilidad De Sistemas De Fusión De Datos Para Ensayos No Destructivos (END), Communications Engineering, University of Málaga, Spain, July 2007.
18. Daniel Randall-Barrot, Master of Science, Electrical Engineering, Thesis: An Algebraic Reconstruction Technique (ART) for the Synthesis of Three-Dimensional Models of Particle Aggregates from Projective Representations, May 2006.

19. Justin Bram, Master of Science, Electrical Engineering, Thesis: A "Divide-and-Conquer" Strategy for NDE Signal Inversion in Gas Transmission Pipelines, May 2006.
20. Joseph Oagaro, Master of Science, Electrical Engineering, Thesis: Heterogeneous Multi-Sensor Data Fusion Using Geometric Transformations And Parzen Windows For The Nondestructive Evaluation Of Gas Transmission Pipelines, December 2004.
21. Min Kim, Master of Science, Electrical Engineering, Thesis: Automated Evaluation Of Radiodensities In A Digitized Mammogram Database Using Local Contrast Estimation, December 2004.
22. Jonathan Corriveau, Master of Science, Electrical Engineering, Thesis: Three-Dimensional Shape Characterization For Particle Aggregates Using Multiple Projective Representations, December 2004.
23. Patrick Violante, Master of Science, Electrical Engineering, December 2004.
24. Scott Papson, Master of Science, Electrical Engineering, Thesis: An Investigation Of Multi-Dimensional Evolutionary Algorithms For Virtual Reality Scenario Development, May 2004.
25. Richard Eckert, Master of Science, Electrical Engineering, Thesis: Spatially Varying Threshold Models for the Automated Segmentation of Radiodense Tissue in Digitized Mammograms, December 2003.
26. Philip J. Kulick, Master of Science, Electrical Engineering, Thesis: Multi-Sensor Data Fusion Using Geometric Transformations For The Nondestructive Evaluation Of Gas Transmission Pipelines, December 2003.
27. Gregory McDermott, Master of Science, Electrical Engineering, December 2002.
28. Jeremy T. Neyhart, Master of Science, Electrical Engineering, Thesis: Automated Segmentation of Radiodense Tissue in Digitized Mammograms Using a Constrained Neyman-Pearson Classifier, May 2002.
29. Michael D. Ciocco, Master of Science, Electrical Engineering, Thesis: An Invariance Algorithm for Defect Characterization of Ultrasonic Signals for the Nondestructive Evaluation of Concrete, May 2002.
30. Samuel J. Greenfeld, Master of Science, Electrical Engineering, May 2001.

## SERVICE TO THE DEPARTMENT & UNIVERSITY

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Rowan University Research Council <i>Chair</i>	2015-2018
Rowan Innovations Task Force <i>Co-Chair</i>	2015
University Task Force on Systems Engineering <i>Chair</i>	2009
ECE Department Graduate Committee <i>Chair</i>	2002-2006
College of Engineering Planning Committee <i>Chair</i>	2001-2002
College of Engineering Laboratory Committee <i>Chair</i>	1998-1999
University Technology Task Force <i>Chair</i>	2004
ECE Department <i>Assessment Activities Coordinator</i>	1998-2002
IEEE Student Branch <i>Faculty Advisor</i>	1997-2002
Academic Policies and Procedures Committee <i>Member</i>	1997-1999
College of Engineering Computer Resources Committee <i>Member</i>	2000-2002

## SEARCH COMMITTEES

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Dean of the College of Science and Mathematics (2014)  
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(2013) Chair, Associate Provost for Library Information  
Services (2013) Senior Director in University Advancement, 2  
Positions (2012) Dean of the College of Engineering, Rowan  
University (2010–2011) Dean of the Cooper Medical School of  
Rowan University (2010) Vice President for University  
Advancement (2010)  
Associate Provost for Research (2008)  
Electrical and Computer Engineering Faculty (1999-2008, 2018 - present)  
Electrical and Computer Engineering Technician (Committee Chair), 2 Positions (2004, 2006)  
Process Engineering Technician, 1 Position (1999)

## **CITIZENSHIP**

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United States