

DR ADEL EL SHAHAT

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BIOGRAPHY

Adel El Shahat is currently an Assistant Professor in the Department of Electrical and Computer Engineering at Georgia Southern University (GSU), USA. He is the Founder and Director of the Innovative Power Electronics and Nano-Grids Research Lab (IPENG) at GSU. He received his B.Sc. in Electrical Engineering from Zagazig University, Zagazig, Egypt, in 1999. He received his M.Sc. in Electrical Engineering (Power & Machines) from Zagazig University, Zagazig, Egypt, in 2004. He received his Ph.D. degree (Joint Supervision) from Zagazig University, Zagazig, Egypt, and The Ohio State University (OSU), Columbus, OH, USA, in 2011. His research focuses on various aspects of Smart Grid Systems; Nano & Micro- Grids; Power Electronics; Electric Machines; Drive Systems; Smart Homes, Distributed Generation; Renewable Energy Systems (Photovoltaic, Wind, Solar-Thermal, Hydrogen Fuel Cells...etc); Power Systems; Energy Storage & Conservation; Optimization; Neural Networks, Genetic; Power System Stability; Control Systems; Micro-generators Design; Micro-turbine operation; FACTS; Electric Vehicles; Modeling and Simulation techniques.

EDUCATION

Ph.D., Zagazig University, Egypt & Ohio State University, USA (JS), 2011

Major: Electrical Engineering

Supporting Areas of Emphasis: Electrical Power and Machines Engineering

M.Sc., Zagazig University, Egypt, 2004

Major: Electrical Engineering

Supporting Areas of Emphasis: Electrical Power and Machines Engineering

B.Sc., Zagazig University, Egypt, 1999

Major: Electrical Engineering

RESEARCH AREA

- Smart Grid Systems; Nano & Micro- Grids; Power Electronics; Electric Machines; Drive Systems; Smart Homes, Distributed Generation; Renewable Energy Systems (Photovoltaic, Wind, ...etc); Power Systems; Energy Storage & Conservation; Optimization; Neural Networks, Genetic; Power System Stability; Control Systems; Micro-generators Design; Micro-turbine operation; FACTS; Waste-to-Energy; Modeling and Simulation techniques.

TEACHING AREA

- Power Electronics; Electrical Machines, Drives; Power System Analysis; Smart Grids Fundamental; Electric Circuits; Control Systems Engineering; Power Systems Protection; Electromagnetic Fields; Digital Circuits Design; Electric field theory; Thermodynamic; Logic Circuits, Solving Engineering Problems with FORTRAN; Programming Language C & C++; Electronics Engineering; Computer Engineering; Solving Engineering Problems with MATLAB; Engineering Science History; Introduction to PLC Systems & Automation; Engineering Drawing & AutoCAD program; Linear Systems.

AWARDS, RECOGNITIONS AND HONORS

- Eight undergraduate students got **Three CEIT (College of Engineering & Information Technology) Research Undergraduates Awards** with me as Academic Advisor for three senior design projects, 2017/2018.
- Allen E. Paulson College of Engineering and Information Technology, **CEIT Symposium Award for Graduate Research; First place: Sharaf Sumaya, working with Dr. Adel El-Shahat (EE) and Dr. Kamran Kardel (MfgE)** on “Cost Effective Eco-friendly Large Area Production of Organic Photovoltaic Cell by Inkjet Printing.” Area: Alternative Energy, 2017.
- Allen E. Paulson College of Engineering and Information Technology, **CEIT Symposium Award for Graduate Research; Second place: Md-Mehedi Hasan, working with Dr. Adel El-Shahat (EE)** on “Performance Investigation of SSHAWT Blade by BEM and CFD.” Area: Alternative Energy, 2017.
- Allen E. Paulson College of Engineering and Information Technology, **CEIT Symposium Award for Undergraduate Research; First place: Priscilla Perez (EE), working with Dr. Adel El-Shahat (EE)** on “ANN-Predictive Model for Si-based Bipolar Transistor Characterization.”, 2017.
- **Award for Excellence in Graduate Research (Power Systems)**, First Place. Department of Electrical Engineering, Georgia Southern University. (One student under my supervision as Master Advisor). Spring 2017.
- **Award for Excellence in Undergraduate Research (Power Systems)**, First Place. Department of Electrical Engineering, Georgia Southern University. (One student under my supervision as Academic Advisor). Spring 2017.
- **Senior Member** in the IEEE, **Institute of Electrical and Electronics Engineers**, 2017
- **Senior Member** (UACEE), in the IRED, **Institute of Research Engineers and Doctors**, 2016.
- **Mentioned in College Convocation** by the **CEIT dean**, 2016.
- **Recognition from EE Dept. Chair** at Dept. meeting, CEIT, GSU, 2016.
- Appeared in **CEIT, GSU faculty highlights**, 2016.
- **Awards for Excellence in Engineering Capstone Project**, Department of Electrical Engineering, Georgia Southern University (Groups of students under my supervision as Academic Advisor). Spring 2016/ Fall 2016.
- **Award for Excellence in Undergraduate Research (Power Systems)**, Third Place. Department of Electrical Engineering, Georgia Southern University. (One student under my supervision as Academic Advisor). Spring 2016.
- Included in **Marquis Who's Who in America 2016** – Platinum 70th Edition. 2016.
- Included in **Faculty in print at Georgia Southern Magazine**, Spring Issue 2016.
- Five undergraduate students got **Two CEIT (College of Engineering & Information Technology) Research Undergraduates Awards** with me as Academic Advisor for two senior design projects, 2015/2016.
- Received **The Graduate Faculty Certificate with all the rights, honors, privileges, and responsibilities thereunto appertaining**: Georgia Southern University, Jack N. Averitt College of Graduate Studies, 2015.
- Received **Certificate of I²STEME Affiliation**: Institute for Interdisciplinary STEM Education, Georgia Southern University, 2015.

- Included in **Research notes at Georgia Southern Magazine**, Spring Issue 2015.
- Received **Acknowledgment Certificate for The Sweetest Professor of Electrical Engineering Dept. Georgia Southern University**: IEEE Student Chapter at Georgia Southern University, 2015.
- Nominated to be included in **Marquis Who's Who in America 2016** - 70th Edition. 2015.
- One of my students nominated for **Conference Award** (Top 10 Students Posters), 3rd Annual Georgia Undergraduate Research Conference, GURC 2014.
- Received **The Affiliation of the Graduate Faculty Certificate with all the rights, honors, privileges, and responsibilities thereunto appertaining**: Georgia Southern University, Jack N. Averitt College of Graduate Studies, 2014.
- Received **Post-Doc Fellowship**: ECE Dept. University of Illinois at Chicago, as a Visiting Assistant Professor, 2014.
- Received **Honor Certificate and Recognition with University Medal**: Suez Canal University, Egypt, in Science Festival, 2012.
- Received **Recognition with the University Sign to the World**: The Ohio State University President, During 4th Annual International Scholar Research Exposition 2009.
- Received **Research & PhD Scholarship**: Higher Education Ministry, Egypt to The Ohio State University, Columbus, OH, USA, 2008 - 2010.
- Received **PhD Research Scholarship**: Cultural Affairs & Missions Sector, Egypt, To Suez Canal University, Egypt, 2007.
- Received **PhD Scholarship**: Zagazig University, Faculty of Engineering, Egypt, 2005-2007.
- Received **Honor Certificate and Recognition with University Medal**: Suez Canal University, Egypt, in Science Festival, 2006.
- Received **The Outstanding Graduate Researcher Award** for the year 2004/2005 (Suez University, Egypt).
- Received **M.Sc Scholarship**: Zagazig University, Faculty of Engineering, Egypt, 2001-2004
- Received **Merit Top-up Students and Honor Certificate**: Arab Republic of Egypt, The Prime Minister Office, for Ten Top – Up Students in each Faculty, 2000.
- Received **Recognition and Honor Certificate**: Egyptian Engineering Syndicate, 1999.
- Received **Top-up Students and Honor Certificate & Recognition: Third Rank** from Electrical Power & Machines Department, Faculty of Engineering, Zagazig University, 1999.
- Received **The Undergraduate Highest Academic Achievement Honor Award** for the year 1998/1999 (President's List).
- Received **The Undergraduate Highest Academic Achievement Honor Award** for the year 1997/1998 (Dean's List).
- Received **The Undergraduate Highest Academic Achievement Honor Award** for the year 1996/1997 (President's List).
- Received **B.Sc Scholarship**: Zagazig University, Faculty of Engineering, Egypt 1995-1999.
- Received **B.Sc Scholarship**: Helwan University, Faculty of Engineering, Egypt, 1994-1995.
- Received **Best Students Awards**: Zagazig Univ., Faculty of Engineering, Zagazig, Egypt 1995-1999.
- Received **Best Students Award**: Helwan Univ., Faculty of Engineering, Mataria, Egypt, 1994-1995.

- Received a **High School Scholarship** throughout my academic career due to my outstanding scholastic achievement.

PROFESSIONAL POSITIONS

Academic

- Assistant Professor, EE Dept, Georgia Southern University. (August, 1st, 2015 – Present)
- Assistant Professor, RLM, Georgia Southern University. (August, 1st, 2014 – May, 2015)
- Visiting Assistant Professor, ECE, University of Illinois at Chicago, (May, 2014 –July, 2014)
- Assistant Professor, Suez University, Egypt (July, 2011 – April, 2014)
- Visiting Researcher & Graduate Assistant, ECE Dept. The Ohio State University, (October, 2008 – September, 2010)
- Associate Lecturer, Suez Canal University, Egypt (December, 2004 – September, 2008)
- Demonstrator (Teaching & Research) Assistant, Suez Canal University, (March, 2001 – November, 2004)

Professional

- Professional Engineer, Egypt, (1999 – Present).
- Electrical Engineer, Egyptian Railway Company, Zagazig Station, Egypt, (2000).
- Electrical Engineer, Canal Company for Electricity Distribution, Zagazig, Egypt, (2000).
- Under Training Engineer, Al Sweedy for Cables Factory, Egypt, 1999.
- Part-Time Consultant Electrical Engineer, Trainer, and Maintenance Electrical Engineer in some Egyptian Companies, Training Centers, and Consultant Offices, Egypt (2000: 2013).

Training Courses

- Teaching Online Course with Certificate, Centers of Teaching & Technology (CT2), Georgia Southern University, USA, Fall 2017.
- NSF CAREER Proposal Writing Workshop, Hilton Arlington, ARLINGTON, Washington DC, VA, 2017.
- Faculty Search Chairs Workshop, Dean's Conference Room, (CEIT) College of Engineering & Information Technology, Georgia Southern University, (2016).
- OPAL-RT (Real time) Software/ Hardware Training, Electrical Engineering Department, Georgia Southern University, (2016).
- How to Increase Your GSU/CEIT Research, CEIT Associate Dean for Research, (CEIT) College of Engineering & Information Technology, Georgia Southern University, (2016).
- The Office of the Vice President for Research & Economic Development New Faculty Workshop, Georgia Southern University, (2015).
- Online training on Financial Conflict of Interest for Funded Activities, Conflict of Interest mini-course, Georgia Southern University, 2015.
- Online training on Responsible Conduct Research (RCR) Course, Georgia Southern University, 2015.
- DOE and NSF funding agencies webinars (2015/ 2016).

- Applying the Quality Matters Rubric (APPQMR) -- an official Quality Matters course (2015), The Center for Online Learning, Centers of Teaching & Technology (CT2), Georgia Southern University, USA.
- Introduction to College Teaching: (2015), (Introduction to Course Design & Teaching; Assessment for Learning and Active Learning on the First Day & Every Day), Centers of Teaching & Technology, Naismith – Lane; Georgia Southern University, USA.
- Georgia Southern University Orientation for New Faculty (2015): Naismith – Lane; Georgia Southern University.
- Introduction to College Teaching: (2014), (Introduction to Course Design & Teaching; Assessment for Learning and Active Learning on the First Day & Every Day), Centers of Teaching & Technology, Georgia Southern University, USA.
- RTK – Global Harmonized System Training, (2014), Georgia Southern University.
- Folio – Quick start (On- Line Course Tools), (2014), Georgia Southern University.
- Georgia Southern University Orientation for New Faculty (2014): Naismith – Lane; Georgia Southern University.
- Desalination Technologies Course (2012): Suez University, Egypt.
- Exams systems and assessment for students Training Course (2011): Faculty and Leadership Development Center, Zagazig University, Egypt.
- Scientific research behaviors Training Course (2010): University Education Development Center, Suez Canal University, Ismailia, Egypt, Faculty and Leadership Development Project.
- Scientific conferences organization Training Course (2010): University Education Development Center, Suez Canal University, Ismailia, Egypt, Faculty and Leadership Development Project.
- Research team management Training Course (2010): University Education Development Center, Suez Canal University, Ismailia, Egypt, Faculty and Leadership Development Project.
- Active communication skills Training Course (2010): University Education Development Center, Suez Canal University, Ismailia, Egypt, Faculty and Leadership Development Project.
- New directions in teaching Training Course (2010): University Education Development Center, Suez Canal University, Ismailia, Egypt, Faculty and Leadership Development Project.
- ICDL Certificate, 2007.
- Computer Training (2003): Computer Operating Systems (Dos, Windows,Etc), and Statistical Program SPSS. Information Technology Center, Science Faculty, Zagazig University, Egypt
- Engineering Training (2000): Learning and training for Studying Engineering Projects Files, The Engineering Authority for Armed Forces, Egypt.
- Electrical Training (1999): El Sweedy for Cables Factory, Al Asher Mn Ramadan, Egypt.
- Electrical Training (1999): High Dam Hydraulic Generation Station, Visit, and training, with Under Graduate Students of Electrical Power & Machines Dept., (B.Sc degree), Faculty of Engineering, Zagazig University, Aswan, Egypt.
- Social Development Office Course: (2-1999: 7-1999), Faculty of Engineering, Zagazig University, Zagazig, Egypt.
- Electrical Training (1998): Training on Generation, Transmission, Faults, Machines, and Distribution. Canal Company for Electricity Training Center, Esamelia, Egypt.
- Electrical Training (1997): Training on Transformers, Measurement Devices, Cables, and Distribution Tables. Zagazig Branch, Canal Electricity Distribution Company, Zagazig, Egypt.

- Computer Training (1997): MATLAB programming (Advanced Course), Faculty of Engineering, Zagazig University, Zagazig, Egypt.
- Engineering Drawing Training (1996): Assembly Mechanical Drawing, Civil Drawing, and Electrical Drawing, Faculty of Engineering, Zagazig University, Zagazig, Egypt.
- Computer Training (1996): FORTRAN Programming Language (Advanced Course), Egyptian Engineering Syndicate Computer Center, Zagazig Branch, Zagazig, Egypt.
- Electrical Training (1996): ABB Arab Company, Al Asher Mn Ramadan, Egypt.
- Computer Training (1995): Operating System (Dos, MS Windows 3.11, MS Windows XP, Windows ME etc), MS Word, MS Excel, Private Center, Diarb Nagm, Sharkia, Egypt.
- Engineering Drawing (1995): Basic Engineering Drawing (Mechanical, Electrical and Steel), Faculty of Engineering and Technology, Helwan University, Mataria, Egypt.

PROFRSSIONAL MEMBERSHIPS

- Senior Member in the IEEE, **Institute of Electrical and Electronics Engineers**
- Senior Member (UACEE), in the IRED, **Institute of Research Engineers and Doctors**
- Member in the IEEE, **Industry applications Society**
- Member in the IEEE, **Computer Society**
- Member in the IEEE, **Technical Community on Smart Grid**
- Member in the IEEE, **Power & Energy Society**
- Member in the IEEE, **Systems Council**
- Member in the IEEE, **Power Electronics Society**
- Member in the, **U. S. National Committee of CIGRE** (International Council of Large Electric Systems)
- Member in the ASEE, **American Society for Engineering Education**
- Member in the ASEE, **Energy Conversion and Conservation Division**
- Member in the ASEE, **Engineering Ethics Division**
- Member in the ASEE, **Computing & Information Technology Division**
- Member in the ASEE, **Materials Division**
- Member in the ASEE, **Multidisciplinary Engineering Division**
- Member in the ASEE, **Ocean and Marine Division**
- Member in the IAENG, **International Association of Engineers**
- Member in the IACSIT, **International Association of Computer Science and Information Technology**
- Member in the **Arab Research Institute for Science & Engineering**
- Member in the **SAE International**
- Member in the **Egyptian Engineering Syndicate**
- Member in the Scientific and Technical Committee & Editorial Review Board on Natural and Applied Sciences, **(World Academy of Science Engineering and Technology) WASET**

TEACHING

TEACHING EXPERIENCE (Undergraduate & Graduate)

Georgia Southern University

- EENG 3337 Power Systems Fundamentals
- EENG 5544 Smart Grids
- EENG 5243 Power Electronics
- EENG 5242 Power Systems Protection
- EENG 3241 Electric Machines
- EENG 5090 Transformers & Electrodynamics
- EENG 5243 Graduate, Power Electronics
- ENGR 1731 Computing for Engineers
- ENGR 2332 Intro to Computer Engineering
- EENG 5242 Graduate, Power Systems Protection
- EENG 5544 Graduate, Smart Grids
- EENG 5243 Graduate, Power Electronics
- ENGR 2332 Introduction to Computer Engineering
- ENGR 1731 Computing for Engineers
- ENGR 1732 Program Design for Engineers
- TMAE-7891- Wind Energy Systems
- TMAE-7999- Thesis
- TMAE-7895-F - Grid-Connected LI-Ion Battery
- TMAE-7891-B – Optimal Power Cables for Smart Grids

Egyptian Universities:

- Power System Analysis
- Power Electronics
- Electrical Machines and Drives
- Electric Circuits
- Automatic Control Engineering
- Digital Circuits Design
- Electric field theory
- Electromagnetic Fields
- Thermodynamic
- Logic Circuits
- Solving Engineering Problems with FORTRAN
- Programming Languages
- Electronics Engineering
- Computer Engineering
- Solving Engineering Problems with MATLAB
- Engineering Science History
- Introduction to PLC Systems & Automation
- ICDL Modules
- Engineering Drawing
- AutoCAD program
- Linear Systems
- Simulation & Optimization for Energy Systems
- Electric field theory

- I'm active member of the EE department assessment committee, GSU and participate in all assessment meetings and activities.
- **Implemented New Courses:**
 - EENG 5237, **Nuclear Power Fundamentals**, Electrical Engineering Department, Georgia Southern University.
 - EENG 5544, **Smart Grids Technology Fundamentals**, Electrical Engineering Department, Georgia Southern University.
 - EENG 3337, **Power Systems Fundamentals**, Electrical Engineering Department, Georgia Southern University.
 - EENG 5242, **Power Systems Protection**, Electrical Engineering Department, Georgia Southern University.
 - EENG 5237 Graduate, **Nuclear Power Fundamentals**, Electrical Engineering Department, Georgia Southern University.
 - EENG 5544 Graduate, **Smart Grids Technology Fundamentals**, Electrical Engineering Department, Georgia Southern University.
 - EENG 5242 Graduate, **Power Systems Protection**, Electrical Engineering Department, Georgia Southern University.

DIRECTED STUDENT LEARNING (SAMPLES)

Master Degrees

- Master's Thesis (Main Adviser), "Electric Vehicles Wireless Charging", Department of Electrical Engineering at Georgia Southern University, USA. (August, 2017: Present).
Advised: Erhuvwu Ayisire.
- Master's Thesis (Main Adviser), "Effect of Additive Manufacturing for Renewable Energy Applications", Department of Electrical Engineering at Georgia Southern University, USA. (August, 2016: Present).
Advised: Sharaf Somayia.
- Master's Thesis (Main Adviser), "Energy Storage Management and Simulation for Nano- Grids", Department of Electrical Engineering at Georgia Southern University, USA. (January, 2016: Present).
Advised: Shantu Ghose.
- Master's Thesis Committee Member, "Performance Analysis of Massive MIMO Systems with Different Precoding Technique", Department of Electrical Engineering at Georgia Southern University, USA. (November, 2017).
Advised: Kishan Neupane.
- Master's Thesis Committee Member, "ADRC based control of nonlinear dynamical system with multiple sources of disturbance and multiple inputs", Department of Department of Mathematical Sciences at Georgia Southern University, USA. (August, 2017).
Advised: Chan Mi Park.
- Master's Thesis Committee Member, "Optimization of Energy Storage within Photovoltaic Distributed Generation Network", Department of Electrical Engineering at Georgia Southern University, USA. (August, 2017).
Advised: Ananya Nag.

- Master's Thesis (Main Adviser), "Design and Performance Analysis of Small Scale Horizontal Axis Wind Turbine for Nano Grid Application", Department of Electrical Engineering at Georgia Southern University, USA. (May, 2017).
Advised: Md. Mehedi Hassan.
- Master's Thesis (Main Adviser), "Design and Modeling for DC Nanogrids", Department of Electrical Engineering at Georgia Southern University, USA. (May, 2017).
Advised: Ormond Castle.
- Master's Thesis Committee Member, "Intrusion Detection for Smart Grid Communication Systems", Department of Electrical Engineering at Georgia Southern University, USA. (May, 2017).
Advised: Brycent Chatfield.
- Master's Thesis Committee Member, "Performance Analysis of Secondary Users in Heterogeneous Cognitive Radio Network", Department of Electrical Engineering at Georgia Southern University, USA. (May, 2016).
Advised: Tanjil Amin
- Master's Thesis Committee Member, "Smart Distributed Generation Systems using Improved Islanding Detection and Event Classification", Department of Electrical Engineering at Georgia Southern University, USA. (May, 2015).
Advised: Bikiran Guha
- Master's Thesis Committee Member (Main Adviser), "Simulation of Wind Energy Systems in Egypt", Engineering Science Department, Faculty of Petroleum & Mining Engineering, Suez University. (May 2015).
Advised: Ramy M. Abd-Al-Khalek

Some Graduate Research and Energy Diploma Short Thesis (Samples)

- Research Project for Independent Study, Main Advisor, "Optimal Power Cable Selection for Smart Grids", Department of Electrical Engineering at Georgia Southern University, USA. (Fall, 2017). Advised: Vincent Faison II.
- Hasan, Md Mehedi, Adel El-Shahat, "Performance Investigation of SSHAWT Blade by BEM and CFD", Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Sumaiya, Sharaf, Adel El-Shahat, Kamran Kardel, "Organic Solar Cell by Inkjet Printing", Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Hasan, Md Mehedi, Adel El-Shahat, "Vortex Bladeless Wind Generator for Nano-Grid Application", Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Castle, Ormond, Adel El-Shahat, "Single-Input – Multi-Output (SIMO) Converter for Nano-Grids Applications", Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.

- Ghose, Shantu, Adel El-Shahat, “Modeling and Simulation of Different Types of Storage Devices”, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Castle, Ormond, Adel El-Shahat, “Design of DC Nano-Grid System with Ring Scheme Architecture Micro-Grid System”, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Ghose, Shantu, Adel El-Shahat, “Cost Analysis of Solar-Wind Hybrid Power System for Statesboro, GA”, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Md Mehedi Hasan, Adel El Shahat, “Performance Investigation of SSHAWT Blade by BEM and CFD”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 2017.
- Sharaf Sumaiya, Kamran Kardel, Adel El Shahat, “Cost-effective Eco-friendly Large Area Production of Organic Photovoltaic Cell by Inkjet Printing”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 2017.
- Ormond Castle, Adel El Shahat, “Design of DC Nano-Grid System with Ring Scheme Architecture Micro Grid System”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 2017.
- Shantu Ghose, Adel El Shahat, “Wind-Solar Hybrid Power System Cost Analysis using HOMER for Statesboro, Georgia”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 2017.
- Ormond Castle, Adel El Shahat, “Single-Input Multi-Outputs (SIMO) DC-DC Converter for Nano-Grids”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 16, 2016.
- Mehedi Hasan, Adel El Shahat, “Micro-Horizontal Axis Wind Turbine (MHAWT) Design for Nano-Grids”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 16, 2016.
- Shantu Ghose, Modeling & Simulation of Energy Storage for DC NANO- GRID, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 16, 2016.
- Ananya Nag, Md Mehedi Hasan, Shantu Ghose, Ormond Castle, Modeling And Performance Analysis of Integrated Boost Converter and Bi-Directional DC-DC Converter, Spring 2016 Term Project for EENG 5243 G.
- Hunter Taylor, Flexible AC Transmission Systems (FACTS), Spring 2016 Term Project for EENG 5243 G.
- Malik Fraser Kramer, Abhishek Bhimraj, Isaac Cushman, Energy Harvesting for Roadside Units in VANET, Spring 2016 Term Project for EENG 5243/G.
- Chris Ludaway, Dylan Arthur, Joshua Haney, Power Electronics in Automobiles, Spring 2015 Term Project for EENG 5243/G.
- Mudasser Wahab, Fernando Rios-Gutierrez, Adel El Shahat, “Energy Modeling of Differential Drive Robots”, Paper Presentation, Georgia Southern Research Symposium, 2015.

- Paul Bupe Jr, Adel El Shahat, “Micro-turbines (An overview)”, Poster, Research Report and Presentation, Electrical Engineering Department, Georgia Southern University, Power System Class, Fall 2014.
- Paul Bupe Jr, Adel El Shahat, “Optimization Methods for Robotics Applications”, Poster, Research Report and Presentation, Electrical Engineering Department, Georgia Southern University, Power System Class, Fall 2014.
- Short Thesis (for Energy Diploma Requirement), Advisor, “Reserve Osmosis Unit Design for Desalination Applications”, Engineering Science Department, Faculty of Petroleum & Mining Engineering, Suez University. (2012).
Advised: Hussein S. Salama
- Short Thesis (for Energy Diploma Requirement), Advisor, “Simulation and Investigation of Power Generators – Zaafaraa Power Station Case Study”, Engineering Science Department, Faculty of Petroleum & Mining Engineering, Suez University. (2011).
Advised: Ahmed M. Ali

Undergraduate Research (Samples)

- Dixon, DeAnndra, Adel El-Shahat, Offshore Wind Energy Power System vs. Conventional Implementations - Comparative Study, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Iroghama, Osahon, Adel El-Shahat, Wave Energy Harvester Simulation, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Kabre, Antoine, Adel El-Shahat, Multi-Junction Solar Cells Optimum Modeling, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Keys, Darian, Ajala, Olanrewaju, Adel El-Shahat, Bladeless Wind Turbine, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Minshew, Zackary, Adel El-Shahat, Vortex Bladeless Wind Generator, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Njeri, Samuel, Smith, Rashad, Adel El-Shahat, Solar Charged Autonomous Car, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Fakorede, Samuel, Adel El-Shahat, Big Data Analytics in Power Systems, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Fakorede, Samuel, Adel El-Shahat, Proton Exchange Membrane Fuel Cell Predictive Modeling, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.

- Hanna, Blair, Adel El-Shahat, Optimal Power Flow for Micro-Grids, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Johnson, J. Hunter, Adel El-Shahat, Supercapacitor Modeling for Nano-Grid Applications, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Kabre, Antoine, Adel El-Shahat, Power Line Communication for Micro-Grids, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Minshew, Zackary, Adel El-Shahat, DC Micro-Grid Real Time Pricing and Market Models, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- May, Gabrielle, Adel El-Shahat, Battery-Degradation Model Based on ANN-Regression Function for EV Applications, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Perez, Priscilla, Adel El-Shahat, ANN-Predictive Model for Si-based Bipolar Transistor Characterization, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Hanna, Blair, Adel El-Shahat, Life Cycle Assessment Parameters for the Power-Electronic-Converters, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Adam Carver, Anthony Moore, Adel El Shahat, Multi-Level Cascaded Inverter (MLCI) Design, Simulation and Implementation with Solar Photovoltaic System Modeling, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Adam Johnston, Mason Johnson, John Sweat, Adel El Shahat, Charging EV using PV Panel with DC-DC Converter, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Zack Floyd, Roman Coley, Clifford Saggus, Adel El Shahat, A Micro-Hydro Power Generator Electrical System Design and Implementation, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Kyle Radford, Michael Moore, Adel El Shahat, Multi-Inputs Multi-Outputs Universal Converter for Smart Home Applications, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Mason Johnson, John Jones, Adam Johnston, and John Sweat, Boost Converter, Spring 2016 Term Project for EENG 5243 A.
- Daniel Kaneshiro, Mark Davis, James Moseley, The Steam Turbine, Spring 2016 Term Project for EENG 3241 A.
- Jacob Odom, Hydroelectricity Generation, Spring 2016 Term Project for EENG 5243 A.
- Aaron Mosley, Austin Martenson, Joseph Courson, High Voltage Direct Current Transmission, Spring 2016 Term Project for EENG 5243 A.

- Iain Adams, Joshua Bowles, and Esaias Hobbs, General Residential Applications and Advances of Power Electronics, Spring 2016 Term Project for EENG 5243 A.
- Matheus Tavares, Marcelo Fernandes, Power Electronics Devices in Wind Energy Systems, Spring 2016 Term Project for EENG 5243 A.
- Jordan Rice, James Highsmith, Kale Watson, Maximum Power Extraction Control for High Sustainability Magnetic Power Monitoring, Spring 2016 Term Project for EENG 5243 A.
- Michael Moore, Stephen Kyle Radford, Mcvandy Falasie, Photovoltaic Efficiency, Spring 2016 Term Project for EENG 5243 A.
- Dustin Watkins, Chris de la Torre, Fernando Boyzo, Concentrated Solar Thermal Energy, Spring 2016 Term Project for EENG 3241 A.
- Franklin Mosely, Austin Joiner, James Howel, Electric Machines in Electric Vehicles, Spring 2016 Term Project for EENG 3241 A.
- Richard Kummer and Izaac Baer, Robotic Applications for Electric Machines, Spring 2016 Term Project for EENG 3241 A.
- Lonnie Pope, Chase Adams, Dominick Skinner, Photovoltaic Solar Panels, Spring 2016 Term Project for EENG 3241 A.
- Wind Power Energy Source as Intermittent dispatchable unit for Micro-Grid Applications, Jordan Cannon, David Moore, Stephen Eason, Adel El Shahat, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Energy Efficient Electrical Design for a Higher Education Building, Matthew Cobb; Nathan Justin, Adel El Shahat, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Residential Solar Photovoltaic System Design, Joseph Courson; Austin Martenson; Aaron Mosley, Adel El Shahat, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Universal Power Converter with Wireless Distribution, Stephen Radford, Michael Moore, Adel El Shahat, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Single-Phase Cascaded Inverter for Photovoltaic System, Anthony Moore, Adam Carver, Adel El Shahat, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
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- **Adel El Shahat, Hamed El Shewy, “Permanent Magnet Machines Reliability Appraisals and Fault Types Review”** EP-126, 13th International Conference on Aerospace Science & Aviation Technology, May 26 – 28, 2009, ASAT 2009 – Military Technical College, Cairo, Egypt.
- **Adel El Shahat, Hamed El Shewy, “Neural Unit for PM Synchronous Machine Performance Improvement used for Renewable Energy”,** Ref: 93, The Third Ain Shams University International Conference on Environmental Engineering (Ascee- 3), April 14-16 2009, Cairo, Egypt.
- **Hamed El Shewy, Adel El Shahat, “PM Synchronous Machine Stabilization Control for Electric Vehicle”,** Ref: 118, The Third Ain Shams University International Conference on Environmental Engineering (Ascee- 3), April 14-16 2009, Cairo, Egypt.
- **Adel El Shahat, Hamed El Shewy, “Neural Unit for PM Synchronous Machine Performance Improvement used for Renewable Energy”,** Paper Ref.: 910, Global Conference on Renewable and Energy Efficiency for Desert Regions (GCREEDER2009), Amman, Jordan.

- Hamed El Shewy, **Adel El Shahat**, “**PM Synchronous Machine Stabilization Control for Electric Vehicle**”, Paper Ref.: 911, Global Conference on Renewable and Energy Efficiency for Desert Regions (GCREEDER2009), Amman, Jordan.
- Hamed El Shewy, **Adel El Shahat**, “**PM Synchronous Machine Stabilization Control for Aircraft and Spacecraft**” CT-128, 13th International Conference on Aerospace Science & Aviation Technology, May 26 – 28, 2009, ASAT 2009 – Military Technical College, Cairo, Egypt.
- H. M. El Shewy, F. E. Abd Al Kader, M. El Kholy, **Adel El Shahat**, “ **Dynamic Modeling of Permanent Magnet Synchronous Motor Using MATLAB - Simulink**” EE108, 6th International Conference on Electrical Engineering ICEENG 6, 27-29 May, 2008, Military Technical College, Egypt .
- S. Nafey, **Adel El Shahat**, M. A. Sharaf, “**A Neural Model for Flat Plate Collector**”, EGY- 38, 6th International Conference on Role of Engineering towards a Better Environment, RETBE’06 Conference in Alexandria, 16 - 18 December 2006.
- Adel T. Y. Tawfik, **Adel El Shahat**, “**A Neuro Modeling for New Biological Technique of Water Pollution Control**” , EGY- 37, 6th International Conference on Role of Engineering towards a Better Environment, RETBE’06 Conference in Alexandria, 16 – 18 December 2006.
- Adel T. Y. Tawfik, **Adel El Shahat**, “**A Neural Model for New Biological Technique of Water Pollution Control: Experimental Project**” , The 6th Syrian – Egyptian Conference of Chemical & Petroleum Engineering, 8 - 10 November, 2005, Syria.
- Adel Y. Tawfik, **Adel El Shahat**, “**Speed Sensorless Neural Controller for Induction Motor Efficiency Optimization**”, 1st International Conference on Advanced Control Circuits and Systems (ACCS’05), ACCS Catalog No: 080610 M 05, ISBN: 0 – 146 – 6310 – 7933 – 2, March 6 – 10, 2005, Cairo, Egypt.
- Hamed El Shewy, Adel Y. Tawfik, **Adel El Shahat**, “**Neural Model of 3 phase Induction Motor**”, 1st International Conference on Advanced Control Circuits and Systems (ACCS’05), ACCS Catalog No: 080610 M 05, ISBN: 0 – 145 – 6310 – 7933 – 2, March 6 – 10, 2005, Cairo, Egypt.

OTHER PUBLICATIONS, PRESENTATIONS, AND POSTERS

- Samuel Fakorede, **Adel El-Shahat**, “**Proton Exchange Membrane Fuel Cell Predictive Modeling**”, IEEE Global Humanitarian Technology Conference, DoubleTree By Hilton San Jose, California, USA – October 19 – 22, 2017.
- Md Mehedi Hasan, **Adel El-Shahat**, “**Performance Investigation of SSHAWT Blade by BEM and CFD**”, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Sharaf Sumaiya, **Adel El-Shahat**, Kamran Kardel, “**Organic Solar Cell by Inkjet Printing**”, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Md-Mehedi Hasan, **Adel El-Shahat**, “**Vortex Bladeless Wind Generator for Nano-Grid Application**”, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.

- Ormond Castle, **Adel El-Shahat, “Single-Input – Multi-Output (SIMO) Converter for Nano-Grids Applications”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Shantu Ghose, **Adel El-Shahat, “Modeling and Simulation of Different Types of Storage Devices”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Ormond Castle, **Adel El-Shahat, “Design of DC Nano-Grid System with Ring Scheme Architecture Micro-Grid System”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Shantu Ghose, **Adel El-Shahat, “Cost Analysis of Solar-Wind Hybrid Power System for Statesboro, GA”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Md Mehedi Hasan, **Adel El Shahat, “Performance Investigation of SSHAWT Blade by BEM and CFD”**, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 2017.
- Sharaf Sumaiya, Kamran Kardel, **Adel El Shahat, “Cost-effective Eco-friendly Large Area Production of Organic Photovoltaic Cell by Inkjet Printing”**, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 2017.
- Ormond Castle, **Adel El-Shahat, “Design of DC Nano-Grid System with Ring Scheme Architecture Micro Grid System”**, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 2017.
- Shantu Ghose, **Adel El-Shahat, “Wind-Solar Hybrid Power System Cost Analysis using HOMER for Statesboro, Georgia”**, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, April 2017.
- DeAnndra Dixon, **Adel El-Shahat, “Offshore Wind Energy Power System vs. Conventional Implementations - Comparative Study”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Osahon Iroghama, **Adel El-Shahat, “Wave Energy Harvester Simulation”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Antoine Kabre, **Adel El-Shahat, “Multi-Junction Solar Cells Optimum Modeling”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Darian Keys, Olanrewaju Ajala, **Adel El-Shahat, “Bladeless Wind Turbine”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Zackary Minshew, **Adel El-Shahat, “Vortex Bladeless Wind Generator”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.

- Samuel Fakorede, **Adel El-Shahat, “Big Data Analytics in Power Systems”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Samuel Njeri, Rashad Smith, **Adel El-Shahat, “Solar Charged Autonomous Car”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Samuel Fakorede, **Adel El-Shahat, “Proton Exchange Membrane Fuel Cell Predictive Modeling”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Blair Hanna, **Adel El-Shahat, “Optimal Power Flow for Micro-Grids”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- J. Hunter Johnson, **Adel El-Shahat, “Supercapacitor Modeling for Nano-Grid Applications”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Antoine Kabre, **Adel El-Shahat, “Power Line Communication for Micro-Grids”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Zackary Minshew, **Adel El-Shahat, “DC Micro-Grid Real Time Pricing and Market Models”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Gabrielle May, **Adel El-Shahat, “Battery-Degradation Model Based on ANN-Regression Function for EV Applications”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Priscilla Perez, **Adel El-Shahat, “ANN-Predictive Model for Si-based Bipolar Transistor Characterization”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- Blair Hanna, **Adel El-Shahat, “Life Cycle Assessment Parameters for the Power-Electronic-Converters”**, Allen E. Paulson College of Engineering and Information Technology, CEIT Symposium, Georgia Southern University, 2017.
- **Adel El-Shahat, Rami J. Haddad, Youakim Kalaani, “Distributed Generation Systems Modelling & Simulation Visual Library (DGS)”**, 2016 IAJC/ISAM 5th, International Conference in Orlando, FL. November 6 – 8, 2016, Orlando, Florida.
- Adam Carver, Ormond Castle, Anthony Moore, Michael Moore, S. Kyle Radford, **Adel El-Shahat, “Special Purpose Power Electronics Converters for Nano-Grids”**, Accepted Poster Abstract, 2016 IEEE International Power Modulator and High Voltage Conference, San Francisco, CA – July 5-9, 2016.
- Roman Coley, Zack Floyd, Clifford Saggus, **Adel El-Shahat, “Optimized Small Scale Hydropower Generator Electrical System”**, Accepted Poster Abstract, 2016 IEEE International Power Modulator and High Voltage Conference, San Francisco, CA – July 5-9, 2016.

- Shantu Ghose, **Adel El-Shahat**, “**Energy Storage Modeling Library (ESML) for DC Nano- Grid**”, Accepted Poster Abstract, 2016 IEEE International Power Modulator and High Voltage Conference, San Francisco, CA – July 5-9, 2016.
- **Adel El-Shahat**, “**Nano-Grids: Future Power Grids**”, Accepted Poster Abstract, 2016 IEEE International Power Modulator and High Voltage Conference, San Francisco, CA – July 5-9, 2016.
- Mehedi Hasan, **Adel El Shahat**, “**Micro-Horizontal Axis Wind Turbine (MHAWT) Design for Nano-Grids**”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Adam Carver, Anthony Moore, **Adel El Shahat**, “**Multi-Level Cascaded Inverter (MLCI) Design, Simulation and Implementation with Solar Photovoltaic System Modeling**”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Shantu Ghose, **Adel El Shahat**, “**Modeling & Simulation of Energy Storage for DC NANO-GRID**”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Ormond Castle, **Adel El Shahat**, “**Single-Input Multi-Outputs (SIMO) DC-DC Converter for Nano-Grids**”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Adam Johnston, Mason Johnson, John Sweat, **Adel El Shahat**, “**Charging EV using PV Panel with DC-DC Converter**”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Zack Floyd, Roman Coley, Clifford Saggus, **Adel El Shahat**, “**A Micro-Hydro Power Generator Electrical System Design and Implementation**”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- S. Kyle Radford, Michael Moore, **Adel El Shahat**, “**Multi-Inputs Multi-Outputs Universal Converter for Smart Home Applications**”, Georgia Southern University Research Symposium, Nessmith-Lane Conference Center, Saturday, April 16, 2016.
- Jordan Cannon, David Moore, Stephen Eason, **Adel El Shahat**, “**Wind Power Energy Source as Intermittent dispatchable unit for Micro-Grid Applications**”, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Matthew Cobb; Nathan Justin, **Adel El Shahat**, “**Energy Efficient Electrical Design for a Higher Education Building**”, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Joseph Courson; Austin Martenson; Aaron Mosley, **Adel El Shahat**, “**Residential Solar Photovoltaic System Design**”, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Stephen Radford, Michael Moore, **Adel El Shahat**, “**Universal Power Converter with Wireless Distribution**”, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Anthony Moore, Adam Carver, **Adel El Shahat**, “**Single-Phase Cascaded Inverter for Photovoltaic System**”, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.

- Zack Floyd, Roman Coley, Clifford Saggus, **Adel El Shahat**, “**Electrical System associated with Small Scale Hydropower Generator Design & Modeling**”, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- Collin Daly, Rami Haddad, **Adel El Shahat**, “**H.265 Video Traffic Prediction Models Using Artificial Neural Networks**”, Georgia Undergraduate Research Conference, GURC November 6-7, 2015.
- **Adel El Shahat**, “**PM Micro-Generator Design for Smart Grid Systems**”, International Conference on Improving Sustainability Concept In Developing Countries 2015, Cairo, Egypt, Accepted Abstract.
- **Adel El Shahat**, “**Micro-Turbine Performance Simulation for Micro-Grids Applications**”, International Conference on Improving Sustainability Concept In Developing Countries 2015, Cairo, Egypt, Accepted Abstract.
- Mudasser Wahab, Fernando Rios-Gutierrez, **Adel El Shahat**, “**Energy Modeling of Differential Drive Robots**”, Georgia Southern Research Symposium, 2015.
- Bradley Jones, Quentin Vultaggio, **Adel El Shahat**, “**Photovoltaic Model for Smart Grid Applications**”, 3rd Annual Georgia Undergraduate Research Conference, GURC, 2014.
- Ekene Micheal Nwobodo, **Adel El Shahat**, “**Horizontal Axis Wind Turbines Modeling for Smart Grids Applications**”, 3rd Annual Georgia Undergraduate Research Conference, GURC, 2014.
- Haydon Lynch, **Adel El Shahat**, “**Solar Modules Based Design Modeling**”, 3rd Annual Georgia Undergraduate Research Conference, GURC 14-15 November 2014.
- Obinna Eneh, **Adel El Shahat**, “**Aircraft High Speed PM Synchronous Machine Basic Sizing Regression Neural Function**”, 3rd Annual Georgia Undergraduate Research Conference, 2014.
- **Adel El Shahat**, **Smart Micro-Grids Energy Systems – Overview**; EgittoNews Scientific Article, 14 June, (2014).
- **Adel El Shahat**, Mohamed A. Sharaf, A. M. Soliman, **Accepted Abstract about: “Techno Economic Optimization of Solar-Wind Hybrid Systems Powered Large Scale Reverse Osmosis Desalination Plants**”, The ASME 2012 International Mechanical Engineering Congress and Exposition, November 9 – 15, (2012), Houston, Texas, USA.
- **Adel El Shahat**, **Accepted Abstract about: “DC-DC Converter Fed Maximum Power Modeling and Simulation of Distributed Generation for Photovoltaic Applications**”, The ASME 2012 International Mechanical Engineering Congress and Exposition, November 9 – 15, (2012), Houston, Texas, USA.
- **Adel El Shahat**, “**Doubly Fed Induction Generator Recent Advances**”, Research Report (2010), Department of Electrical and Computer Engineering, Ohio State University, USA.
- **Adel El Shahat**, Ali Keyhani, **Poster about: “Sizing a high speed PM generator for green energy applications**”, The 4th Annual International Scholar Research Exposition; Bricker Hall on November 1- December 31, (2009) at The Ohio State University.

- **Adel El Shahat, Ali Keyhani, Poster about: “Sizing a variable speed PM generator for renewable energy applications”**, Department of Electrical and Computer Engineering, (2009), Ohio State University, USA.
- **Hamed El Shewy, Adel El Shahat, Accepted Abstract about: “Sensorless Control Presentation for Permanent Magnet Machine”** CT-042, 13th International Conference on Aerospace Sciences & Aviation Technology, May 26 – 28, (2009), ASAT 2009, Military Technical College, Cairo, Egypt.
- **Hamed El Shewy, Adel El Shahat, Accepted Abstract about: “High Speed Permanent Magnet Machine Modeling for Future Embedded Aircraft Generation Systems Using MATLAB – Simulink”** MO-043, 13th International Conference on Aerospace Sciences & Aviation Technology, May 26 – 28, (2009), ASAT 2009, Military Technical College, Cairo, Egypt.
- **Hamed El Shewy, Adel El Shahat, Accepted Abstract about: “Sample PM Synchronous Motor Parameter Identification Using Swarm Optimization for Electric Vehicle”**, Ain-Shams University Third International Conference on Environmental Engineering (Ascee- 3), April 14-16, (2009), Cairo, Egypt.
- **Adel El Shahat, “Recent Advances in Energy Conversion and Storage Systems”**, Research Report (2009), Department of Electrical and Computer Engineering, Ohio State University, USA.
- **Adel El Shahat, Presentation about: “Dynamic Modeling of Permanent Magnet Synchronous Motor”**, 6th International Conference on Electrical Engineering ICEENG (2008), Cairo, Egypt.
- **Adel El Shahat, Seminar about: “Performance Improvement for PM Synchronous Motor, Review, Dynamic and Static Simulation, Modeling and Control”**, (2007), Faculty of Engineering, Menofia University, Egypt.
- **Hamed M. El Shewy, Nadia A. Al Sonbaty, Adel T.Y Tawfik, Adel El Shahat, Accepted Abstract about: “Induction Motor Performance Improvement Using Neural Networks”** E14, Electric Machines, Al-Azhar Engineering Ninth International Conference, (2007), AEIC 2007, Egypt.
- **Hamed M. El Shewy, Fathi E. Abd Al Kader, Mahmoud El Kholy, Adel El Shahat, Accepted Abstract about: “Dynamic Modeling of Permanent Magnet Synchronous Motor Using MATLAB - Simulink”** E11, Electric Machines, Al-Azhar Engineering Ninth International Conference, (2007), AEIC 2007, Egypt.
- **Adel Y. Tawfik, Adel El Shahat, Accepted Abstract about: “A Neuro - Fuzzy Modeling for New Biological Technique of Water Pollution Control”**, Ain-Shams University Second International Conference On Environmental Engineering (Ascee- 2), (2007), Egypt.
- **Adel El Shahat, “Sequence Impedance of Machines”**, Research Report, (2007), Electrical Power & Machine Engineering Department, Faculty of Engineering, Zagazig University, Egypt.
- **Adel El Shahat, Presentation about: “A Neuro Modeling for New Biological Technique of Water Pollution Control”**, 6th International Conference on Role of Engineering Towards a Better Environment, RETBE’06, (2006), Alexandria, Egypt.
- **Adel El Shahat, Presentation about: “Speed – Sensorless Neural Controller for Induction Motor Efficiency Optimization”**, 1st International Conference on Advanced Control Circuits and Systems (ACCS’05), (2005), Cairo, Egypt.

- **Adel El Shahat, Presentation about: “Neural Model of 3 – phase Induction Motor”**, 1st International Conference on Advanced Control Circuits and Systems (ACCS’05), (2005), Cairo, Egypt.
- **Adel El Shahat, Seminar about: “The Recent Advance in Electric Machines, All Types”**, (2005), Faculty of Engineering, Zagazig University, Egypt.
- **Adel El Shahat, “PM Synchronous Motor Literature Review”**, Research Report & Presentation, (2005), Electrical Power & Machine Engineering Department, Faculty of Engineering, Menofia University, Egypt.
- **Adel El Shahat, Seminar about: “Induction Motor Control for High Efficiency and Power Factor”**, (2003), Faculty of Engineering, Zagazig University, Egypt.
- **Adel El Shahat, “Unbalanced Operation of Electric Machines”**, Research Report & Presentation, (2002), Electrical Power & Machine Engineering Department, Faculty of Engineering, Zagazig University, Egypt.
- **Adel El Shahat, “Power System Analysis & Control”**, Research Report & Presentation, (2001), Electrical Power & Machine Engineering Department, Faculty of Engineering, Zagazig University, Egypt.

GRANT ACTIVITIES SAMPLES

- In-Progress: Three NSF Proposals.
- Project Title: Efficient Grid Integration of Wind Energy and Performance Improvement of Horizontal Axis Wind Turbine: Submitted to National Science Foundation (NSF), Energy, Power, Control and Networks (EPCN) program, \$392,847.00, Pending, Role: Co-PI, 2017.
- Project Title: Fundamental Solutions towards Sustainable Production of Photovoltaic Power: Submitted to National Science Foundation (NSF), Energy for Sustainability program, \$313,994.00, Pending, Role: PI, 2017.
- Project Title: Conservation Voltage Reduction: Submitted to CEIT-UR Student Research Award, \$ 500.00, Funded from Georgia Power, Role: Faculty Advisor, 2017.
- Project Title: High-speed Switched Reluctance Motor Generator for Electric Vehicle Applications: Submitted to CEIT-UR Student Research Award, \$ 2,000.00, Funded, Role: Faculty Advisor, 2017.
- Project Title: DC Microgrids Communication: Submitted to CEIT-UR Student Research Award, \$ 1,600.00, Not-Funded, Role: Faculty Advisor, 2017.
- Project Title: Bicycle Generation Station: Submitted to CEIT-UR Student Research Award, \$923.55, Funded from Georgia Power, Role: Faculty Advisor, 2017.
- Project Title: Innovative joining technology for large scale additive manufacturing: Submitted to Faculty Research Seed Grants, \$10,000.00, Not Funded. , Role: Co-PI, 2017.
- Project Title: MRI: Acquisition of a 3Dn-Tabletop System with dual-head configuration for Research and Training at Georgia Southern University: Submitted to National Science Foundation (NSF), Major Research Equipment (MRI), \$ 189,925.00, Not-funded, Role: PI, 01/10/2017.
- Project Title: Renewable Energy Based Water Desalination System: Submitted to Sustainability Center, \$ 10,850, Not Funded. , Not-funded, Role: PI, 2017.
- Project Title: Penetration of Optimum Distributed Generation Sources for Nano-Grids Applications (Modeling, Control and Stability Analysis): Submitted to National Science Foundation (NSF), Energy, Power, Control and Networks (EPCN) program, \$ 507,970.00, Not-funded, Role: PI, 2016.

- Project Title: Evaluate the state of the art in DC components and design a complete DC Distribution System: Submitted to Georgia Power Company based on Georgia Research for Academic Partnership in Engineering (GRAPE) Final Selection, \$ 64,670.00, Not-funded, Role: PI, 2016.
- Project Title: Penetration of Optimum PV System for Nano-Grids (Modeling, Control and Stability): Submitted to Faculty Research Seed Grants, \$ 19,955.00, Not-funded, Role: PI, 2016.
- Project Title: Innovative solution towards the sustainable production of renewable energy: Submitted to Faculty Research Seed Grants, \$ 22,300.00, Not-funded, Role: PI, 2016.
- Start-up Funding for New Faculty at GSU, \$ 100,000.00, Georgia Southern University, 2015: 2018.
- Project Title: Predicting and Optimizing Performance of Solar PV Technologies in Georgia: Submitted to Georgia Research for Academic Partnership in Engineering (GRAPE), \$ 82,326, Not Funded. , Role: Co- PI, 2016.
- Project Title: Long-term Effect of EV Chargers on Utility Distribution Systems: Submitted to Georgia Research for Academic Partnership in Engineering (GRAPE), \$ 89,750, Not Funded. , Role: PI, 2016.
- Project Title: Power generation, waste heat utilization (Evaluating the current state of waste to energy (WTE) technologies for future applications: Submitted to Georgia Research for Academic Partnership in Engineering (GRAPE), \$ 99,000, Not Funded, Role: Co- PI, 2016.
- Project Title: Integration of Optimum PV System for Nano-Grids (Modeling, Control and Stability): Submitted to Faculty Research Seed Grants, \$23,375.00, Not Funded. , Role: PI, 2015.
- Project Title: Photovoltaic-based Nano-Grid System: Submitted to Sustainability Center, \$43,923, Not Funded. , Role: Co-PI, 2015.
- Project Title: Predicting and Optimizing Performance of Solar PV Technologies in Georgia: Submitted to Georgia Research for Academic Partnership in Engineering (GRAPE), \$93,714, Not Funded. , Role: 2nd PI, 2015.
- Project Title: Design, Modeling and Implementation of Single-Phase to Three-Phase Low Harmonics Cycloconverter for Optimum Performance: Submitted to Georgia Research for Academic Partnership in Engineering (GRAPE), \$81,595, Not Funded. , Role: PI, 2015.
- Project Title: Nano-grid Test-Bed for Global Energy Efficiency Analysis: Submitted to Office of Research Services & Sponsored Programs, GSU for Limited Submission to MRI, National Science Foundation (NSF), \$ 345,000.00, Not Funded. , Role: PI, 2015.
- Project Title: Universal Power Converter with Wireless Distribution (Design and Implementation): Submitted to CEIT-UR Student Research Award, \$ 2,950.00, Not Funded. , Role: Faculty Advisor, 2015.
- Project Title: Residential Solar Photovoltaic System Design: Submitted to CEIT-UR Student Research Award, \$ 2,860.00, Not Funded. , Role: Faculty Advisor, 2015.
- Project Title: Cascaded Inverter for Single-Phase Grid Connected Photovoltaic System: Submitted to CEIT-UR Student Research Award, \$ 1,500.00, Funded, Role: Faculty Advisor, 2015.
- Project Title: Small Scale Hydro Power Generator Electrical System Design: Submitted to CEIT-UR Student Research Award, \$ 2,980.00, Funded, Role: Faculty Advisor, 2015.
- Project Title: “Predicting and Optimizing Performance of Solar PV Technologies in Georgia”, Georgia Research for Academic Partnership in Engineering, (GRAPE), Jan. 1 2015, Dec. 31 2016, Award: \$ 97.278; 2014, (Not funded), Role: 2nd PI.
- Travel Grant to UIC, USA, “Micro-grids: Modeling, Design, Control and Analysis”, Award: \$ 10,000 US \$, from Egyptian Cultural & Educational Bureau, USA.

- Project Title: “High Speed PM Synchronous Generator Design Project”, (2008: 2010)”, Department of Electrical and Computer Engineering, Ohio State University, USA; Grant: \$ 60,000, Ministry of Higher Education, Egypt, Graduate Student.
- Project Title: “Integration of Smart Grid Green Energy System Project (2009: 2010), Department of Electrical and Computer Engineering, Ohio State University, USA, Internal Project, Graduate Student.
- Project Title: “Energy Pricing Research” (2008), Department of Electrical and Computer Engineering, Ohio State University, USA, Internal Project, Graduate Student.
- Project Title: “Minimum Cost Optimized Induction Motor”, (1999), Electrical Power & Machine Engineering Department, Faculty of Engineering, Zagazig University, Egypt. 1998-1999, this project was my graduation project and I obtained a distinction grade. Award: \$ 1,300, Undergraduate Student.

SERVICE

- Chair of **Faculty Search Committee (Power Systems Position)**, Electrical Engineering Department, GSU, 2016/ 2017.
- **Reviewer of 6th Annual Southeast Preeminent Regional Research & Creative Endeavors Conference**, Georgia College & State University, October 27-28, 2017
- Participated in **SOAR L Faculty Advisors**, Academic College Sessions, EE Dept., Day 1 for Fall 2017, College of Engineering & Information Technology, IT Building 1004.
- Participated in **Spring 2017 Semester March Graduation Commencement (Undergraduate)**.
- Participated in **Spring 2017 Semester March Graduation Commencement (Graduate)**.
- **Reviewer of Georgia Southern Research Symposium**, 2017
- **Rater** for EENG 3241 Electric Machines Course **SLO 2**, Spring 2017.
- **CEIT Marshal**, Fall 2016 Semester **Graduation Commencement**.
- Volunteered with IPENG Lab for **EE Dept. Scholarship Showcase Lab Tours** Friday 12/2/16.
- **Assessor of SLO1** for Fall 2016.
- **Rater** for EENG 3241 Electric Machines Course **SLO 5**, Fall 2016.
- **Rater** for EENG 3241 Electric Machines Course **SLO 2**, Spring 2016.
- Member of **Judgment Committee** of Georgia Southern Research Symposium, 2016
- Member of **Electrical Engineering Master Program Committee**, Electrical Engineering Department, GSU, 2015 - 2017.
- Member of **Computer Engineering Program Committee**, Electrical Engineering Department, GSU, 2015 - 2017.

- **Affiliate Member of STEM: Institute for Interdisciplinary STEM Education**, Georgia Southern University, 2015 -2017.
- **Member of Professional Advisory Committee (PAC)**, 2015 – 2017.
- Member of **Warfare Electronics Course Committee**, Electrical Engineering Department, GSU, 2016.
- Member of **Faculty Search Committee**, Electrical Engineering Department, GSU, 2015/ 2016.
- Member of **Curriculum Committee**, Electrical Engineering Department, GSU, 2015/ 2016.
- Member of **Assessment Committee**, Electrical Engineering Department, GSU, 2015/ 2016.
- Member of **Strategic Planning Committee**, Electrical Engineering Department, GSU, 2015/ 2016.
- Member of **Ad/Hoc Committee**, Electrical Engineering Department, GSU, 2015/ 2016.
- Participated in **Spring 2016** Electrical Engineering Department, GSU, **Open House**.
- Participated in **Spring 2016** Semester **March Graduation Commencement**.
- Participated, in **Fall 2015** Semester, **March Graduation Commencement**.
- **Founder** of the **innovative Power Electronics and Nano-Grids Research Lab (IPENG)** at GSU, 2015/ 2016.
- Participated in **Spring 2015** Semester **March Graduation Commencement**.
- **Reviewer** and **Member of Judgment Committee** of Georgia Southern Research Symposium, 2015
- Serve as a **Proctor**, The worldwide IEEE Xtreme, 24-Hrs, programming competition. Friday-Saturday, October 17-18, 2014, Georgia Southern University.
- **Co-founder** of CLEAR, **Center of Excellence for Energy and Water** (2013), Suez University.
- Sharing in **Renewable Energy and Environmental Engineering Department proposal**, (New Branch), Faculty of Petroleum & Mining Engineering, Suez University, by Contributing in Preparing Proposals, Apparatus, Courses Descriptions, Subjects, Materials, all arrangementsetc, 2013.
- Member of **Environment Committee**, Faculty of petroleum & Mining Engineering, Suez University, Egypt, 2013.
- Member of **Comprehensive Examination Committee**, Engineering Science Department, Faculty of petroleum & Mining Engineering, Suez University, Egypt, 2011: 2013.
- Member of **Quality of Education Committee**, Faculty of petroleum & Mining Engineering, Suez University, Egypt, 2013.
- Member of **Graduate studies Committee**, Faculty of petroleum & Mining Engineering, Suez University, Egypt, 2012.

- Member of **Control Technology Unit (CTU)** at Suez University, 2012.
- Member of **Cultural Relations Committee**, Faculty of petroleum & Mining Engineering, Suez University, Egypt, 2011.
- Member of the **Executive office Committee**, Department of Engineering Science, Faculty of petroleum & Mining Engineering, Suez University, Egypt, 2011:2013.
- Member of **Weather Forecasting Car Unit for Environmental and Renewable Energy Aspects Committee**, Faculty of petroleum & Mining Engineering, Suez University, Egypt, 2011.
- Prepare many seminars, posters, workshops and training courses (for free as a **volunteer**) for graduate and undergraduate students related to many topics within my interests, Suez University, Egypt, 2011: 2013.
- Participating and sharing of preparations for many students **activities** with various chapters and students' university families, Suez University, Egypt, 2011: 2013.
- Member of **Robotics and Automation Club (RAC)**, Faculty of Petroleum and Mining Engineering, Suez Canal University, 2011.
- Serve as a **Conference Chair for ICMET 2011 International Conference** on Mechanical and Electrical Technology, China, (ICMET 2011).
- Sharing in **Preparations** of Green Energy, Power Systems, Power Electronics, Electric Machines E. Courses, and materials with aiding in research proposals: Electrical & Computer Engineering Department, The Ohio State University, USA, 2008: 2010.
- Sharing in preparations of all materials for the book "**Integration of Green and Renewable Energy in Electric Power Systems**," Wiley, January 2010, OSU, USA.
- Sharing in preparations of all materials for the book "**Design of Smart Grid Renewable Energy Systems**," Wiley 2011, OSU, USA.
- Member of **Organizing Committee**: International Conference on Mining, Petroleum and Metallurgical Engineering (2004: 2007), Suez, Egypt.
- **Establishment Contribution** Sharing, for Electrical Engineering, and Automatic Control Engineering Laboratories, Faculty of Petroleum & Mining Engineering, Suez Canal University (2001:2007).

JOURNAL/CONFERENCE REVIEWERSHIP/EDITORSHIP

- Editor-in-Chief of the International Journal of Convergence Computing, Inderscience Publishers, 2016 - present.
- Book Reviewer, Thermal Energy: Sources, Recovery, and Applications, by Yatish T. Shah, CRC Press, 2017.
- Book Reviewer: Classical and Recent Aspects of Power System Optimization, by: Ahmed F. Zobaa, Shady H.E. Abdel Aleem, and Almoataz Y. Abdelaziz, Elsevier, 2017.
- Reviewer, IEEE PES General Meeting, Portland, Oregon, USA, 2018.
- Reviewer, IEEE PES T&D Power Forward Conference & Exposition, Denver 2018.

- Reviewer, 2018 IEEE Texas Power and Energy Conference (TPEC), 2018.
- Reviewer, Journal of Testing and Evaluation
- Reviewer, 2017 North American Power Symposium (NAPS), IEEE PES Conference, September 17 – September 19, 2017, Morgantown, WV.
- Reviewer, Journal of Entropy.
- Reviewer, Journal of Applied Sciences.
- Reviewer, IEEE PES General Meeting, Chicago, Illinois, USA, 2017.
- Reviewer, IEEE SoutheastCon conference 2017.
- Reviewer, PLOS ONE Journal (2015/2016 IF 3.057)
- Member & Reviewer, Technical Committee, 2016 5th International Conference on Power Science and Engineering. Dec 14-17, 2016, Venice, Italy.
- Reviewer, 2016 IAJC/ISAM 5th, International Conference in Orlando, FL. November 6 – 8, 2016, Orlando, Florida Conference
- Book Reviewer, Thermal Power Plants: Modeling, Control, and Efficiency Improvement by X. Liu and R. Bansal, CRC Press, 2016.
- Reviewer, The Springer Plus Journal
- Reviewer, Journal of Symmetry
- Reviewer, Neural Computing and Applications (NCAA) Journal
- Reviewer, IEEE Transactions on Energy Conversion
- Reviewer, Journal of Energies
- Reviewer, SOP Transactions on Power Transmission and Smart Grid
- Reviewer, Journal of Artificial Intelligence and Applications
- Reviewer, Electric Power Components and Systems Journal
- Reviewer, Journal of Power Technologies (JPT)
- Member of International Reviewer's Board, Journal of Electrical Systems (JES)
- Reviewer, International Journal of Engineering, Science and Technology (IJEST)
- Reviewer, International Journal of Computer and Electrical Engineering (IJCEE)
- Reviewer, International Journal of Simulation and Process Modelling
- Reviewer & Member, Editorial Team Journal of Electrical and Electronics Engineering Research
- Reviewer & Member, Technical Editors Journal of Applied Sciences
- Reviewer & Member, Technical Editors Journal of Artificial Intelligence
- Reviewer & Member, Technical Editors Singapore Journal of Scientific Research
- Reviewer & Member, Technical Editors Journal of Trends of Applied Sciences Research
- Reviewer & Member, Technical Editors Journal of Information Technology

- Reviewer, IEEE, (GHTC), Global Humanitarian Technology Conference, October 13-16, 2016, Seattle, Washington USA.
 - Reviewer, IEEE SoutheastCon conference 2016, Marriott Norfolk Waterside Hotel, Norfolk VA, March 30 through April 3, 2016.
 - Member, Judgment Committee of Georgia Southern Research Symposium, 2016
 - Member, ASEE-SE15 Review Committee
 - Reviewer, Georgia Southern University Research Symposium 2015.
 - Reviewer, ASEE (American Society of Engineering Education) – Southeastern Section Conference 2015 – Gainesville, FL, ASEE-SE Conference 2015
 - Reviewer, 12th International Conference on Mining, Petroleum and Metallurgical Engineering MPM12 (October 20th-22th, 2014 - Suez - Egypt).
 - Reviewer, The second International Conference on Engineering and Technology (ICET 2014), German University in Cairo (GUC), April 19 -20, 2014, Cairo, Egypt.
 - Reviewer, 8th International Conference on Electrical Engineering, 29-31 May, 2012, Military Technical College, Egypt; EE137, ICEENG8, 2012.
 - Reviewer, Fourteenth International Middle East Power Systems Conference, Cairo, Egypt, December 19-21, 2010 (MEPCON'10)
 - Reviewer, MDGEN11, The International Conference on Millennium Development Goals (MDG): Role of ICT and other technologies December 27 – 29, 2009 in Chennai, India.
 - Reviewer, 2nd International Conference on Computer and Electrical Engineering (ICCEE 2009); Dubai, UAE, December 28 - 30, 2009.
 - Reviewer, The Third Ain Shams University International Conference on Environmental Engineering (Ascee-3), April 14-16 2009, Cairo, Egypt.
 - Reviewer, Al-Azhar Engineering Ninth International Conference, 2007 AEIC 2007, Egypt.
 - Reviewer, 6th International Conference on Role of Engineering towards a Better Environment, RETBE'06 Conference in Alexandria, 16 - 18 December 2006.
 - Reviewer, 1st International Conference on Advanced Control Circuits and Systems (ACCS'05), ACCS, March 6 – 10, 2005, Cairo, Egypt.
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