

# ENGR. PROF. COSMAS UCHENNA OGBUKA

University of Nigeria, Nsukka B.Eng., M.Eng., Ph.D (Nig.), FNIEEE  
COREN Registered



## CONTACT INFORMATION

**Contact Address:** Department of Electrical Engineering,  
University of Nigeria, Nsukka 410001, Enugu State – NIGERIA

**E-mail:** cosmas.ogbuka@unn.edu.ng

**Mobile:** +234 (0) 803 261 6466

**Homepage:** <https://staffprofile.unn.edu.ng/profile/616>

<https://scholar.google.com/citations?user=RdhSqEMAAAAJ&hl=en&oi=ao>

<https://orcid.org/0000-0001-5333-1186>

<https://www.researchgate.net/profile/Cosmas-Ogbuka>

<https://unn-ng.academia.edu/CosmasOgbuka>

<https://www.linkedin.com/in/cosmas-ogbuka-2aa51b29/>

<https://mechatronic.unn.edu.ng/academic-staff-profile/>

## International Faculty Fellow,

MIT International Science and Technology Initiative (MISTI),

Massachusetts Institute of Technology,

1 Amherst St, E40-Floor 4, Cambridge, MA 02139. USA.

**1. NAME:**

**OGBUKA, Cosmas Uchenna**

**2. DATE OF BIRTH:**

1<sup>st</sup> 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.

**7. MARITAL AND FAMILY STATUS:**

Happily married to Engr. Dr. (Mrs).  
Ifanyi Maryrose CHINAEKE-  
OGBUKA (B.Eng, M.Eng, PhD (Nig)).  
Lecturer I, Department of Electronic  
Engineering, University of Nigeria,  
Nsukka. Date of birth: 14/09/1989. The  
marriage is blessed with five (5) lovely  
children. Four girls and one boy.

## 8. ACADEMIC BACKGROUND

- (i) **December, 2014**  
**Ph.D (Nig) Electric Power Devices**  
Department of Electrical Engineering, University of Nigeria, Nsukka
- (ii) **March, 2009**  
**M.Eng.(Nig.) Electric Power Devices (Distinction)**  
Department of Electrical Engineering, University of Nigeria, Nsukka
- (iii) **September, 2004**  
**B.Eng. (Nig.) (First Class Honours)**  
Department of Electrical Engineering, University of Nigeria, Nsukka
- (iv) **June, 1996**  
West Africa Senior School Certificate  
Boys' Secondary School Nru Nsukka

## 9. EMPLOYMENT HISTORY

- (i) **Professor** **1<sup>st</sup> October 2022 to Date**
- (ii) **Reader (Associate Professor):** **1<sup>st</sup> October 2019 to 30<sup>th</sup> September, 2022**
- (iii) **Senior Lecturer:** **1<sup>st</sup> October, 2016 to 30<sup>th</sup> September, 2019**
- (iv) **Lecturer I:** **1<sup>st</sup> October, 2012 to 30<sup>th</sup> September, 2016**
- (v) **Lecturer II:** **3<sup>rd</sup> March 2009 to 30<sup>th</sup> September, 2012**
- (vi) **Graduate Assistant:** **18<sup>th</sup> January 2007-2<sup>nd</sup> March 2009**  
**i - vi** above are in the Department of Electrical Engineering, University of Nigeria, Nsukka.
- (vii) **Network Design/Support Engineer (March 2006-January 2007)**
- (viii) **One Year National Youths Service Corps (NYSC) engagement (March, 2005 – February 2006)**  
**vii** and **viii** above were at GS Telecom Nig. Ltd Ikoyi Lagos (Now Vodacom Nig Ltd Ikoyi Lagos)
- (ix) **Six Months Students' Industrial Work Experience (SIWES) at the National Electric Power Authority Enugu District (January-July 2002).**

## 10. ADMINISTRATIVE RESPONSIBILITIES

- i. **Head**, Department of Mechatronic Engineering, University of Nigeria, Nsukka, August 2023 to Date
- ii. **Director**, Computer Communications Centre, University of Nigeria, Nsukka August 2018 to September 2022.
- iii. **Head**, Department of Electronic Engineering, University of Nigeria, Nsukka 2017/2018 Academic session.
- iv. **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)
- v. **Academic Coordinator**, Centre of Competence in Digital Education (C-CoDE), University of Nigeria, Nsukka (2021-Date). Project is in collaboration with the Association of African Universities (AAU) and EPFL – École polytechnique fédérale de Lausanne (Switzerland).
- vi. **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)
- vii. **Department of Electrical Engineering Postgraduate Coordinator**, January 2020 to Date.

## 11. CERTIFICATE COURSES

### i. September, 2024

**Transforming Energy Access – Learning Partnership (TEA-LP) Mini-Grids Training Workshop (On-Site)**, Kigali, Rwanda

Facilitator: Transforming Energy Access Leader Partnership, University of Cape Town, UKaid

### ii. July, 2024

**Executive Course on Leading Change through Monitoring and Evaluation: A Masterclass Experience(On-Site)**. Kigali, Rwanda

Facilitator: National Universities Commission (NUC)

### iii. August 2023

**Certificate of Completion (On-site in-person)**

Africa Research Security Consortium Workshop

Johannesburg South Africa

facilitated by Sandia National Laboratories and the U.S. Department of State.

### iv. May 2023 to July 2023

**Certificate of Completion (Virtual)**

Academic Research Security Webinar Series

facilitated by Sandia National Laboratories and the U.S. Department of State.

[African Research Security Consortium — Regional Security Analysis \(sandia.gov\)](#)

### v. March 2017 to May, 2017.

**Certificate of Completion (On-site in-person)**

Kaufman Teaching Certificate Program,

MIT Teaching and Learning Lab

Massachusetts Institute of Technology, Cambridge Massachusetts, USA

### vi. February to May 2017

MIT Empowering the Teachers (MIT-ETT) Fellowship. (Spring Semester)

MIT International Science and Technology Initiative (MISTI),

Massachusetts Institute of Technology, Cambridge, MA, USA.

### vii. December 2007

**Certificate of Participation (On-site in-person)**

Workshop on Rich Media Webcasting Technologies for Science Dissemination.

Abdus Salam International Centre for Theoretical Physics (ICTP),

Trieste Italy.

## 12. JOINT PARALLEL APPOINTMENTS

(i) World Bank Africa Centre of Excellence for Sustainable Power and Energy Development (ACE-SPED), University of Nigeria, Nsukka. (2019 to Date).

(ii) Department of Mechatronics Engineering, University of Nigeria, Nsukka (2019-Date).

## 13. MEMBERSHIP OF PROFESSIONAL BODIES

(i) **Fellow**, Nigerian Institute of Electrical and Electronic Engineers (**NIEEE**) **F-00220**

(ii) **Registered Engineer**, Council for the Regulation of Engineering in Nigeria (**COREN**)

**No: 17,134**

(iii) Member, Nigerian Society of Engineers (**NSE**) **No: 21130**

(iv) Fellow, Africa Science Leadership Programme (**ASLP**) Pretoria, South Africa

(v) Member, Nigerian Young Academy (**NYA**). **NYA/2020140181/016**

(vi) Fellow, Nigerian Institute of Electrical and Electronic Engineers (**NIEEE**) No. 01284

- (vii) Member, MIT Energy Initiatives (**MITEI**)
- (viii) Member, International Research and Development Institute (**IRDI**) No: 11-01-15-10
- (ix) Member, International Association of Engineers (**IAENG**) No: 64261
- (x) Member, World Association of Young Scientists (**WAYS**)

#### 14. ACADEMIC PUBLICATIONS

<b>(A)</b>	<b>BOOK</b>
<b>1</b>	Cosmas 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. <a href="http://www.LAP-publishing.com">www.LAP-publishing.com</a> . ISBN 978-3-8433-6847-6 <a href="https://www.lap-publishing.com/catalog/details/store/gb/book/978-3-8433-6847-6/aspects-of-induction-motor-stator-voltage-and-frequency-control">https://www.lap-publishing.com/catalog/details/store/gb/book/978-3-8433-6847-6/aspects-of-induction-motor-stator-voltage-and-frequency-control</a>
<b>(B)</b>	<b>JOURNALS PAPERS</b>
<b>1</b>	Alzahrani, A., Devarajan, G., Subramani, S., Vairavasundaram, I., Ogbuka, C.U (Corresponding Author): Analysis and validation of multi-device interleaved DC-DC boost converter for electric vehicle applications. IET Power Electron. 16, 1548–1557 (2023). <a href="https://doi.org/10.1049/pel2.12494">https://doi.org/10.1049/pel2.12494</a>
<b>2</b>	Ikenna Onyegbadue, Cosmas Ogbuka (Corresponding Author), Theophilus Madueme, “Robust Least Square Approach for Optimal Development of Quadratic Fuel Quantity Function for Steam Power Stations”, Indonesian Journal of Electrical Engineering and Computer Science, vol 25, no. 2, 2022, pp. 732-740, SNIP 2021: 0.513, SJR 2021: 0.276, (p-ISSN: 2502-4752, e-ISSN: 2502-4760) <a href="http://ijeecs.iaescore.com/index.php/IJECS/article/view/26881">http://ijeecs.iaescore.com/index.php/IJECS/article/view/26881</a> DOI: 10.11591/ijeecs.v25.i2.pp732-740
<b>3</b>	Kenneth Odo, Chibuike Ohanu, Ifeanyi Chinaeke-Ogbuka, Augustine Ajibo, Cosmas Ogbuka (Corresponding Author), Emenike Ejiogu, “A novel direct torque and flux control of permanent magnet synchronous motor with analytically-tuned PI controllers”, International Journal of Power Electronics and Drive Systems (IJPEDS) Vol. 12, No. 4, December 2021, pp. 2103-2112, SJR: 0.346, SNIP: 0.638. (ISSN:2088-8694) <a href="https://ijpeds.iaescore.com/index.php/IJPEDS/article/view/21550">https://ijpeds.iaescore.com/index.php/IJPEDS/article/view/21550</a> DOI: 10.11591/ijpeds.v12.i4.pp2103-2112
<b>4</b>	Chibuzo Victor Ikwuagwu, Ikechukwu Emmanuel Okoh, Stephen Aroh Ajah, Cosmas Uchenna Ogbuka (Corresponding Author), Godwin Ogechi Unachukwu, Emenike Chinedozi Ejiogu, “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. SJR 2021: 0.188, SNIP 2021: 0.294 <a href="https://astesj.com/v06/i03/p02/">https://astesj.com/v06/i03/p02/</a> <a href="https://dx.doi.org/10.25046/aj060302">https://dx.doi.org/10.25046/aj060302</a>
<b>5</b>	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 Systems (IJPEDS) Vol. 12, No. 1, Mar 2021, pp. 1-9. SJR: 0.346, SNIP: 0.638. (ISSN:2088-8694) <a href="http://ijpeds.iaescore.com/index.php/IJPEDS/article/view/20899">http://ijpeds.iaescore.com/index.php/IJPEDS/article/view/20899</a> DOI: 10.11591/ijpeds.v12.i1.pp1-9

6	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," <i>Przegląd Elektrotechniczny</i> , ISSN 0033-2097, Vol. 97, Issue 1, pp. 24-29, 2021. SJR 2021: 0.195, SNIP 2021: 0.369 (ISSN 0033-2097, e-ISSN 2449-9544) <a href="http://pe.org.pl/articles/2021/1/5.pdf">http://pe.org.pl/articles/2021/1/5.pdf</a> DOI:10.15199/48.2021.01.05
7	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" <i>International Journal of Electrical and Electronic Engineering &amp; Telecommunications</i> Vol. 10, No. 2, March 2021. SJR 2021: 0.167, SNIP 2021: 0.418, (E-ISSN:2319-2518) <a href="http://www.ijeetc.com/uploadfile/2021/0122/20210122033047261.pdf">http://www.ijeetc.com/uploadfile/2021/0122/20210122033047261.pdf</a> DOI: 10.18178/ijeetc.10.2.83-90
8	Cajethan Nwosu, Akpevwe Isiorhovoja, Cosmas Ogbuka, and Boniface Anyaka, "Density based auto traffic light control system with GSM based remote override for enugu metropolis," <i>Journal of Applied Research and Technology (JART)</i> , vol. 18, no. 2, Apr. 2020. SJR=0.17 (ISSN:1665-6423) <a href="https://jart.icat.unam.mx/index.php/jart/article/view/997/767">https://jart.icat.unam.mx/index.php/jart/article/view/997/767</a> DOI: 10.22201/icat.24486736e.2020.18.2.997
9	Gideon UMOH, Cosmas OGBUKA (Corresponding Author), Emeka OBE, Modelling and Analysis of Five-Phase Permanent Magnet Synchronous Motor in Machine Variables" <i>Przegląd Elektrotechniczny</i> , Vol. 96, Issue 1, 2020, pp. 87-92. SJR 2021: 0.195, SNIP 2021: 0.369 (ISSN 0033-2097, e-ISSN 2449-9544) <a href="http://pe.org.pl/articles/2020/1/21.pdf">http://pe.org.pl/articles/2020/1/21.pdf</a> DOI:10.15199/48.2020.01.21
10	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" <i>Journal of Electrical Engineering (Elektrotechnický Casopis)</i> , Vol. 70, No. 6, pp. 473–479, 2019, TR-IF =0.84 (ISSN 1335-3632, On-line ISSN 1339-309X) <a href="http://iris.elf.stuba.sk/JEEEC/data/pdf/6_119-05.pdf">http://iris.elf.stuba.sk/JEEEC/data/pdf/6_119-05.pdf</a> DOI: 10.2478/jee-2019-0080
11	Cajethan M. Nwosu, Cosmas U. Ogbuka, Stephen E. Oti "Analysis, Design and Simulation of Digital Controlled Symmetrical Seven Levels Inverter" <i>Journal of Electrical Engineering — Elektrotechnický casopis</i> , Vol. 69, No. 3, pp. 233–238, 2018. TR-IF =0.84 (ISSN 1335-3632, On-line ISSN 1339-309X) <a href="http://iris.elf.stuba.sk/JEEEC/data/pdf/3_118-07.pdf">http://iris.elf.stuba.sk/JEEEC/data/pdf/3_118-07.pdf</a> DOI: 10.2478/jee-2018-0031
12	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" <i>Advances in Electrical and Electronic Engineering</i> , Vol. 17, No. 2, June 2019, pp. 87-192. SJR: 0.202 (2021), SNIP: 0.342 (2021), ISSN 1336-1376 (Print), ISSN 1804-3119 (Online) <a href="http://advances.utc.sk/index.php/AEEE/article/view/2904">http://advances.utc.sk/index.php/AEEE/article/view/2904</a> DOI: 10.15598/aeee.v17i2.2904
13	Cosmas Ogbuka, Cajethan Nwosu, Gideon Umoh, "A new cross-saturated torque model of highly utilized synchronous reluctance machine," <i>Archives of Electrical Engineering</i> , Vol. 67, Number 1, March 2018. Pp.109-121. SJR 2021: 0.276, SNIP 2021: 0.675 (ISSN 1427 - 4221, On-line ISSN 2300 - 2506) <a href="http://journals.pan.pl/dlibra/publication/118995/edition/103541/content">http://journals.pan.pl/dlibra/publication/118995/edition/103541/content</a> DOI: 10.24425/118995

<b>14</b>	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, Issue 4, Pp. 1-11, 2018. SJER 2021: 0.158, SNIP 2021: 0.266, (ISSN 2352-0965, On-line ISSN 2352 - 0973) <a href="http://www.eurekaselect.com/article/90280">http://www.eurekaselect.com/article/90280</a> DOI: 10.2174/2352096511666180508153432
<b>15</b>	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, August 2017, pp. 308–315. TR-IF =0.84 (ISSN 1335-3632, On-line ISSN 1339-309X) <a href="http://iris.elf.stuba.sk/JEEEC/data/pdf/4_117-04.pdf">http://iris.elf.stuba.sk/JEEEC/data/pdf/4_117-04.pdf</a> DOI: 10.1515/jee-2017-0039
<b>16</b>	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, June 2017, pp. 188–193. TR-IF =0.84 (ISSN 1335-3632, On-line ISSN 1339-309X) <a href="http://iris.elf.stuba.sk/JEEEC/data/pdf/3_117-03.pdf">http://iris.elf.stuba.sk/JEEEC/data/pdf/3_117-03.pdf</a> DOI: 10.1515/jee-2017-0027
<b>17</b>	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. TR-IF =0.84 (ISSN 1335-3632, On-line ISSN 1339-309X) <a href="http://iris.elf.stuba.sk/JEEEC/data/pdf/1_117-04.pdf">http://iris.elf.stuba.sk/JEEEC/data/pdf/1_117-04.pdf</a> DOI: 10.1515/jee-2017-0004
<b>18</b>	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 Engineering, Vol. 25, No. 1, February 2017. Pp. 1-14. TR-IF = 0.853 (ISSN: 1300-0632, E-ISSN: 1303-6203) <a href="https://journals.tubitak.gov.tr/cgi/viewcontent.cgi?article=2396&amp;context=elektrik">https://journals.tubitak.gov.tr/cgi/viewcontent.cgi?article=2396&amp;context=elektrik</a> <a href="https://doi.org/10.3906/elk-1505-160">https://doi.org/10.3906/elk-1505-160</a>
<b>19</b>	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. TR-IF =0.84 (ISSN 1335-3632, On-line ISSN 1339-309X) <a href="http://iris.elf.stuba.sk/JEEEC/data/pdf/5_116-03.pdf">http://iris.elf.stuba.sk/JEEEC/data/pdf/5_116-03.pdf</a> DOI: 10.1515/jee-2016-0048
<b>20</b>	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. TR-IF =0.84 (ISSN 1335-3632, On-line ISSN 1339-309X) <a href="http://iris.elf.stuba.sk/JEEEC/data/pdf/2_116-01.pdf">http://iris.elf.stuba.sk/JEEEC/data/pdf/2_116-01.pdf</a> DOI: 10.1515/jee-2016-0011
<b>21.</b>	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, June 2017, pp. 146-153. SJR: 0.202 (2021), SNIP: 0.342 (2021), ISSN 1336-1376 (Print), ISSN 1804-3119 (Online) <a href="http://advances.utc.sk/index.php/AEEE/article/view/2128">http://advances.utc.sk/index.php/AEEE/article/view/2128</a> DOI: 10.15598/aeee.v15i2.2128

22.	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. SJR 2021: 0.276, SNIP 2021: 0.675 (ISSN 1427 - 4221, On-line ISSN 2300 - 2506) <a href="http://journals.pan.pl/dlibra/publication/98878/edition/85187/content">http://journals.pan.pl/dlibra/publication/98878/edition/85187/content</a> DOI 10.1515/aee-2016-0008
23	Anthony I. Umeogamba, Ifeanyi M. Chinaeke-Ogbuka, Cosmas U. Ogbuka, Cajethan M. Nwosu, "Design and Construction of a GSM-Based Smart Electricity Billing System" International Journal of Scientific & Engineering Research, Volume 13, Issue 5, May-2022, pp. 789- 792
24	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. <a href="https://ajbsr.net/data/uploads/2205.pdf">https://ajbsr.net/data/uploads/2205.pdf</a>
25	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. <a href="https://www.iosrjournals.org/iosr-jeee/Papers/Vol14%20Issue%204/Series-2/E1404023541.pdf">https://www.iosrjournals.org/iosr-jeee/Papers/Vol14%20Issue%204/Series-2/E1404023541.pdf</a> DOI: 10.9790/1676-1404023541
26.	Chigbo A. Mgbemene, Godwin M. Kalu-Uka , Ikechukwu C. Ezema, Cosmas U. Ogbuka, Abraham C. Kalu-Uka, Anthony O. Odukwe "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, Volume 8, Issue 6, June, 2019. Pp. 451-468. <a href="https://www.ijert.org/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">https://www.ijert.org/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</a>
27.	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 Volume 10, Issue 3, March-2019, pp. 775-779. <a href="https://www.ijser.org/researchpaper/A-Microcontroller-Based-Water-Level-Indicator-using-Radio-Frequency-RF-Technology-and-Ultrasonic-Sensor.pdf">https://www.ijser.org/researchpaper/A-Microcontroller-Based-Water-Level-Indicator-using-Radio-Frequency-RF-Technology-and-Ultrasonic-Sensor.pdf</a>
28.	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, April, 2018. Pp. 33-40.
29.	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 April, 2018. Pp. 19-23.
30.	C. C. Ani, T.C. Madueme, C.U. Ogbuka, "A Hidden Markov Model Algorithm for Insulation Coordination of Power System Equipment", IOSR Journal of Electrical and Electronics Engineering (IOSR-JEEE), Volume 12, Issue 6, 2017, pp. 11-19. <a href="https://www.semanticscholar.org/paper/A-Hidden-Markov-Model-Algorithm-For-Insulation-Of-Ani-Madueme/ac7d497c1a61a87e12a83dc42235dec612d04c8f">https://www.semanticscholar.org/paper/A-Hidden-Markov-Model-Algorithm-For-Insulation-Of-Ani-Madueme/ac7d497c1a61a87e12a83dc42235dec612d04c8f</a> DOI: 10.9790/1676-1206031119
31.	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 1(2): 00007. <a href="https://pdfs.semanticscholar.org/e265/4719ef63284d56a9839a5644b5264cc55207.pdf">https://pdfs.semanticscholar.org/e265/4719ef63284d56a9839a5644b5264cc55207.pdf</a> DOI: 10.15406/eetoaj.2017.01.00007
32.	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. <a href="https://www.ijitee.org/download/volume-4-issue-6/">https://www.ijitee.org/download/volume-4-issue-6/</a>

33.	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 <a href="http://www.nijotech.com/index.php/nijotech/article/view/565">http://www.nijotech.com/index.php/nijotech/article/view/565</a>
34.	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, Vol. 13, No. 2, 2011, Pp. 12-20
35.	C.U. Ogbuka and S.E. Oti, "Dynamic and Steady State Evaluation of Grid-Connected Permanent Magnet Synchronous Motor", International Journal of IEEE Nigeria Section. Vol. 1, No. 1, 2011. Pp. 57-62
36.	C.A Nwosu, U.C. Uchenna and C.U. Ogbuka, 2011 "Analysis and Application of Field Oriented Control (FOC) in Electrical Drives for Drive-System studies", International Journal of IEEE Nigeria Section. Vol. 1, No. 1, 2011. Pp. 45-52
37.	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
38.	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. <a href="https://www.arpapress.com/Volumes/Vol9Issue1/IJRRAS_9_1_08.pdf">https://www.arpapress.com/Volumes/Vol9Issue1/IJRRAS_9_1_08.pdf</a>
39.	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
40.	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
41.	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
42.	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. <a href="http://www.akamaiuniversity.us/PJST11_2_91.pdf">http://www.akamaiuniversity.us/PJST11_2_91.pdf</a>
43.	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. <a href="http://www.akamaiuniversity.us/PJST10_2_83.pdf">http://www.akamaiuniversity.us/PJST10_2_83.pdf</a>
44.	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. <a href="http://www.akamaiuniversity.us/PJST10_2_77.pdf">http://www.akamaiuniversity.us/PJST10_2_77.pdf</a>
45.	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. <a href="http://www.akamaiuniversity.us/PJST10_2_21.pdf">http://www.akamaiuniversity.us/PJST10_2_21.pdf</a>
46.	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.
47.	Ogbuka, C.U. 2009. "Performance Characteristics of Controlled Separately Excited DC Motor". Pacific Journal of Science and Technology. 10(1):67-74. <a href="http://www.akamaiuniversity.us/PJST10_1_67.pdf">http://www.akamaiuniversity.us/PJST10_1_67.pdf</a>
48.	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. <a href="http://www.akamaiuniversity.us/PJST10_1_59.pdf">http://www.akamaiuniversity.us/PJST10_1_59.pdf</a>
49.	Okoro, O.I., C.U. Ogbuka, and M.U. Agu. 2008. "Simulation of D.C. Machines Transient Behaviors: Teaching and Research". Pacific Journal of Science and Technology. 9(1):142- 148.
50.	C.U. Ogbuka, O.I. Okoro, and M.U. Agu. 2008. "Solving Electrical Circuits Transient Problems with MATLAB® and SIMPLORER®". Pacific Journal of Science and Technology. 9(1):149-154.



51.	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. <a href="http://www.akamaiuniversity.us/PJST9_2_452.pdf">http://www.akamaiuniversity.us/PJST9_2_452.pdf</a>
(C)	<b>CONFERENCE PAPERS</b>
1	Kenneth Odo, Augustine Ajibo, Cosmas Ogbuka, Ogbonna Oparaku, Ifeanyi Chinaeke-Ogbuka, Emenike Ejiogu, A Comparison of Model Predictive and Dead-Beat Predictive Control Algorithms for Permanent Magnet Synchronous Motor, 2022 IEEE PES/IAS PowerAfrica, Kigali Rwanda, 22nd – 26th August, 2022
2	Akpeghagha Oghenevwaire, Ifeanyi Chinaeke-Ogbuka, Augustine Ajibo, Cosmas Ogbuka 'Recent Advances in DC-to-DC Converter Applications in Electric Vehicles', Proceedings of the 4 <sup>th</sup> African International Conference on Industrial Engineering and Operations Management, Nsukka, Nigeria, April 5-7, 2022.
3	K. C. Odo, C. U. Eya, C. U. Ogbuka, " <u>Design of Analytically-tuned PI Controllers for Vector-controlled AC Machines</u> ", in the Proceedings of the 2nd International Conference on Electrical Power Engineering (ICEPENG 2021), Nsukka, Nigeria, pp. 50-54, 18 - 22 May, 2021.
4	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.
5	Ifeanyi Chinaeke-Ogbuka, Edward Anoliefo, Augustine Ajibo, Cosmas Ogbuka, "Design and Implementation of an Automated Feeding System for Poultry Farms", Proceedings of the International Conference on Industrial Engineering and Operations Management. <u>4th European IEOM Conference, Rome, Italy, August 3-5, 2021</u>
6	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.
7	Chukwumeka 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.
8	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.
9	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.
10	Tobenna Obidire, Kenneth Odo and Cosmas Ogbuka, "Electric Drives in Electric Vehicle Propulsion" 1st NIEEE Nsukka Chapter Conference, 28th-30th May, 2019. Nsukka. Pp. 56-64.
11	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.
12	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.
13	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.

14	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 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.
15	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, pp. 181-187.
16	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, Nigeria, pp. 92-96.
17	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.
18	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.
19	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.
20	Cosmas Ogbuka, Cajethan Nwosu, Marcel 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
21	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.
22	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.
23	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.
24	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
25	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.
26	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.
27	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.
28	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).

29	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).
30	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.

## 15. GRANTS

<u>S/N</u>	<u>ROLE</u>	<u>GRANT DESCRIPTION</u>	<u>Worth</u>	<u>FUNDING BODY</u>	<u>YEAR</u>
1.	Co-Applicant	Africa Centre of Excellence for Sustainable Power and Energy Development (ACE-SPED) under the ACE-Impact project. <a href="https://acespedunn.edu.ng/management/Engr.%20Assoc.%20Prof.%20C.%20U.%20A0Ogbuka">https://acespedunn.edu.ng/management/Engr.%20Assoc.%20Prof.%20C.%20U.%20A0Ogbuka</a>	\$6,000,000 (Six Million USD).	World Bank and AFD	2019 - 2024
2.	Co-Applicant	Planning and Implementation of Strategic Stakeholders' Briefing to Operationalize Research Security in Selected Higher Education Institutions in Nigeria	\$ 10,0000	CRDF GLOBAL, USA	2024
3.	Co-Applicant	Funding support for the Transforming Energy Access-Learning Partnerships (TEA-LP) Project in partnership with the University of Cape Town to train eighteen (18) young Africans on Energy Access and Mini-grid Development. <a href="https://tea-lp.unn.edu.ng/dr-cosmas-ogbuka/">https://tea-lp.unn.edu.ng/dr-cosmas-ogbuka/</a>	£16,700	University of Cape Town and UKAid	2023
4.	Sole-Applicant	Incoming Mobility for Academic year 2021-2022: Erasmus+ kA 107 International Credit Mobility Project, Department of Systems Engineering, School of Engineering, University of Valladolid, Spain.	EUR 2200	European Union	2022
5.	Co-Applicant	Funding support for training Eleven (11) young Africans on various Energy courses at Masters level	€52,000	European Union-ECOWAS	2020
6.	Sole-Applicant	Travel Grant to present a paper at the World Congress on Engineering WCE 2010 at the Imperial Collage, London.	\$2,400	African Network of Scientific and Technological Institutions (ANSTI)	2010

				Nairobi, Kenya	
--	--	--	--	-------------------	--

#### 16. Editorship of Reputable Journals

- (i) Guest Editor, Special Issue on Theory and Application of Modeling and Simulation for Human-in-the-Loop Systems. Journal Title: Complex System Modeling and Simulation. [https://www.sciopen.com/journal/message\\_news/get\\_by\\_id?id=1795643482813603841&issn=2096-9929](https://www.sciopen.com/journal/message_news/get_by_id?id=1795643482813603841&issn=2096-9929)  
Manuscript submission due: Dec 31, 2024, Possible publication: Apr 30, 2025
- (ii) Associate Editor (Computer Science and Engineering), Annals of Science and Technology, A publication of the Nigeria Young Academy (NYA) <https://sciencdo.com/journal/AST?tab=editorial-board>
- (iii) Associate Editor (Power and Electronics), Nigerian Journal of Science and Engineering Infrastructure (NJSEI)  
A Publication of the National Agency for Science and Engineering Infrastructure (NASENI) <https://njsei.naseni.gov.ng/index.php/nsjei/about/editorialTeam>
- (iv) Associate Editor, NIEEE Journal of Research and Innovative Technology. A journal of the Nigeria Institute of Electrical and Electronic Engineering (IEEE) Nsukka Chapter

#### 17. SCHOLARSHIPS/ACADEMIC PRIZES/GRANTS/SPONSORSHIPS RECEIVED

- (v) Incoming Mobility for Academic year 2021-2022: Erasmus+ kA 107 International Credit Mobility Project, Department of Systems Engineering, School of Engineering, University of Valladolid, Spain, June 2022.
- (vi) 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.
- (vii) 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 30<sup>th</sup> April, 2016)
- (viii) Murli T. Chalam Foundation (M.T.C) Postgraduate Scholarship 2012 (The award was for my Ph.D Tuition Fee in 2012)
- (ix) 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)
- (x) 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)
- (xi) The Vice Chancellor's Best Graduating Student Award/Prize for the Department of Electrical Engineering for the 2002/2003 Academic Session.
- (xii) Lt. Col. A.C. Nwana's Academic Merit Award for the Best Graduating Student of Electrical Engineering for the 2002/2003 Academic Session.
- (xiii) Federal Government of Nigeria Undergraduate Scholarship Award, 2002-2004

## 18. FOREIGN COUNTRIES VISITED FOR ACADEMIC REASONS

- |        |                                                                                                                                              |                                                                               |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| (i)    | Rwanda (University of Rwanda and Carnegie Mellon University Africa, Kigali, University of Rwanda, College of Science and Technology, Kigali) | 04/08/2024–11/09/2024<br>08/07/2024-18/07/2024<br>22/8/2022 – 26/8/2022       |
| (ii)   | <b>Cote D'Ivoire</b> (Ministry of Higher Education, Abidjan),                                                                                | Oct. 31 to Nov. 3, 2023.                                                      |
| (iii)  | <b>South Africa</b> (Johannesburg)                                                                                                           | 28-31 August, 2023                                                            |
| (iv)   | <b>Morocco</b> (Mohammed VI Polytechnic University)                                                                                          | 29 May – 02 June 2023                                                         |
| (v)    | <b>The Gambia</b> (Ministry of Higher Education, Banjul)                                                                                     | 14/11/2022-18/11/2022                                                         |
| (vi)   | <b>Ghana</b> (Association of African Universities (AAU, Accra)<br>(University of Energy and Nat. Resource Sunyani)                           | 29/8/2022 – 01/9/2022<br>30/01/2023-03/02/2023                                |
| (vii)  | <b>Spain</b> (University of Valladolid)                                                                                                      | 20/06/2022 – 24/06/2022                                                       |
| (viii) | <b>Republic of Benin</b> (Ministry of Education, Cotonou)                                                                                    | 14/06/2022 – 17/06/2022                                                       |
| (ix)   | <b>United States of America</b> (MIT Campus Cambridge, Massachusetts)                                                                        | 01/02/2017 – 31/05/2017<br>31/03/2019 – 05/04/2019<br>27/10/2019 – 01/11/2019 |
| (x)    | <b>Germany</b> (University of Federal Defense, Munich)                                                                                       | 01/11/2015-30/04/2016                                                         |
| (xi)   | <b>United Kingdom</b> (Imperial Collage London)                                                                                              | 06/07/2011-08/07/2011                                                         |
| (xii)  | <b>Italy</b> (ICTP Trieste)                                                                                                                  | 02/12/2007-13/12/2007                                                         |

## 19. MAJOR CONFERENCES/WORKSHOPS/SEMINARS ATTENDED

- (i) **Guest Speaker:** 4th Biennial Conference of the South East Zone of the Organization for Women in Science in the Developing world. Venue: Abia State University, Uturu. 6<sup>th</sup> June, 2024.
- (ii) 10th ACE Impact Africa Regional Workshop to be held in Abidjan, Cote d'Ivoire from October 31 to November 3, 2023.
- (iii) **Eminent Speaker:** International Higher-End Workshop on Electric Vehicle Intelligent Technologies (EVIT-23) Department of Energy and Power Electronics, School of Electrical Engineering, Department of Vellore Institute of Technology, Vellore. India, 8<sup>th</sup> - 12<sup>th</sup>, July 2023.
- (iv) 9th ACE-Impact Regional Workshop, Marrakech Morocco, 29<sup>th</sup> May to 2<sup>nd</sup> June 2023.
- (v) A 5-Day Professional Short Course. Theme: Energy Management in Industry and Homes at the Regional Centre of Energy and Environmental Sustainability (RCEES) Sunyani Ghana, 30<sup>th</sup> January to 3<sup>rd</sup> February, 2023.
- (vi) 8th ACE-Impact Regional Workshop, Banjul Republic of the Gambia 14<sup>th</sup> -18<sup>th</sup> November, 2022.
- (vii) World Conference on Education and Restitution at the Association of African Universities (AAU) in Accra, Ghana, August 30 to September 1, 2022.
- (viii) IEEE PES / IAS POWERAFRICA – Kigali, Rwanda 22<sup>rd</sup> – 26<sup>th</sup> AUGUST 2022
- (ix) 7th ACE Impact Regional Workshop, Cotonou Republic of Benin 14<sup>th</sup> -17<sup>th</sup> June, 2022.
- (x) **Invited Speaker,** Virtual International Conference on Smart Grid and Green Energy Systems (SGGES'2021), Vellore Institute of Technology, Vellore India, July 30-31, 2021. Topic: Aspects of Hysteresis Current Control (HCC) of Permanent Magnet Synchronous Motor Drives with and without explicit speed sensors. [https://vit.ac.in/SGGES-21/Speakers\\_Page/index.html](https://vit.ac.in/SGGES-21/Speakers_Page/index.html)
- (xi) 2020 Sustainable Engineering and Industrial Technology Conference. Faculty of Engineering, University of Nigeria, Nsukka. 6<sup>th</sup> to 10<sup>th</sup> July, 2020.
- (xii) 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.
- (xiii) The 12<sup>th</sup> Africa Higher Education Centres of Excellence workshop held in Abuja from 24<sup>th</sup> to 28<sup>th</sup> February, 2020

- (xiv) 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. 12-16<sup>th</sup> August, 2019.
- (xv) 1st National Conference of the Nigeria Institution of Electrical and Electronic Engineers (NIEEE) Nsukka Chapter, 28th-30th May, 2019 at the NCERD Nsukka.
- (xvi) 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.
- (xvii) 1st IEEE International Conference on Mechatronics, Automation and Cyber-Physical Computer System (IEEE MAC 2019) Owerri, 7-8 March, 2019, pp. 29-35.

## 20. TEACHING RESPONSIBILITIES

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

### (a) Department of Electrical Engineering

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

PGC 601 Research Methodology and ICT in Engineering	3Units
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

### (b) Department of Mechatronic Engineering

MCT 201 Introduction to Mechatronic Engineering	3 Units (Ongoing 2020/2021 Session)
MCT 344 Measurement and Instrumentation	2 Units (Ongoing) 2020/2021 Session)
MCT 431 Control Engineering I	3 Units (2021/2022 Session)

MCT 554 Systems Modelling and Simulations	2 Units (2022/2023 Session)
MCT 516 Power Electronics and Drives	2 Units 2022/2023 Session)

**(c) World Bank Africa Centre of Excellence for Sustainable Power and Energy Development (ACE-SPED)**

PGC 601 Research Methodology and ICT in Engineering	3 Units
ACE 751 Advanced Power Electronics and Control	3 Units
ACE 643 Modelling of Electric Machines	3 Units
ACE 741 Advanced Power Electronics Converters and Systems	3 Units
ACE 644 Control of Electric Machines	3 Units
ACE 742 Advanced Modelling and Control of Electric Machines	3 Units
ACE 754 Advanced Instrumentation Systems	3 Units

## 21. AREAS OF RESEARCH INTEREST

**(i) Modern Electric Power Systems:** Intelligent electric power systems incorporating distributed renewable energy sources, energy storage devices, electric vehicle charging stations and advanced communication systems.

**(ii) Electric Machines and 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.

**(iii) Power Electronic Converters and applications in Electric Power Systems:** Development of power electronic applications and advanced control methods for conventional and emerging electric power systems.

## 22. SUPERVISION

**(i) UNDERGRADUATE**

I have supervised more than Eighty (80) undergraduate projects.

**(ii) POSTGRADUATE**

Project/Candidate Supervised

<b>(i)</b>	<b>Oputa Osita</b>	<b>May 2023</b>	<b>PhD</b>
	Fast Logic Control of a Distance Relay Protection Scheme for an Electric Power Distribution System		
<b>(ii)</b>	<b>Onyegbadue Ikenna Augustine</b>	<b>January 2022</b>	<b>PhD</b>
	Economic Load Dispatch of Nigeria Thermal Power Generating Stations		
<b>(iii)</b>	<b>Ozoude, Joseph Chidera</b>	<b>April 2024</b>	<b>M.Eng</b>
	Design and Simulation of a Stand-Alone PV System for an Administrative Complex Using Incremental Conductance MPPT Method		
<b>(iv)</b>	<b>Ezema, Linus Ikechukwu</b>	<b>April 2024</b>	<b>M.Eng</b>
	Analysis of Economic Implications of Power Outages in The Aba-Umuahia 33/11 kV Distribution Network for Optimal Power Delivery and Economic Performance		
<b>(v)</b>	<b>Abuh Garba Alechenu</b>	<b>April 2024</b>	<b>M.Eng</b>
	End of Life Batteries Disposal: Knowledge and Attitude of Abuja Residents.		
<b>(vi)</b>	<b>Yongo Joseph T.</b>	<b>April 2024</b>	<b>M.Eng</b>
	Design and Implementation of a Wind Turbine Assisted Electric Vehicle		
<b>(vii)</b>	<b>Odo, Kenneth Chinonso</b>	<b>December 2021</b>	<b>M.Eng</b>
	Novel Predictive Current Control of Permanent Magnet Synchronous Motor		
<b>(viii)</b>	<b>Madu, Ikenna Canice</b>	<b>December 2021</b>	<b>M.Eng</b>

Load Management in a Multi-Source Industrial Environment Using Programmable Logic Controller

- |        |                                                                                                                                     |                      |              |
|--------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|
| (ix)   | <b>Ohapugo, Nnaemezie John</b>                                                                                                      | <b>December 2021</b> | <b>M.Eng</b> |
|        | Development of an integrated low-cost smart energy metre for Nigeria market                                                         |                      |              |
| (x)    | <b>Chukwu, Emmanuel Tochukwu</b>                                                                                                    | <b>July 2019</b>     | <b>M.Eng</b> |
|        | Sliding Mode Control of Permanent Magnet Synchronous Motor                                                                          |                      |              |
| (xi)   | <b>Ojionuka, Everestus Amamife</b>                                                                                                  | <b>July 2019</b>     | <b>M.Eng</b> |
|        | Sensorless Speed control of permanent Magnet Synchronous Motor using Model Reference Adaptive System                                |                      |              |
| (xii)  | <b>Nwokolo Eric</b>                                                                                                                 | <b>July 2019</b>     | <b>M.Eng</b> |
|        | Comparative Performance of Sliding Mode Control and Instantaneous Reactive Power Theory Control for Three Phase Active Power Filter |                      |              |
| (xiii) | <b>Imafidon Cyril Osaro</b>                                                                                                         | <b>July 2019</b>     | <b>M.Eng</b> |
|        | A Demand Side Management (DSM) Model for Electricity Cost Reduction for Urban Area                                                  |                      |              |
| (xiv)  | <b>Ugwuoti Aloysius Nnaemeka</b>                                                                                                    | <b>Dec 2018</b>      | <b>M.Eng</b> |
|        | Development of an equivalent circuit of Single-phase permanent magnet synchronous Motor.                                            |                      |              |

##Ongoing supervision: Twelve M.Eng and Seven Ph.D

## 23. EXTERNAL EXAMINATION (POSTGRADUATE AND UNDERGRADUATES) / ASSESSMENT (PROFESSORIAL) TO OTHER UNIVERSITIES

- (i) **External Examiner**, (Postgraduate), Department of Electrical/Electronic Engineering, University of Abuja, (March 2024 to Date).
- (ii) **External Assessor** (Professorial), Department of Electrical and Electronic Engineering, Nnamdi Azikiwe University Awka Anambra State (January 2024 to Date).
- (iii) **External Examiner** (Undergraduates) Department of Mechatronic Engineering, Federal University of Technology Owerri, Imo State. (July 2024 to Date)
- (iv) **External Assessor** (Professorial), Department of Electrical and Electronic Engineering, Chukwuemeka Odumegwu Ojukwu University (COOU), Uli Anambra State (September 2023 to Date).
- (v) **External Examiner**, (Postgraduates), Department of Electrical and Communication Engineering, Covenant University Ota, Ogun State (October 2023 to Date).
- (vi) **External Examiner**, (Postgraduate), Department of Electrical and Electronic Engineering, Chukwuemeka Odumegwu Ojukwu University (COOU), Uli Anambra State (September 2023 to Date).
- (vii) **Alternate External Examiner**, Bachelors of Engineering Programme, Department of Electrical and Electronics Engineering, Enugu State University of Science and Technology (ESUT) for the 2019-2020, 2020-2021, 2021-2022.

## 24. 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

## 25. VISIBILITY IN RESEARCH DATABASES

- (i) **Academia:** <https://unn-ng.academia.edu/CosmasOgbuka>
- (ii) **Researchgate:** [https://www.researchgate.net/profile/Cosmas\\_Ogbuka](https://www.researchgate.net/profile/Cosmas_Ogbuka)
- (iii) **ORCID:** 0000-0001-5333-1186
- (iv) **Scopus Author ID:** 54384070600
- (v) <https://unn-ng.academia.edu/CosmasOgbuka>
- (vi) <https://www.linkedin.com/in/cosmas-ogbuka-2aa51b29/>

## 26. KEY COMMITTEE AND OFFICIAL RESPONSIBILITIES/ POSITIONS HELD

- (i) **Chairman**, HMM Lecture 2024 Publicity Committee Faculty of Engineering, University Of Nigeria Nsukka
- (ii) **Resource Person**, A 5-Day Professional Short Course. Theme: Energy Management in Industry and Homes at the Regional Centre of Energy and Environmental Sustainability (RCEES) Sunyani Ghana, 30th January to 3rd February, 2023.
- (iii) **Chairman**, Faculty of Engineering Appraisal Advisory Committee (2022-2024) The committee was responsible for offering detailed explanation of the contents of the appraisal guidelines to all prospective appraisers to clear all doubts and ambiguities.
- (iv) **Deputy Chairman**, The Nigerian Institute of Electrical and Electronic Engineers (NIEEE), Nsukka Chapter (March 2022 to Date).
- (v) **Pioneer Member**, Nigerian Institute of Electrical and Electronic Engineers (NIEEE), Examination Board 2022.
- (vi) **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
- (vii) Member, University of Nigeria project team on Transforming Energy Access Learning Partnerships (TEA-LP). collaboration with the University of Cape Town and the Africa Centre of Excellence for Sustainable Power and Energy Development (ACE-SPED) <https://tea-lp.unn.edu.ng/dr-cosmas-ogbuka/>
- (viii) **Coordinator**, IEEE Circuits and Systems Society (CASS) 2020 Initiative for Africa, University of Nigeria, Nsukka.
- (ix) **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. 21<sup>st</sup> September 2020.
- (x) **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, 16<sup>th</sup> August 2020.
- (xi) **Member**, Publicity Sub-Committee, 2020 Sustainable Engineering and Industrial Technology Conference. Faculty of Engineering, University of Nigeria, Nsukka. 6th to 10th July, 2020.

- (xii) **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.
- (xiii) **Team Lead, Electrical Sub Division**, Lion Electric Vehicle named Ozumba 551 designed by the Mechatronic Research Group, University of Nigeria, Nsukka and unveiled on 8<sup>th</sup> 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.
- (xiv) **General Secretary**, The Nigerian Institute of Electrical and Electronic Engineers (NIEEE), Nsukka Chapter (2014 to 2022)
- (xv) **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.
- (xvi) **Member**, Project Coordinating/Implementation Committee/UNN-Institute of Energy and Climate research (Photovoltaics), Julich Germany Joint Energy Research Project (YESPV-NIGBEN) May 2019 - Date.
- (xvii) **Member**, Committee of Deans and Directors, University of Nigeria, Nsukka August 2018 to Date.
- (xviii) **Member**, Senate Development Committee, University of Nigeria, Nsukka, August 2018 to Date.
- (xix) **Member**, University of Nigeria, Nsukka Senate, 2018 to Date
- (xx) **Vice-Chairman**, Faculty of Engineering Academic Linkage Committee, August 2018 to 2020.
- (xxi) **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.
- (xxii) **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.
- (xxiii) **Member LOC**, First International Workshop on Science Parks and Innovation Ecosystem for National Development. Princess Alexandra Auditorium University of Nigeria, Nsukka, 20<sup>th</sup>-23<sup>rd</sup> February, 2018.
- (xxiv) **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.

## 27. REFEREES

### 1. Engr. Prof. Theophilus C. Madueme

Department of Electrical Engineering  
 University of Nigeria, Nsukka 410001,  
 Enugu State - NIGERIA.  
 E-mail: [theophilus.madueme@unn.edu.ng](mailto:theophilus.madueme@unn.edu.ng)  
 Mobile Phone: +2348036616197  
 Former Dean, Faculty of Engineering,  
 University of Nigeria, Nsukka

### 2. Prof. Godwin Unachukawu

Department of Mechatronic Engineering  
 University of Nigeria, Nsukka 410001,  
 Enugu State - NIGERIA.

E-mail: [godwin.unachukwu@unn.edu.ng](mailto:godwin.unachukwu@unn.edu.ng)

Mobile Phone: +2348050525033

Former Acting Director,

National Centre for Energy Research and Development (NCERD),

University of Nigeria, Nsukka