

ENGR. DR. COSMAS UCHENNA OGBUKA

B.Eng., M.Eng., Ph.D (Nig.)

University of Nigeria, Nsukka

Associate Professor/Reader



CONTACT INFORMATION

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University of Nigeria, Nsukka 410001, Enugu State – NIGERIA

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International Faculty Fellow,
MIT International Science and Technology Initiative (MISTI),
Massachusetts Institute of Technology,
1 Amherst St, E40-Floor 4, Cambridge, MA 02139. USA.

Director, Computer Communications Centre
University of Nigeria, Nsukka
August 2018 to Date

1. NAME:	OGBUKA , Cosmas Uchenna
2. DATE OF BIRTH:	1 st April, 1981
3. NATIONALITY:	Nigerian
4. STATE OF ORIGIN:	Enugu State
5. SEX:	Male

6. PERMANENT HOME ADDRESS:	Ogbuka's Residence, Ufu Village, Umuna Town, Igbo-Etiti Local Government Area, Enugu State.
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7. MARITAL STATUS:	Happily married to Engr. (Mrs). Ifeanyi Maryrose CHINAEKE-OGBUKA (B.Eng, M.Eng (Nig)). Lecturer I, Department of Electronic Engineering, University of Nigeria, Nsukka. The marriage is blessed with four (4) lovely children.
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8. ACADEMIC BACKGROUND:

(i) May, 2017.

Certificate of Completion,
Kaufman Teaching Certificate Program,
MIT Teaching and Learning Lab
Massachusetts Institute of Technology, Cambridge Massachusetts, USA

(ii) December, 2014

Ph.D (Nig) Power Devices
Department of Electrical Engineering, University of Nigeria, Nsukka

(iii) **March, 2009**

M.Eng.(Nig.) Power Devices (Distinction)

Department of Electrical Engineering, University of Nigeria, Nsukka

(iv) **September, 2004**

B.Eng. (Nig.) (First Class Honours)

Department of Electrical Engineering, University of Nigeria, Nsukka

(v) **June, 1996**

West Africa Senior School Certificate

Boys' Secondary School Nru-Nsukka

9. EMPLOYMENT HISTORY

- (i) Associate Professor/Reader: **1st October 2019 to Date**
- (ii) Senior Lecturer: **1st October, 2016 to 30th September, 2019**
- (iii) Lecturer I: **1st October, 2012 to 30th September, 2016**
- (iv) Lecturer II: **3rd March 2009 to 30th September, 2012**
- (v) Graduate Assistant: **18th January 2007-2nd March 2009**
i, ii, iii and iv above are in the Department of Electrical Engineering University of Nigeria, Nsukka.
- (vi) Network Design/Support Engineer (**March 2006-January 2007**)
- (vii) One Year National Youths Service Corps (NYSC) engagement (**March, 2005 – February 2006**)
v and vi above were at GS Telecom Nig. Ltd Ikoyi Lagos (Now Vodacom Nig Ltd Ikoyi Lagos)
- (viii) Six Months Students' Industrial Work Experience (SIWES) at the National Electric Power Authority Enugu District (**January-July 2002**).

10. ADMINISTRATIVE RESPONSIBILITIES

- 1. **Director**, Computer Communications Centre, University of Nigeria, Nsukka August 2018 to Date.
- 2. **Academic Programs Coordinator**, Africa Centre of Excellence for Sustainable Power and Energy Development (ACE-SPED), University of Nigeria, Nsukka. A Six Million US Dollars (\$6 Million) World Bank Project under the ACE Impact Project for West and Central Africa. (February 2019-Date)
- 3. **Monitoring and Evaluation (M&E), Officer**, Africa Centre of Excellence for Sustainable Power and Energy Development (ACE-SPED), University of Nigeria, Nsukka. A Six Million US Dollars (\$6 Million) World Bank Project under the ACE Impact Project for West and Central Africa. (September 2020-Date)
- 4. **Department Postgraduate Coordinator**, January 2020 to Date.
- 5. **Acting Head**, Department of Electronic Engineering, University of Nigeria, Nsukka 2017-2018.

11. ACADEMIC PUBLICATIONS

A. BOOK

- (i) **C.U. Ogbuka** “*ASPECTS OF INDUCTION MOTOR STATOR VOLTAGE AND FREQUENCY CONTROL USING MATLAB/SIMULINK AS A SOFTWARE TOOL*” LAP Lambert Academic Publishing Germany. October 2010. www.LAP-publishing.com. ISBN 978-3-8433-6847-6

B. PUBLISHED JOURNAL PAPERS

- (i) Chibuzo Victor Ikwaagwu, Ikechukwu Emmanuel Okoh, Stephen Aroh Ajah, **Cosmas Uchenna Ogbuka (Corresponding Author)**, Godwin Ogechi Unachukwu, Emenike Chinedozi Ejioogu, “Development of Electric Power Availability Recorder for Accurate Energy Billing of Unmetered Facilities”, *Advances in Science, Technology and Engineering Systems Journal* Vol. 6, No. 3, pp. 7-14, 2021.

- (ii) Ifeanyi Chinaeke-Ogbuka, Augustine Ajibo, Kenneth Odo, Uche Ogbuefi, Muncho Mbunwe, **Cosmas Ogbuka (Corresponding Author)**, Emenike Ejiogu, "A robust high-speed sliding mode control of permanent magnet synchronous motor based on simplified hysteresis current comparison," International Journal of Power Electronics and Drive System (IJPEDS) Vol. 12, No. 1, Mar 2021, pp. 1-9.
- (iii) Eric Nwokolo, Ifeanyi Chinaeke-Ogbuka, Augustine Ajibo, **Cosmas Ogbuka (Corresponding Author)**, Uche Ogbuefi and Emenike Ejiogu, "Performance Comparison of Sliding Mode and Instantaneous Reactive Power Theory Control Techniques for Three-Phase Active Power Filter" International Journal of Electrical and Electronic Engineering & Telecommunications Vol. 10, No. 2, March 2021.
- (iv) Gideon UMOH, Chinedu OBE, **Cosmas Ogbuka (Corresponding Author)**, George EKPO, Emeka OBE. Direct-Phase Variable Modelling and Analysis of Five-Phase Synchronous Reluctance Motor for Direct-on-Line Starting. PRZEGLĄD ELEKTROTECHNICZNY, Vol. 97, No. 1, 2021. Pp.24-29.
- (v) Gideon UMOH, **Cosmas Ogbuka (Corresponding Author)**, Emeka OBE, Modelling and Analysis of Five-Phase Permanent Magnet Synchronous Motor in Machine Variables" Przegląd Elektrotechniczny, Vol. 96, No.1, 2020, pp. 87-92.
- (vi) Uche C. Ogbuefi, Cajetan M. Nwosu and **Cosmas U. Ogbuka**, "Concept and Application of Lightning Arrester for 11kV Electric Power Systems Protection" Asian Journal of Basic Science & Research (AJBSR), Volume 2, Issue 1, Pages 35-49, January-March 2020
- (vii) Cajethan Nwosu, Akpewwe Isiorhovoja, **Cosmas Ogbuka**, and Boniface Anyaka, "Density based auto traffic light control system with GSM based remote override for enugu metropolis", JART, Vol. 18, No. 2, Apr. 2020.
- (viii) Everestus Ojionuka, Ifeanyi Chinaeke-Ogbuka, **Cosmas Ogbuka (Corresponding Author)** and Cajethan Nwosu, "A simplified sensorless speed control of permanent magnet synchronous motor using model reference adaptive system" Journal of Electrical Engineering (Elektrotechnicky Casopis), Vol. 70, No. 6, pp. 473–479, 2019.
- (ix) Gerald Chidozie Diyoke, **Cosmas Uchenna Ogbuka (Corresponding Author)**, Cajethan Maduabuchi Nwosu "A Novel Control DC-DC-AC Buck Converter for Single Phase Capacitor-Start-Run Induction Motor Drives" Advances in Electrical and Electronic Engineering, Vol. 17, No. 2, June 2019, pp. 87-192.
- (x) Kenneth C. Odo, Sochima V. Egoigwe and **Cosmas U. Ogbuka** "A Model-based PI Controller Tuning and Design for Field Oriented Current Control of Permanent Magnet Synchronous Motor." IOSR Journal of Electrical and Electronics Engineering (IOSR-JEEE) 14.4 (2019): 35-41.
- (xi) Ifeanyi Chinaeke-Ogbuka, Augustine Ajibo, **Cosmas Ogbuka** "A Microcontroller-Based Water Level Indicator using Radio Frequency (RF) Technology and Ultrasonic Sensor" International Journal of Scientific & Engineering Research Vol. 10, No. 3, March-2019, pp. 775-779.
- (xii) **Cosmas Ogbuka**, Cajethan Nwosu, Gideon Umoh, "A new cross-saturated torque model of highly utilized synchronous reluctance machine," Archives of Electrical Engineering, Vol. 67, No. 1, 2018. Pp.109-121.
- (xiii) Cajethan M. Nwosu, **Cosmas U. Ogbuka**, Stephen E. Oti "A Comparative Analysis of Control Strategies for Low Harmonic Rectifier having DC to DC Converter" Recent Advances in Electrical and Electronic Engineering, Vol. 11, No. 4, Pp. 1-11, 2018.
- (xiv) Chigbo A. Mgbemena, Abraham C. Kalu-Uka, Anthony O. Odukwe, Godwin M. Kalu-Uka, Ikechukwu C. Ezema and **Cosmas U. Ogbuka**, "Analysis of an Automatic Control System for the Blending of Petrol with Corrosion Inhibitor in Cranked, Direct Continuous Electronic Fuel Injection (DC-EFI) Automobile Engines" International Journal of Engineering Research and Technology, Vol. 8, No. 6, June, 2019

- (xv) **Cosmas U. Ogbuka**, Cajethan M. Nwosu and Matthew C. Odo. “Fourier Analysis of Six Step Inverter Controlled Three Phase Induction Motor Drive” NIEEE Journal of Research and Innovative Technology, Vol 1. No. 1, 2018. Pp. 19-23.
- (xvi) Cajethan M. Nwosu, Matthew C. Odo and **Cosmas U. Ogbuka**, “Implementation of Microcontroller based T-Road Junction Traffic Light Controller” NIEEE Journal of Research and Innovative Technology, Vol 1, No. 1, 2018. Pp. 33-40.
- (xvii) Cajethan M. Nwosu, **Cosmas U. Ogbuka**, Stephen E. Oti “Analysis, Design and Simulation of Digital Controlled Symmetrical Seven Levels Inverter” Journal of Electrical Engineering (Elektrotechnicky Casopis), Vol. 69, No. 3, pp. 233–238, 2018.
- (xviii) Nwosu CM, **Ogbuka CU**, Oti SE (2017) On the Analytical Tuning of Controllers for Grid-Coupled Voltage Source Converter: Frequency Analysis. Electric Electron Tech Open Acc J Volume 1, No. 2. 00007. DOI: 10.15406/eetoaj.2017.01.00007
- (xix) **Cosmas Uchenna OGBUKA**, Cajethan Maduabuchi NWOSU, Marcel Ugwoke AGU, “A New Four Quadrant Field Orientation-Controlled Three-Phase Induction Motor Drive Based on Hysteresis Current Comparison,” Advances in Electrical and Electronic Engineering, Vol. 15, No. 2, 2017, pp. 146-153.
- (xx) Cajethan M. Nwosu, **Cosmas U. Ogbuka**, Stephen E. Oti, “Control model design to limit dc-link voltage during grid fault in a DFIG variable speed wind turbine,” Journal of Electrical Engineering (Elektrotechnicky Casopis), Vol. 68, No. 4, 2017, pp. 308–315.
- (xxi) Cajethan M. Nwosu, Anthony I. Umeogamba, **Cosmas U. Ogbuka**, “Novel single-phase five-level inverter utilizing digital counter control scheme,” Journal of Electrical Engineering (Elektrotechnicky Casopis), Vol. 68, No. 3, 2017, pp. 188–193.
- (xxii) **Cosmas Ogbuka**, Cajethan Nwosu, Marcel Agu, “A High-Performance Hysteresis Current Control of Permanent Magnet Synchronous Motor Drive,” Turkish Journal of Electrical Engineering and Computer Science, Vol. 25, No. 1, February 2017. Pp. 1-14.
- (xxiii) Cajethan M. Nwosu, Stephen E. Oti, **Cosmas U. Ogbuka**, “Transient and steady state performance analysis of power flow control in a DFIG variable speed wind turbine,” Journal of Electrical Engineering (Elektrotechnicky Casopis), Vol. 68, No.1, February 2017, pp. 31–38.
- (xxiv) **Cosmas Ogbuka**, Cajethan Nwosu, Marcel Agu, “A New High Speed Induction Motor Drive Based On Field Orientation and Hysteresis Current Comparison,” Journal of Electrical Engineering (Elektrotechnicky Casopis) Vol. 67, No. 5, September 2016, pp. 303-311.
- (xxv) **Cosmas Ogbuka**, Cajethan Nwosu, Marcel Agu, “A Fast Hysteresis Current-Controlled Permanent Magnet Synchronous Drive Based on Field Orientation,” Journal of Electrical Engineering (Elektrotechnicky Casopis) Vol. 67, No. 2, March 2016, pp. 69-77.
- (xxvi) **Cosmas Ogbuka**, Cajethan Nwosu, Marcel Agu, “Dynamic and Steady State Performance Comparison of Line-Start Permanent Magnet Synchronous Motors with Interior and Surface Rotor Magnets,” Archives of Electrical Engineering, Vol. 65 Number 1, March 2016. Pp.105-116.
- (xxvii) **C. U. Ogbuka** and O. Bassey, “Protection Method against Induction Motor Single-Phasing Fault”, International Journal of Innovative Technology and Exploring Engineering, Volume-4 Issue-6, November 2014, Pp. 61-65.
- (xxviii) **C.U. Ogbuka** and M.U. Agu, “Effects of Load and Speed Variations in a Modified Closed Loop v/f Induction Motor Drive. Nigerian Journal of Technology (NIJOTECH) Vol. 31, No. 3 November 2012.

- (xxix) C.A. Nwosu and **C.U. Ogbuka**, "Analysis and Verification of the Effects of Active Damping on the Dynamic Performance of a Grid-Side Converter" **ELEKTRIKA** (<http://conf.fke.utm.my/elektrika>), Vol. 13, No. 2, 2011, Pp. 12-20
- (xxx) **C.U. Ogbuka** and G.C. Diyoke. 2011. "Analysis of Switched Mode DC to DC Power Regulators", International Journal of IEEE Nigeria Section. Vol. 1, No. 1, 2011. Pp. 53-56
- (xxxi) C.A. Nwosu and **C.U. Ogbuka**, "Parameter Optimization in the Design of a Grid-Side Converter Controller in the Light of Grid Faults" International Journal of Research and Reviews in Applied Sciences. Vol. 9, Issue 1, 2011.
- (xxxii) **C.U. Ogbuka** and S.E. Oti, 2010 "Capacity Building in Renewable Energy Alternatives for Rural Communities in Nigeria" International Journal of Electrical and Electronic Engineering, Vol. 2 No. 1. Pp 138-145
- (xxxiii) **Ogbuka C.U.** 2010 "Engineering Modelling and Simulation Using MATLAB as a Software Tool", International Journal of Electrical and Electronic Engineering, Vol. 2 No. 1. Pp 40-47
- (xxxiv) **C.U. Ogbuka**, C.A. Nwosu, and T.C. Madueme, 2010 "Environmental and Health Impacts of Conventional Energy Generation in Nigeria" International Journal of Environmental Issues. Vol. 7, No. 1, June 2010, Pp 191-200
- (xxxv) **Ogbuka, C.U.** and M.U. Agu. 2010. "Continuous Load Current Mode Analysis of Phase-Controlled AC to DC Converters." Pacific Journal of Science and Technology. 11(2):91-100.
- (xxxvi) Anih, L.U., **C.U. Ogbuka**, and M. Ewelum. 2009. "A New Hybrid Synchronous Machine Capable of Ultra-High Output Power". Pacific Journal of Science and Technology. 10(2):83-92.
- (xxxvii) **Ogbuka, C.U.** 2009. "Dynamic Modeling and Simulation of a 3-HP Asynchronous Motor Driving a Mechanical Load". Pacific Journal of Science and Technology. 10(2): 77-82.
- (xxxviii) **Ogbuka, C.U.** and M.U. Agu. 2009. "A Generalized Rectified Sinusoidal PWM Technique for Harmonic Elimination". Pacific Journal of Science and Technology. 10(2): 21-26.
- (xxxix) **C.U. Ogbuka**, 2009 "A Comparative Analysis of Direct-on-Line and Star-Delta Starting Strategies of Induction Motor Using Simulink" Journal of Engineering Science and Technology. Vol. 4 No. 4, Pp 75-82.
- (xl) **Ogbuka, C.U.** 2009. "Performance Characteristics of Controlled Separately Excited DC Motor". Pacific Journal of Science and Technology. 10(1):67-74.
- (xli) **Ogbuka, C.U.** and C.A. Nwosu. 2009. "A Generalized Vector Method of Induction Motor Transient and Steady State Analysis". Pacific Journal of Science and Technology. 10(1):59-66.
- (xlii) Nwosu, C.A., G.C. Asomba, and **C.U. Ogbuka**. 2008. "Community-Based Independent Power Plant: A Case for Renewable Energy Resources". Pacific Journal of Science and Technology. 9(2):452-460.

C. PRESENTED CONFERENCE PAPERS

- (i) E. Ani, J. Ozoude, I. Chinaeke-Ogbuka, C. Ogbuka, "Smart Grid for Integration of Renewable Energy Resources in Nigeria", in the Proceedings of the 2nd International Conference on Electrical Power Engineering (ICEPENG 2021), Nsukka, Nigeria, pp. 39-44, 18 - 22 May, 2021.
- (ii) C. Nwosu, U. Ogbuefi, C. Okoli, C. Nnonyelu, C. Eya, C. Ohanu, I. Uzoeto, C. Ogbuka, B. Anyaka, E. Ejioogu, "Energy Audit and Assessment: The Need to Curtail Electric Energy Wastages in the University of Nigeria, Nsukka", in the Proceedings of the 2nd International Conference on Electrical Power Engineering (ICEPENG 2021), pp. A.1 - A.5, 18 - 22 May, 2021.

- (iii) Ajibo Chinenye Augustine, Chinaeke-Ogbuka Ifeanyi Maryrose, Eustace M. Dogo, **Ogbuka Cosmas Uchenna**, “IoT Based Security Management Framework for Heterogeneous Network Environment” Proceedings of the 2nd African International Conference on Industrial Engineering and Operations Management Harare, Zimbabwe, December 7-10, 2020, pp. 1-10.
- (iv) Chukwuemeka G. Eze, **Cosmas U. Ogbuka**, Ozoemena A. Ani, ‘A Bidirectional DC to DC Converter for Electric Vehicle Application’. 2020 Sustainable Engineering and Industrial Technology Conference. Faculty of Engineering, University of Nigeria, Nsukka. 6th to 10th July, 2020.
- (v) Chinaeke-Ogbuka Ifeanyi Mayrose, Ajibo Chinenye Augustine, **Ogbuka Cosmas Uchenna**, Nwafor Chukwudi ‘Android-Based Application for Remote Automation of Home Appliances’. 2020 Sustainable Engineering and Industrial Technology Conference. Faculty of Engineering, University of Nigeria, Nsukka. 6th to 10th July, 2020.
- (vi) Kenneth C. Odo, **Cosmas U. Ogbuka**, Victory C. Madueme ‘A Review of the Cost of Solar Thermal Power Generation. 2020 Sustainable Engineering and Industrial Technology Conference. Faculty of Engineering, University of Nigeria, Nsukka. 6th to 10th July, 2020.
- (vii) Tobenna Obidire, Kenneth Odo and **Cosmas Ogbuka**, “Electric Drives in Electric Vehicle Propulsion” 1st NIEEE Nsukka Chapter Conference, 28th-30th May, 2019. Pp. 56-64.
- (viii) Anthony I. Umeogamba, **Cosmas U. Ogbuka** and Emenike C. Ejiogu ‘Armature Voltage Speed Control of a Separately Excited DCMotor Using Four Quadrant Chopper’ IEEE 1st International Conference on Mechatronics, Automation and Cyber-Physical Computer System (IEEE MAC 2019) Owerri, 7-8 March, 2019, pp. 29-35.
- (ix) Anthony K. Amadi, Anthony I. Umeogamba, **Cosmas U. Ogbuka**, Ifeanyi M. Chinaeke-Ogbuka, Matthew C. Odo, and Cajethan M. Nwosu and Augustine C. Ajibo. “A 5kva Automatic Transfer Switch with Overload, Short Circuit Protection and Generator Stop Functions” IEEE 1st International Conference on Mechatronics, Automation and Cyber-Physical Computer System (IEEE MAC 2019) Owerri, 7-8 March, 2019, pp. 105-110.
- (x) Nwosu C.M., **Ogbuka C.U.** Odeh C.I and Oti S.E. “Available Power versus Harvested Power in Wind and Solar Energy Systems”. Proceedings of 3rd African Conference/Workshop (An International Conference on all Aspects of Nanotechnology 15th-21st July 2018 at the University of Nigeria, Nsukka. Pp. 1-11.
- (xi) **Cosmas U. Ogbuka**, Kenneth C. Odo, Matthew C. Odo, Cajethan M. Nwosu, “Direct Torque Control of Permanent Magnet Synchronous Motor Using Space Vector Pulsewidth Modulation” 1st International Conference of the Faculty of Engineering, University of Nigeria, Nsukka, 25-28 April, 2018.
- (xii) **Cosmas U. Ogbuka**, Ifeanyi M. Chinaeke-Ogbuka and Matthew C. Odo, “Natural Regular Sampled Pulsewidth Modulation of Three Phase Voltage Source Inverter” 13th International Conference on Humanities, Science and Sustainable Development. Theme: Research and Innovation: Our Source of Security in an Uncertain Future. Main Hall University of Nigeria Enugu Campus. March 12-15, 2018. pp. 116-122.
- (xiii) **Cosmas U. Ogbuka**, Matthew C. Odo and Cajethan M. Nwosu “A Saturation Study of Synchronous Reluctance Machine based on Langevin Function” Proceedings of International Conference on Humanities, Science and Sustainable Development. 11th -14th December, 2017, Uyo Akwa Ibom State, pp. 92-96.
- (xiv) **C.U. Ogbuka**, C.M. Nwosu, M.U. Agu, “Hysteresis Current Control of AC Motors: PMSM as a Case Study” International Conference on Electric Power Engineering (ICEPENG 2015) October 14-16, 2015, Department of Electrical Engineering, University of Nigeria, Nsukka, pp. 6-13.

- (xv) C.M. Nwosu, S.E. Oti and **C.U. Ogbuka**, “A low harmonic Rectifier incorporating a Sliding Mode Controlled DC-DC Boost Converter”, International Conference on Electric Power Engineering (ICEPENG 2015) October 14-16, 2015, Department of Electrical Engineering, University of Nigeria, Nsukka, pp. 91-99.
- (xvi) S.N Mbaso, **C.U Ogbuka**, “Field Orientation Control of Three Phase Induction Motor: A modular Approach. International Conference on Electric Power Engineering (ICEPENG 2015) October 14-16, 2015, Department of Electrical Engineering, University of Nigeria, Nsukka, pp. 23-31.
- (xvii) O. Bassey and **C. U. Ogbuka**, “Modeling and Simulation of the Start-up Performance of Grid-connected Permanent Magnet Synchronous Motor (PMSM). International Conference on Electric Power Engineering (ICEPENG 2015) October 14-16, 2015, Department of Electrical Engineering, University of Nigeria, Nsukka, pp. 69-74.
- (xviii) Nwosu C.A., **Ogbuka C.U.**, and Madueme T.C. “Opportunities for a Future with Sustainable Energy in Nigeria” The Fourth Electrical Engineering National Conference, Energy Sources for Power Generation (ES4PG) UNN, Nsukka 21st-23rd July, 2013. Pp 178-189.
- (xix) Chinaeke-Ogbuka I.M., **Ogbuka C.U.**, Nwosu C.A. and Madueme T.C. “A Renewed Call for Renewable Energy Exploitation for Sustainable National Development” The Fourth Electrical Engineering National Conference, Energy Sources for Power Generation (ES4PG) UNN, Nsukka 21st-23rd July, 2013. Pp 162-168.
- (xx) Agwu D.D., Chinaeke-Ogbuka I.M., and **Ogbuka C.U.**, “Toward Effective Harnessing of Wind Energy for Power Generation in Nigeria” The Fourth Electrical Engineering National Conference, Energy Sources for Power Generation (ES4PG) UNN, Nsukka 21st-23rd July, 2013. Pp 97-102.
- (xxi) **C.U. Ogbuka** and M.U. Agu, “A Modified Approach to Induction Motor Stator Voltage and Frequency Control” Proceedings of the World Congress on Engineering 2011 Vol II WCE 2011, July 6 - 8, 2011, London, U.K
- (xxii) Ibuodinma S.I., **C.U. Ogbuka** and M.J. Mbunwe, “Solar Energy Option for Sustainable National Development: A Case Study Research. Presented at the Nigeria Society of Engineers AGM/National Conference in Abuja, December 6th to 10th 2010.
- (xxiii) **C.U. Ogbuka**, “Engineering Modelling and Simulation Using MATLAB as a Software Tool”, Sixth International Conference on Sustainable Development, August 3-6, 2010, Niger Hall CEC, University of Nigeria, Nsukka. Vol. 6 No. 12 Pp. 38-45.
- (xxiv) **C.U. Ogbuka** and T.C. Madueme, “Alternative Energy for Sustainable National Development: A Case for Nigerian Rural Communities”, IEEE International Conference, NIGERCON 2010 June 17th to 19th 2010, Abuja, Nigeria. Pp 174-181.
- (xxv) O.I Okoro, S.E. Oti, **C.U. Ogbuka**. 2008. “System Modelling and Computer Simulation: A Necessary Tool for Engineering Education”. (ESPTAEE 2008 National Conference Department of Electrical Engineering, University of Nigeria, Nsukka. June 2008. pp100-109).
- (xxvi) **C.U. Ogbuka**, O.I. Okoro, and M.U. Agu, 2008. “Solving Electrical Circuits Transient Problems with MATLAB® and SIMPLORER®” (ESPTAEE 2008 National Conference Department of Electrical Engineering, University of Nigeria, Nsukka. June 2008. Pp20-26).
- (xxvii) O.I. Okoro, **C.U. Ogbuka**, M.U. Agu, 2008. “Simulation of D.C. Machines Transient Behaviors: Teaching and Research” (ESPTAEE 2008 National Conference Department of Electrical Engineering, University of Nigeria, Nsukka. June 2008. Pp 10-17).

12. SCHOLARSHIPS/ACADEMIC PRIZES/GRANTS/SPONSORSHIPS RECEIVED

- (i) Incoming Mobility for Academic year 2020-2021: Erasmus+ KA 107 International Credit Mobility Project, University of Valladolid, Spain.
Host: Professor Fernando Tadeo of the Department of Systems Engineering of the School of Engineering. **The fellowship is to be taken as from February 2021.**
- (ii) Africa Science Leadership Programme (ASLP) 2020. Future Africa Institute, University of Pretoria, South Africa
- (iii) MIT Empowering the Teachers Fellowship (Spring 2017) during the MIT's Spring Semester (February-May 2017) in Cambridge, Massachusetts, USA
Host: Prof. Akintunde Ibitayo (Tayo) Akinwande.
- (iv) Six (6) months Overseas Research Award by the Tertiary Education Trust Fund (TETFUND) to the Chair of Electrical Drives and Actuators (EAA) University of Federal Defense, Munich. (Universität der Bundeswehr München).
Host: Prof. Dr. Ing. Dieter Gerling (1st November 2015 to 30th April, 2016)
- (v) Murli T. Chalam Foundation (M.T.C) Postgraduate Scholarship 2012 (The award was for my Ph.D Tuition Fee in 2012)
- (vi) Travel Grant by the African Network of Scientific and Technological Institutions (ANSTI) to present a paper at the World Congress on Engineering WCE 2011 at the Imperial College, London, United Kingdom, July 6 - 8, 2011
- (vii) Financial Assistance Award by Anadarko JDZ Block 3 Limited under the auspices of the Nigeria-Sao Tome Joint Development Authority JDA's Educational Assistance Program. October 2008. (The award was for the successful completion of my Master of Engineering (M.Eng) degree)
- (viii) Fully Sponsored participant, Workshop on Rich Media Webcasting Technologies for Science Dissemination at the Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste Italy (1st-11th December 2007)
- (ix) The Vice Chancellor's Best Graduating Student Award/Prize for the Department of Electrical Engineering for the 2002/2003 Academic Session.
- (x) Lt. Col. A.C. Nwana's Academic Merit Award for the Best Graduating Student of Electrical Engineering for the 2002/2003 Academic Session.
- (xi) Federal Government of Nigeria Undergraduate Scholarship Award, 2002-2004

13. FOREIGN COUNTRIES VISITED FOR ACADEMIC REASONS

- | | | |
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| (i) | United States of America
(MIT Cambridge, Massachusetts) | 1 st Feb 2017 to 31 st May 2017, 31 st March - 5 th April, 2019, 27 th Oct - 1 st Nov, 2019. |
| (ii) | Germany (Munich) | 1 st Nov. 2015-30 th April, 2016 |
| (iii) | United Kingdom (Imperial College London) | July 6 th - 8 th , 2011 |
| (iv) | Italy (ICTP Trieste) | 2 nd to 13 th Dec, 2007 |

14. MAJOR CONFERENCES/WORKSHOPS/SEMINARS ATTENDED

- (i) 2020 Sustainable Engineering and Industrial Technology Conference. Faculty of Engineering, University of Nigeria, Nsukka. 6th to 10th July, 2020.
- (ii) J-WEL Week October 2019 signature event of the Abdul Latif Jameel World Education Lab at the Massachusetts Institute of Technology (MIT), Cambridge Massachusetts USA. October 28-31, 2019. (Co-invited with the Vice Chancellor Prof. Charles A. Igwe). **Theme:** Building a University-Led Innovation Ecosystem.
- (iii) The 12th Africa Higher Education Centres of Excellence workshop held in Abuja from 24th to 28th February, 2020
- (iv) Workshop/Training on the use of Science, Engineering/Technology (SET) Laboratory/Workshop Equipment organized by SKILL-G Nig. Ltd, Tertiary

- Education Trust Fund (TETFUND) and National Universities Commission (NUC) at Gregory University Uturu, Abia State. 12-16th August, 2019.
- (v) 1st National Conference of the Nigeria Institution of Electrical and Electronic Engineers (NIEEE) Nsukka Chapter, 28th-30th May, 2019 at the NCERD Nsukka.
 - (vi) J-WEL Week April 2019 signature event of the Abdul Latif Jameel World Education Lab at the Massachusetts Institute of Technology (MIT), Cambridge Massachusetts USA. April 1-4 2019. (Co-invited with the Vice Chancellor Prof. Benjamin C. Ozumba). **Theme:** Computing Everywhere.
 - (vii) 1st IEEE International Conference on Mechatronics, Automation and Cyber-Physical Computer System (IEEE MAC 2019) Owerri, 7-8 March, 2019, pp. 29-35.

15. TEACHING RESPONSIBILITIES

I have taught the following undergraduate/postgraduate courses since my engagement in January 2007:

- **Undergraduate Courses**

EEE 211: Basic Electrical Engineering	3 Units
EEE 361: Electrical Machines I	3 Units
EEE 312: Circuit Theorem I	3 Units
EEE 313: Electric Circuits II	3 Units
EEE 381: Electromagnetic Fields and Waves I	3 Units
EEE 382: Electromagnetic Fields and Waves II	2 Units
EEE 472: Control System Engineering	3 Units
EEE 492: Mini Project	3 Units
EEE 581: Electric and Magnetic Field Theory	2Units
EEE 571: Computer Organisation	2 Units
EEE 573: Computer Softwares and Applications	2 Units
EEE 533: Switchgear and High Voltage Engineering	2 Units
EEE 562: Electric Drives	2 Units
EEE 561: Electric Machine Design	2 Units
EEE 532 Electric Services Design	2 Units
EEE 575 Introduction to Optimal Control	2 Units
EEE 534 Power Systems Optimization	2 Units
EEE 591 Undergraduate Project	4 Units
- **Postgraduate Courses**

EEE 614 Electric Drives	3 Units
EEE 611 Electric Machine Modeling	3 Units
EEE 601 Advanced Methods of Analysis in Electrical Engineering	3 Units
EEE 626 Real Time Computer Control	3 Units
EEE 641 M. Eng. Project Report	6 Units

16. SUPERVISION

(i) UNDERGRADUATE

I have supervised more than Sixty (60) undergraduate projects.

(ii) POSTGRADUATE

Project/Candidate Supervised

- (i) **Ugwuoti Aloysius Nnaemeka** **Dec 2018** **M.Eng**
Development of an equivalent circuit of Single-phase permanent magnet synchronous Motor.
- (ii) **Chukwu, Emmanuel Tochukwu** **July 2019** **M.Eng**
Sliding Mode Control of Permanent Magnet Synchronous Motor

- (iii) **Ojionuka, Everestus Amamife** **July 2019** **M.Eng**
Sensorless Speed control of permanent Magnet Synchronous Motor using Model Reference Adaptive System
- (iv) **Nwokolo Eric** **July 2019** **M.Eng**
Comparative Performance of Sliding Mode Control and Instantaneous Reactive Power Theory Control for Three Phase Active Power Filter
- (v) **Imafidon Cyril Osaro** **July 2019** **M.Eng**
A Demand Side Management (DSM) Model for Electricity Cost Reduction for Urban Area
- (vi) Six (8) ongoing M.Eng and Three (4) Ph.D Thesis

17. MERIT AWARDS RECEIVED

- (i) **BEST LECTURER AWARD** Department of Electrical Engineering for the 2012/2013 academic year by the Association of Electrical Engineering Students, (**POWERTRON**) University of Nigeria, Nsukka, July 2013.
- (ii) **Certificate of Honour** by the Institution of Electrical and Electronic Engineering, University of Nigeria, Nsukka Chapter (IEEEUNNSB) for outstanding contributions to the growth of the Association. February 2011
- (iii) **POWERTRON** Premium Award as **Vice President** Department of Electrical Engineering University of Nigeria, Nsukka, 2001/2002 Session.
- (iv) **POWERTRON** Premium Award as **Icon of Excellence** Department of Electrical Engineering University of Nigeria, Nsukka, 2002/2003 Session.
- (iii) **POWERTRON** Premium Award as **Electoral Board Chairman** Department of Electrical Engineering University of Nigeria, Nsukka, 2002/2003 Session.
- (iv) **The Most Industrious Electrical Engineering Student Award** by the Nigerian Universities Engineering Students Association (NUESA), University of Nigeria, Nsukka Chapter, 2002/2003 Session.

*** **POWERTRON** is the Association of Electrical Engineering Students, University of Nigeria, Nsukka

18. AREAS OF RESEARCH INTEREST

- (i) **Electric Drives:** Development of new and energy-efficient control methods for electric machines in domestic and industrial drives including applications in Electric and Hybrid Electric Vehicles.
- (ii) **Power Electronic Converters (Inverters and DC to DC Converters):** Development and control of power electronic converters for renewable energy applications.
- (iii) **Power Electronics Applications and Control of Electric Power Systems:** Development of power electronic applications and advanced control methods for conventional and emerging electric power systems.

19. VISIBILITY IN RESEARCH DATABASES

- (i) **Academia:** <https://unn-ng.academia.edu/CosmasOgbuka>
- (ii) **Researchgate:** https://www.researchgate.net/profile/Cosmas_Ogbuka
- (iii) **ORCID:** 0000-0001-5333-1186
- (iv) **Scopus Author ID:** 54384070600

20. MEMBERSHIP OF PROFESSIONAL BODIES

- (i) Fellow, Africa Science Leadership Programme (**ASLP**) Pretoria, South Africa
- (ii) Member, Nigerian Young Academy (**NYA**). **NYA/2020140181/016**

- (iii) Registered Engineer, Council for the Regulation of Engineering in Nigeria (**COREN**) No:17,134
- (iv) Member, Nigerian Society of Engineers (**NSE**) No: 21130
- (v) Member, MIT Energy Initiatives (**MITEI**)
- (vi) Member, International Research and Development Institute (**IRDI**) No: 11-01-15-10
- (vii) Member, International Association of Engineers (**IAENG**) No: 64261
- (viii) Member, World Association of Young Scientists (**WAYS**)

21. KEY COMMITTEE AND OFFICIAL RESPONSIBILITIES/ POSITIONS HELD

- (i) **Technical Committee Member**, West Africa Centers of Excellence on Energy Network (WACEENET). November 2020-Date. Consortium member ACEs are: **(1)** Africa Centre of Excellence for Sustainable Power and Energy Development (ACE-SPED), Nigeria **(2)** Regional Centre of Excellence on Energy and Sustainability (RCEES), Ghana **(3)** Africa Centre of Excellence for Future Energies and Electrochemical Systems (ACE-FUELS), Nigeria **(4)** Centre d'Excellence Régional pour la Maîtrise de l'Electricité (CERME), Togo **(5)** Africa Centre of Excellence for Oilfield Chemicals (ACE-CEFOR), Nigeria
- (ii) **Coordinator**, IEEE Circuits and Systems Society (CASS) 2020 Initiative for Africa, University of Nigeria, Nsukka (working directly under Prof. Jose Silva-Martinez, Texas Instruments professor currently at Texas A&M University, College Station Texas. He is the 2020 Chair of the Africa AdHoc Committee for Technical Activities of the IEEE Circuits and Systems Society (CASS)). May 2020-Date
- (iii) **Panelist** in a panel session on the theme "Power Generation and Distribution in Nigeria: Trends and Issues" as part of "Technological Innovation for Holistic Sustainable Development (TECHISD2020) being an international conference organized by Centre for Lion Gadgets and Technologies in collaboration with the Department of Electronic Engineering, University of Nigeria, Nsukka. 21st September 2020.
- (iv) **Discussant**, The year 2020 Annual Public Lecture of the Nigerian Society of Engineers (NSE) Ughelli Chapter. Theme: The Challenges of Engineering Education in the Face of Global/National Disruption (A Case Study of the Current COVID-19 Pandemic). Date: Sunday, 16th August 2020.
- (v) **Member**, Publicity Sub-Committee, 2020 Sustainable Engineering and Industrial Technology Conference. Faculty of Engineering, University of Nigeria, Nsukka. 6th to 10th July, 2020.
- (vi) **Panelist**, Roundtable on Higher Education Innovation in Africa, Boston Marriott Cambridge, Massachusetts. USA. Theme: Innovation for progress: Re-appropriating Africa's development. October 31st, 2019.
- (vii) **Team Lead, Electrical Sub Division**, Lion Electric Vehicle named Ozumba 551 designed by the Mechatronic Research Group, University of Nigeria, Nsukka and unveiled on 8th July 2019 by the Vice Chancellor of the University of Nigeria Nsukka at the instance of the Director General, National Automotive Design and Development Council (NADDCC), Mr. Jelani Aliyu in attendance.
- (viii) **Member**, Faculty of Engineering Gap List Committee. (part of the 25 years strategic masterplan of the Faculty of Engineering, University of Nigeria Nsukka) August 2019-Date.
- (ix) **Member**, Project Coordinating/Implementation Committee/UNN-Institute of Energy and Climate research (Photovoltaics), Julich Germany Joint Energy Research Project (YESPV-NIGBEN) May 2019 - Date.
- (x) **Member**, Committee of Deans and Directors, University of Nigeria, Nsukka August 2018 to Date.
- (xi) **Member**, Senate Development Committee, University of Nigeria, Nsukka, August 2018 to Date.
- (xii) **Member**, University of Nigeria, Nsukka Senate, 2018 to Date

- (xiii) **Vice-Chairman**, Faculty of Engineering Academic Linkage Committee, August 2018 to Date.
- (xiv) **Coordinating Secretary**, Proposal Drafting Committee for Africa Centre of Excellence for Sustainable Power and Energy Development (ACE-SPED) 2018. (The proposal is among the Ten (10) new selected proposals for the award of Six (6) Million US Dollars ACE Impact in Nigeria.
- (xv) **Technical Member LOC**, First International Conference of the Faculty of Engineering, University of Nigeria, Nsukka. Theme: Engineering and Technology as Tools for Sustainable Economic and Industrial Growth in the 21st Century. 25th-28th April, 2018.
- (xvi) **Member LOC**, First International Workshop on Science Parks and Innovation Ecosystem for National Development. Princess Alexandra Auditorium University of Nigeria, Nsukka, 20th-23rd February, 2018.
- (xvii) **Chairman**, Departmental Committee on Self Study Documentation for the accreditation of the Electrical Engineering Programme of the University of Nigeria, Nsukka by the Council for the Regulation of Engineering in Nigeria (COREN) 2017-2018.

22. REFEREES

To be provided on Request.