Fred Lacy, Ph.D.
Curriculum Vitae

My primary research interest is in the area of electronics-based sensors and systems for various applications (including biomedical and chemical research). I have received many grants and published numerous papers associated with this research. I have taught courses on electronic sensors and systems to graduate and undergraduate students and I have guided several graduate students in their research. My passion for teaching and multidisciplinary research has resulted in numerous awards.

CONTACT INFORMATION

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FORMAL EDUCATION

Ph.D. (Electrical Engineering)	Howard University (Washington, DC)	Aug. 1990 – Dec. 1993
M.S.E. (Electrical Engineering)	Johns Hopkins University (Baltimore, MD)	Sept. 1988 – Dec. 1989
B.S.E.E. (Electrical Engineering)	Howard University (Washington, DC)	Aug. 1983 – Dec. 1987

ADDITIONAL EDUCATION / POSTDOCTORAL TRAINING

Biomedical Engineering	University of California, San Diego (La Jolla, CA)	June 1994 – July 1998

HONORS / AWARDS

Research Honors / Awards

Best Conference Paper Award [WCECS / ICEEA]	2019
Entergy Corporation Endowed Professor	2016 – present
Best Conference Paper Award [Int. Journal of Arts & Sci.]	2009
Conference Paper Certificate of Merit [WCECS / ICEEA]	2007
SMART Research Award [SU / NSF]	2004

Teaching Honors / Awards

Outstanding Electrical Engineering Faculty Award [SU]	2013 – 2018
Outstanding Electrical Engineering Faculty Award [SU]	2010 – 2012
Outstanding Electrical Engineering Faculty Award [SU]	2008 – 2009

PROFESSIONAL EMPLOYMENT / ACTIVITY

Chair, Electrical Engineering Department, College of Sciences and Engineering, Southern University, Baton Rouge, LA, August 2014 – present, (leader and administrator of department affairs)

Professor, Electrical Engineering Department, College of Sciences and Engineering, Southern University, Baton Rouge, LA, August 2013 – present, (teaching: electronics, electrical circuits, sensors; research: sensors)

Adjunct Professor, Southern University, Environmental Toxicology Program, Baton Rouge, LA, April 2011 – present, (directing Ph. D. research and serving as member on dissertation committees)

Associate Professor, Southern University, School of Engineering, Electrical Engineering Department, Baton Rouge, LA, August 2007 – August 2013, (teaching: electronics, electrical circuits, sensors; research: sensors)

Assistant Professor, Southern University, School of Engineering, Electrical Engineering Department, Baton Rouge, LA, August 2002 – August 2007, (teaching: electronics, electrical circuits, sensors; research: sensors)

Research Associate, Louisiana State University/Center for Advanced Microstructures and Devices (CAMD), Baton Rouge, LA, August 2001 – August 2002, (design, fabrication, and testing of biomedical sensors/bioMEMS devices).

Manager/Supervisor, Food and Drug Administration, Center for Devices and Radiological Health, Office of Device Evaluation, Rockville, MD, May 2001 – July 2001, (assignment to serve as the Chief of the Chemistry and Toxicology II Branch).

Electrical Engineer, Food and Drug Administration, Center for Devices and Radiological Health, Office of Device Evaluation, Rockville, MD, August 1998 – May 2001, (performs scientific review of medical devices before they are marketed).

Electrical Engineer, Food and Drug Administration, Center for Devices and Radiological Health, Office of Science and Technology, Rockville, MD, October 1999 – April 2001, (researches the effect of electromagnetic radiation on medical devices and humans).

Postdoctoral Research Associate, Department of Bioengineering, University of California, San Diego, La Jolla, CA, June 1994 – July 1998, (designed devices / techniques to measure oxygen free radicals in blood plasma).

Postdoctoral Research Associate, Department of Electrical Engineering, Howard University, Washington, DC, January 1994 – June 1994, (measured electrical properties of white blood cells after drug interactions).

Graduate Research Associate, Department of Electrical Engineering, Howard University, Washington, DC, August 1990 – December 1993, (designed electrode to measure electrical properties of white blood cells; performed calculations to determine electromagnetic propagation in magnetic materials).

Electrical Engineer, Research and Development Department, Naval Surface Warfare Center, White Oak, MD, January 1990 – August 1990; January 1988 – August 1988, (designed electrical circuits that were used in explosives test measurements).

Electrical Engineer, Satellite Communications Group, The Johns Hopkins University/Applied Physics Lab, Laurel, MD, May 1989 – August 1989, (designed and repaired equipment used in satellite communications).

Research Apprentice, Research and Development Department, Naval Surface Warfare Center, White Oak, MD, June 1983 – December 1987, (built and repaired electrical equipment that was used in explosives test measurements; wrote computer programs to analyze field test data).

Research Apprentice, Underwater Testing Department, Naval Surface Warfare Center, White Oak, MD, June 1981 – August 1982, (aided scientists in testing underwater sonar equipment).

RESEARCH PROFILE

Google Scholar	https://scholar.google.com/citations?user=8TUp7BgAAAAJ&hl=en
Research Gate	https://www.researchgate.net/profile/Fred-Lacy

EDITED BOOK CHAPTERS

Fred Lacy, “Using Electromagnetic Properties to Identify and Design Superconducting Materials”, in IntechOpen book titled “Electromagnetic Wave Propagation for Industry and Biomedical Applications”, June 2021

Fred Lacy, “Using Theoretical and Computational Models to Understand How Metals Function as Temperature Sensors”, In IGI Global book titled “Handbook of Research on Computational Simulation and Modeling in Engineering, edited by F. Miranda and C. Abreu, p. 668, 2015.

Fred Lacy, “Limitations of Thin Film RTDs for Temperature Sensing”, In CMOSET book titled “Industrial Sensors: Devices and Applications”, edited by K. Iniewski, Boca Raton FL, CRC/Taylor & Francis, p. 195, 2013.

Fred Lacy, “Characterizing Nanometer Sized Platinum Films for Temperature Measurements”, In Current Themes in Engineering Technologies, edited by S.-I. Ao, M. A. Amouzegar, and S.-S. Chen, New York, AIP, p.128, 2008.

REFEREED JOURNAL PUBLICATIONS

Fred Lacy, Angel Ruiz-Reyes, Anthony Brescia, "Machine Learning for Low Signal-to-Noise Ratio Detection", (in preparation).

Olagunju Akodu, Fred Lacy, Wael Elmedany, and Yasser Ismail, "Application of machine learning algorithms in healthcare classification: Prostate cancer as a case study", (in preparation).

Yasser Ismal, Phyllis Okwan, Albertha Lawson, Fred Lacy, "Successful Educational Model for Improving Practical Skills of STEM Students at a Historically Black University", Education and Information Technologies (in review)

Fred Lacy, "Understanding the Behavior of Superconductors by Analyzing Permittivity", Int. J. of Elec. and Comp. Eng. 15(2), p. 60, 2021.

Willson Meli, Fred Lacy, Yasser Ismail, "Video-Based Automated Pedestrians Counting Algorithms for Smart Cities", Int. J. of Com. Dig. Sys. 9(6), p. 1065, Nov. 2020.

Ali Al Majed, Fred Lacy, Yasser Ismail, "Smart Detection Under Different Weather Conditions", Int. J. of Com. Dig. Sys. 9(5), p. 767, Sept. 2020.

Radian Belu, Fred Lacy, Lucina-Ionel Cioca, "Electrical Energy Engineering Education for 21st Century", J. of Higher Ed. Theory and Prac. 20(11), p. 112, 2020.

Jeladhara Sobhanan, Philip Jones, Reiko Kohara, Sakiko Sugino, Martin Vacha, Challapally Subrahmanyam, Yuta Takano, Fred Lacy, Vasudevanpillai Biju, "Toxicity of Nanomaterials due to Photochemical Degradation and the Release of Heavy Metal Ions", Nanoscale, Sept. 2020.

Yeshak Dabels, Yasser Ismail, Fred Lacy, "CHIMES: Chemical Identification by Magneto Elastic Sensing", Int. J. of Com. Dig. Sys. 9(4), July 2020.

Philip Jones, Sakiko Sugino, Shohei Yamamura, Fred Lacy, Vasudevanpillai Biju, "Impairment of cell and genomic DNA by environmentally transformed engineered nanomaterials", Nanoscale 5, p. 9511, 2013

Fred Lacy, "An Examination and Validation of the Theoretical Resistivity-Temperature Model for Conductors", Int. J. of Elec. and Comp. Eng. 7(4), p. 869, 2013.

Fred Lacy, "Developing a Theoretical Relationship between Electrical Resistivity, Temperature, and Film Thickness for Conductors", Nanoscale Research Letters 6:636, 2011.

Fred Lacy, "Evaluating the Resistivity-Temperature Relationship for RTDs and other Conductors", IEEE Sensors Journal 11, p. 1208, 2011.

Fred Lacy, "Using Nanometer Thin Films as Temperature Sensors (Constraints from Experimental, Mathematical, and Finite-Element Analysis)", IEEE Sensors Journal 9, p.1111, 2009.

Fred Lacy, Mala T. Kailasam, Daniel T. O'Connor, Geert W. Schmid-Schonbein, Robert J. Parmer, “Plasma Hydrogen Peroxide Production in Human Essential Hypertension: Role of Heredity, Gender, and Ethnicity”, Hypertension 36, p.878, 2000.

Allen Swei, Fred Lacy, Frank A. DeLano, Dale A. Parks, and Geert W. Schmid-Schönbein, "A Mechanism of Oxygen Free Radical Production in the Dahl Hypertensive Rat", Microcirculation 6, p.179, 1999.

Fred Lacy, David A. Gough, and Geert W. Schmid-Schönbein, "Role of Xanthine Oxidase in Hydrogen Peroxide Production", Free Radic. Biol. Med. 25, p.720, 1998.

Fred Lacy, Daniel T. O'Connor, and Geert W. Schmid-Schönbein, "Plasma Hydrogen Peroxide Production In Hypertensives and Normotensive Subjects At Genetic Risk Of Hypertension", J. Hypertens. 16, p.291, 1998.

Allen Swei, Fred Lacy, Frank A. DeLano, Benjamin W. Zweifach, and Geert W. Schmid-Schönbein, "Oxidative Stress in the Dahl Hypertensive Rat", Hypertension 30, p. 1628, 1997.

Fred Lacy, Muswamba Kadima-Nzuji, Floyd J. Malveaux, and Ernest L. Carter, Jr., "Distinguishing Between Activated and Non-activated Eosinophils By AC Impedance Measurements", IEEE Trans. Biomed. Eng. 43, p.218, 1996.

REFEREED CONFERENCE PROCEEDING PUBLICATIONS / PRESENTATIONS

Ebenezer Essel, Fred Lacy, Wael Elmedany, Fatema Albalooshi, Yasser Ismail, “Driver Drowsiness Detection using Fixed and Adaptive Thresholding”, (in review)

Radian Belu, Fred Lacy, "A Service-Oriented Learning Approach for the Electrical Engineering Capstone Design Course", American Society for Engineering Education, 2020

Radian Belu, Fred Lacy, "A Multidisciplinary Undergraduate Course in Energy Engineering", American Society for Engineering Education, 2020

Fred Lacy, “Electrical Resistance of Superconductors”, Proceedings of the World Congress on Engineering and Computer Science 2019

K. Connor, et al., “Experiment-Centric Pedagogy – Improving the HBCU Engineering Student Learning Experience”, Proceedings of the 2018 ASEE Annual Conference, 2018

T. Walpita and F. Lacy, “Preparation and Simulation of a SAW/Capacitance Sensor”, Proceedings of the World Congress on Engineering and Computer Science 2016

X. Chen, P. Carriere, and F. Lacy, ``Stochastic Optimization of Space-Time Constellations'', Proceedings of the SPIE, Vol. 9456, 2015

X. Chen, F. Lacy, and P. Carriere, ``An Exact Computational Method for Performance Analysis of Sequential Test Algorithms for Detecting Network Intrusions'', Proceedings of the SPIE, Vol. 9456, 2015

Fred Lacy, “Preparation and Assessment of Thin Films for Use as Ammonia Sensors”, Proceedings of the World Congress on Engineering and Computer Science 2013, Vol. II, 2013

Jiecai Luo, Fred Lacy, Pradeep Bhattacharya, Perry Daniels, “Test Engineering Course in the Electrical Engineering Department at Southern University”, Proceedings of the 2009 ASEE Annual Conference, 2009

Justin Boone, Alen Jones, Fred Lacy, “Initial Characterization of Thin Film Temperature Sensing Thermistors”, American Canadian Conference for Academic Disciplines, International Journal of Arts and Sciences, 2009.

Jiecai Luo, Fred Lacy, “Preliminary Engineering Mathematics Course in the Department of Electrical Engineering at Southern University”, Proceedings of the 2009 ASEE Gulf-Southwest Annual Conference, 2009

Neeharika Davuluri, Fred Lacy, Pradeep Bhattacharya, “Development of Miniature Li-Ion Battery for Multi-Sensor Chip”, Proceedings of the 2009 ASEE Gulf-Southwest Annual Conference, 2009

Fred Lacy, “Investigating Thin Films for Use as Temperature Sensors”, Proceedings of the World Congress on Engineering and Computer Science 2007, p. 441, 2007

Pradeep Bhattacharya, Zhengmao Ye, Ernest Walker, Fred Lacy, Madhusmita Banerjee, “Systematic Approach on Modeling and Identification for Nanobattery Prototyping”, NSTI-Nanotech Conference Proceedings, p.515, 2006

Joseph Boone Jr., Pradeep Bhattacharya, Fred Lacy, Ernest Walker, Zhengmao Ye, “Design, Fabrication and Integration of a Multi Sensor Chip”, Proceedings of the 2006 ASEE Gulf-Southwest Annual Conference, 2006

Nikhil Modi, Fred Lacy, “Piezoelectric Microcantilevers of Nanoscale Thickness for Detection of Cells”, NSTI-Nanotech Conference Proceedings, p. 501, 2005

Nikhil Modi, Fred Lacy, Pradeep Bhattacharya, “Virtual Silicon Environment for Enhanced Visualization of the Silicon Crystal Structure”, Proceedings of the 2005 ASEE Gulf-Southwest Annual Conference, 2005

Fred Lacy, Ernest L. Carter, Jr., and Steven L. Richardson, in Magnetic Ultrathin Films, Multilayers and Surface/Magnetic Interfaces-Physics and Characterization, edited by C. Chappert et al., Mater. Res. Soc. Symp. Proc. 313, Pittsburgh, PA, 1993, p. 65.

CONFERENCE ABSTRACTS / PRESENTATIONS

Fred Lacy, “Fabrication and Characterization of Varistor Sensors – Update”, AFRL Research Collaborative Program Review (Oct 2018).

Fred Lacy, “Fabrication and Characterization of Varistor Sensors”, AFRL Research Collaborative Program Review (May 2018).

Fred Lacy, “Fabrication and Characterization of Varistor Sensors – An Overview”, AFRL Research Collaborative Program Review (Dec. 2017).

Fred Lacy, “Lone Star Challenge Design Competition (Overview and Lessons Learned)”, Minority Leaders Program Review, Air Force Research Laboratories Conference (2011).

Nikhil Modi, Fred Lacy, “Fabrication of Piezoelectric Microcantilevers for Detection of Cells”, Louisiana Materials Research and Development Conference, (2003).

Camille J. Vogt, Fred Lacy, Dale A. Parks, and Geert W. Schmid-Schönbein, “Hydrogen peroxide and xanthine dehydrogenase/xanthine oxidase levels in glucocorticoid-induced hypertension”, FASEB Journal 13 (4): A116, Part 1, Suppl. S (1999).

Fred Lacy, Lisa M. Sheeter, Michelle Lumicao, Benjamin Wang, Robert L. Sah, Geert W. Schmid-Schönbein, “Reactive oxygen species in rheumatoid arthritis”, FASEB Journal 12 (4): 48, Part 1, Suppl. S (1998).

Erik B. Kistler, Tony Hugli, Fred Lacy, Geert W. Schmid-Schönbein, “Serine protease inhibition in splanchnic arterial occlusion shock in the rat”, FASEB Journal 12 (4): 178, Part 1, Suppl. S (1998).

Fred Lacy, David A. Gough, Benjamin W. Zweifach, and Geert W. Schmid-Schönbein, "Xanthine Oxidase is a Source of Hydrogen Peroxide in Human Blood Plasma", Annals of Biomedical Engineering 25 Supp. 1 (1997).

Erik B. Kistler, Fred Lacy, Richard Suzuki, Alan M. Lefer, Geert W. Schmid-Schönbein, and Benjamin W. Zweifach, "In Vitro Chemiluminescence Measurements of Plasma Superoxide Production by Pancreatic Activating Factor(s)", Annals of Biomedical Engineering 25 Supp. 1 (1997).

Allen Swei, Fred Lacy, Frank A. DeLano, and Geert W. Schmid-Schönbein, "The Role of Xanthine Oxidase Derived Oxygen Free Radicals in the Dahl Hypertensive Rat", Annals of Biomedical Engineering 25 Supp. 1 (1997).

Fred Lacy, Erik B. Kistler, Mike M. Lee, David A. Gough, and Geert W. Schmid-Schönbein, "Oxygen Free Radical Measurements in Blood Plasma", Microcirculation 4(1) (1997).

Allen Swei, Fred Lacy, Frank A. DeLano, Benjamin W. Zweifach, and Geert W. Schmid-Schönbein, "Oxidative Stress in the Dahl Hypertensive Rat", Microcirculation 4(1) (1997).

Fred Lacy, Daniel T. O'Connor, David A. Gough, and Geert W. Schmid-Schönbein, "The Measurement of Hydrogen Peroxide in the Blood Plasma of Hypertensives and Normotensives Using an Electrode Technique", Annals of Biomedical Engineering 24 Supp. 1 (1996).

Yemsrach Hailemariam, Fred Lacy, and Steven L. Richardson, "Confinement of Surface State Electrons within a Finite Quantum Corral on a Metal Surface", Bull. Am. Phys. Soc. 39, 739 (1994).

Fred Lacy, Ernest L. Carter, Jr., and Steven L. Richardson, "Theoretical Investigations of Bulk and Surface Magnetic Polaritons in an Antiferromagnetic Superlattice in an Applied Field", Bull. Am. Phys. Soc. 38, 672 (1993).

Steven L. Richardson, Fred Lacy, and Nawej Mwez, "Model Studies of Surface States of a Semi-Infinite Superlattice with Position-Dependent Effective Masses", Bull. Am. Phys. Soc. 38, 183 (1993).

Fred Lacy, Ernest L. Carter, Jr., and Steven L. Richardson, "Reciprocal Magnetostatic Surface Mode Propagation in Semi-Infinite Magnetic Superlattices", Bull. Am. Phys. Soc. 37, 500 (1992).

RESEARCH FUNDING

US Federal Government $350,000 July 2021 – June 2023
Fred Lacy, Yasser Ismail, Jiecai Luo, Wesley Gray, Yadong Qi, “Using Sensor Networks and Machine Learning to Characterize Agriculture Response to Stimuli”

National Science Foundation $299,799 May 2021 – Apr. 2024
Kenie Moses, Fred Lacy, Barry Hester, “Building a Career Pathway from High School into the Workforce for Skilled Technicians in Electrical, Industrial, and Process Engineering Technology”

Microsoft Corporation $200,000 Nov. 2020 – Oct. 2021
Patrick Mensah, Yasser Ismail, Yaser Banadaki, Shuju Bai, Fred Lacy “Enhancing Computer Engineering and Big Data Education (CEBDE) at Southern University and A&M College”

Louisiana Board of Regents $16,000 July 2020 – June 2021
Radian Belu, Fred Lacy, Moustapha Diack, “Design and Development of an Online Certificate in Renewable Energy and Energy Management”

National Science Foundation $400,000 Aug. 2019 – July 2022
Yasser Ismail, Fred Lacy, Phyllis Okwan, “Targeted Infusion Project Establishment of a Computer Engineering Research Lab (CERL) at Southern University and A&M College”

Entergy Corporation $1,650,000 Oct. 2017 – Sept. 2018
Patrick Carriere, Fred Lacy, “Entergy Engagement in the College of Sciences and Engineering”

Air Force Research Laboratory $47,000 June 2017 – May 2018
Fred Lacy, “Fabrication and Characterization of Varistor Sensors”

U.S. Department of Energy $130,000 Oct. 2017 – Sept. 2018
H. Dwayne Jerro, Fred Lacy, “Research on the Science and Engineering of Signatures (ROSES)”

NASA EPSCoR $240,000 Jan. 2012 – Dec. 2015

Ernest Walker, Xinjia Chen, Fred Lacy, "Integrated Trajectory Information Processing and Management for Aircraft Safety (ITIPS)" [collaboration between UNO/SU/LSU]

U.S. Department of Energy $2,160,000 Oct. 2010 – Sept. 2015

Ernest Walker, Fred Lacy, Jiecai Luo, Patrick Carriere, Xinjia Chen, "Detection and Sensing of Environmental and Chemical Substances using Ad-hoc Wireless Sensor Networks"

Texas Instruments $51,077 Mar. 2010 – Dec. 2010

Fred Lacy, Jiecai Luo, Pradeep Bhattacharya, "Enhancing the Test Engineering Course in the Electrical Engineering Department at Southern University (Collaboration with Texas Instruments)"

Clarkson Aerospace $31,700 Sept. 2008 – June 2009

Fred Lacy, "Materials and Manufacturing Research – Lone Star Challenge Design Competition"

Louisiana Space Consortium $10,000 Aug. 2008 – May 2009

Fred Lacy, Alen Jones, Justin Boone, "Fabrication of Thin Film Thermistors"

La. Optical Network Initiative $40,000 Apr. 2007 – Apr. 2009

Fred Lacy, "Using Computational Software and Laboratory Hardware to Characterize Micro/Nano Materials"

National Science Foundation $500,000 Jan. 2007 – Dec. 2010

Yvette P. Weatherton, Edgar R. Blevins, Fred Lacy, Karen E. Crosby, Patrick F. Mensah, "Scholarships Creating Opportunities for Retention in Engineering (SCORE)"

U.S. Department of Energy $2,012,624 Sept. 2005 – Aug. 2010

Ernest Walker, Fred Lacy, Pradeep Bhattacharya, Jiecai Luo, Patrick Carriere, "Detection and Sensing of Environmental and Chemical Substances using Ad-hoc Wireless Sensor Networks"

SUBR CoE Support Fund $131,000 Mar. 2004 – Feb. 2005

Fred Lacy, Pradeep Bhattacharya, Walter Craig, Ravinder Diwan, "Foundation for a Microfabrication Cleanroom"

Business & Industry Cluster $4,840 Feb. 2005 – Jan. 2006

Fred Lacy, "Educational Enhancement Using a Microfabrication Cleanroom"

Chancellor's SUBR Start-Up $3,000 Feb. 2004 – Jan. 2005

Fred Lacy, "Start-up Funding for Biomedical Sensors Research"

Charles & Anna Stern Foundation $43,500 June 1997 – May 1998

Fred Lacy, Robert L. Sah, and Geert W. Schmid-Schönbein, "Hydrogen Peroxide: A Sensitive Indicator and Pathogenic Mediator in Rheumatoid Arthritis?"

GRADUATE STUDENTS DIRECTED

Rahul Paramkusam, “Synthesis of a Graphene Oxide Field Effect Chemical Sensor”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, Dec. 2019

Deshon Swafford, “Fabrication and Characterization of Zinc Oxide Chemical Sensor”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, Dec. 2019

Yeshak Dabels, “Miniaturization of Chemical Identification by Magnetoelastic Sensing (ChIMES) Technology”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, Nov. 2018

Thisara Walpita, “Mass Analysis of a Molecule using a SAW and Capacitance Sensor”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, July 2016

Abdoulaye Goita, “GPS Tracking with Raspberry Pi”, Master of Engineering (Project), Electrical Engineering Department, Southern University, May 2016

Vernon Dutch, “Application of Electromagnetic Interference Shielding”, Master of Engineering (Project), Electrical Engineering Department, Southern University, May 2016

Uday Manthena, “Home Automation using Internet of Things”, Master of Engineering (Project), Electrical Engineering Department, Southern University, Nov. 2015

Sourya Annamaneni, “Android Game for Robot Coordination Problem”, Master of Engineering (Project), Electrical Engineering Department, Southern University, Nov. 2015

Richard Turner, “Application of Electro-Mechanical Transducer Within a Non-Destructive Test Environment”, Master of Engineering (Project), Electrical Engineering Department, Southern University, Nov. 2013

Philip Jones, “Photoinduced Toxicity of Engineered Nanomaterials”, Doctor of Philosophy (Dissertation), Environmental Toxicology Department, Southern University, Mar. 2013

Eddie Patrick, “Characterization of Polyaniline / Metal Oxide Composite Films for Sensing Ammonia”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, Dec. 2012

Rukhaya Singleton, “Hardware and Software Test Circuit Design for ADS1112”, Master of Engineering (Project), Electrical Engineering Department, Southern University, Dec. 2011

Adaryll White, “Chemical Electrodeposition Solar Cells”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, July 2010

Tarik Singleton, “Toward the Design and Fabrication of Nanowires”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, July 2009

Jonathan Hebert, “Takaya and ICT Test Component Verifications using Fabmaster”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, Mar. 2008

April Page, “Investigations of Platinum Thin Film Resistance Temperature Detectors”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, May 2007

Nikhil Modi, “Design, Fabrication, and Computational Analysis of Piezoelectric Microcantilevers for Detection of Cells”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, Jan. 2006

Lalitha Dabbiru, “Design, Fabrication and Characterization of a Microelectrode Array”, Master of Engineering (Thesis), Electrical Engineering Department, Southern University, Dec. 2005

COURSES TAUGHT

Freshman Engineering I (ENGR 120)
Freshman Engineering II (ENGR 130)
Electrical Circuits I (ELEN 208)
Electrical Circuits II (ELEN 209)
Electrical Circuits Lab I (ELEN 210)
Electrical Circuits Lab II (ELEN 211)
Electrical Properties of Matter (ELEN 212)
Intro to Microprocessors (ELEN 304)
Digital Logic Lab (ELEN 305)
Microprocessor Lab (ELEN 306)
Electronics I (ELEN 312)
Electronics II (ELEN 313)
Electronics I Lab (ELEN 314)
Electronics II Lab (ELEN 315)
Engineering Math (ENGR 340)
Electrical Engineering Fundamentals (ELEN 352)
Engineering Seminar (ENGR 400)
Advanced Topics in Electrical Engineering (ELEN 417) {sensors}
Test Engineering (for Analog and Mixed Signal Circuits) Lecture (ELEN 421)
Test Engineering (for Analog and Mixed Signal Circuits) Laboratory (ELEN 422)
Probability & Statistics (ELEN 450)
Electrical Engineering Design Lab (ELEN 490) {Internet of Things – IoT}
Senior Design II (ELEN 494)
Solid State Physics (ELEN 526)
Physics of Semiconductor Devices (ELEN 536)
Special Topics in Electronic Materials (ELEN 589) {sensors}

TEACHING INTERESTS

Electronic Sensor Technology and Design
Electronic Circuits and Electron Transport
Electromagnetic Field Theory

RESEARCH INTERESTS

Electronics Based Sensors
Electronic Transport in Conductors
Superconductivity
Thin Films
Biosensors and Bioelectrodes
Oxygen Radical Measurements
Measurement of the Electrical Properties of Cells and Tissues
Effects of Electromagnetic Radiation on Biological Materials
Computer Modeling and Computer Analysis of Biological Systems
Nanotechnology
Machine Learning Algorithm Development

REFERENCES

Available Upon Request