

# CV of Ozoemena Anthony Ani, PhD

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## CURRENT POSITION

Senior Lecturer and Coordinator  
University Multidisciplinary Mechatronics Research Group, UNN  
Power Systems, Machinery and Mechatronics Engineering  
Dept. of Agric./ Bio-Engineering/Mechatronics  
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## EDUCATION

Ph.D July 2013	Mechatronic Engineering, College of Mechanical and Electrical Engineering, Harbin Engineering University, China
MEng. September 2004	Power and Machinery Systems Engineering, Department of Agricultural and Bioresources Engineering, University of Nigeria Nsukka, Nigeria
BEng March 1999	Department of Agricultural and Biosystems Engineering, University of Ilorin, Nigeria

## EXPERIENCE

Oct.2013—present	Senior Lecturer, Department of Agricultural and Bioresources Engineering, University of Nigeria Nsukka, Nigeria
Oct.2009--- Sept. 2013	Lecturer I, Department of Agricultural and Bioresources Engineering, University of Nigeria Nsukka, Nigeria
Nov.2005---Sept. 2009	Lecturer II, Department of Agricultural and Bioresources Engineering, University of Nigeria Nsukka, Nigeria
Sept.2004—Nov. 2005	Research Engineer I, National Center for Agricultural Mechanization (NCAM), Ilorin, Nigeria
Dec.2002—Aug. 2004	Research Engineer II, National Center for Agricultural Mechanization (NCAM), Ilorin, Nigeria
Dec.1999—Nov.2000	National Youth Service Corps, The Shell Petroleum Development Oil Company (SPDC), Port Harcourt, River State
Feb.—April 1998	Trainee Engineer, National Fertilizer Company of Nigeria Limited (NAFCON), River State
May—July 1997	Trainee Engineer, National Fertilizer Company of Nigeria Limited (NAFCON), River State
March—April 1997	Trainee Engineer, Rivers State Ministry of Agriculture and Natural Resources, River State

## RESEARCH INTERESTS

Mechatronics; ground vehicles mobility; wheel mobile robots; autonomous navigation/motion control of off-road vehicles; terramechanics; optimization; systems modeling, performance prediction, design and testing of agricultural power and machinery systems; agricultural mechanization; precision agriculture; renewable energy

## PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Registered Engineer, The Council for Regulation of Engineering in Nigeria (COREN, R Eng, 2010)
- Member, Nigerian Society of Engineers (NSE, 2004)
- Member, International Society for Terrain Vehicle Systems (ISTV, since 2011)
- Member, American Society of Agricultural and Biological Engineers (MASABE, since 2010)
- Member, International Soil Tillage Research Organization (MISTRO, since 2009)
- Member, West African Society for Agricultural Engineering (MWASAE, 2002)
- Member, Nigerian Institution of Agricultural Engineers (MNIAE, 2001)

## SCHOLARSHIPS AND AWARDS

- Vice Chancellor's Award for Publication in Impact Factor Rated Journal, 2015
- Institutional Tertiary Education Trust Fund (TETFUND) Research Grant, 2015
- Nigerian Education Trust Fund (ETF) Scholarship award for PhD Program, 2010
- National Youth Service Corps (NYSC) Commendation for Outstanding Corps Members, 1999

## INVITED BOOK REVIEW

- Book: Autonomous Ground Vehicles; Invitation from: Industrial Robot: An International Journal

## REVIEWER FOR JOURNALS

- Industrial Robot: An International Journal
- International Journal of Agricultural and Biological Engineering (IJABE)
- Nigerian Journal of Technology (NIJOTECH)
- African Journal of Agricultural Research
- Journal of Ecology and the Natural Environment

## SKILLS

- Programming, simulation and analysis software: MATLAB, SPSS
- 3D-Modeling and dynamic simulation: Pro-Engineer, Solid Works, MSC.ADAMS
- Utility Software: EndNote, Refworks, Origin-Pro, Visio, Word, EXCEL
- Research writing and editing
- English language and communication skills
- Analytical and clear thinking ability
- Organization and leadership
- Capacity for independent work
- Capacity for teamwork

## FUNDED PROJECTS

- **Collaborative research and community service.** Sawa Rice Production Project (using Power Tillers) for West African Countries with Professor Toshiyuki WAKATSUKI, Kinki University, Japan. Development of Sawa rice production demonstration/research center at Adaani, Enugu State Nigeria, for technology transfer and training of local farmers on modern and mechanized techniques of rice production, 2009—2010.
- **Presidential initiative on cassava.** National Center for Agricultural Mechanization, Training of selected local fabricators of hand-tools and agricultural processing machine from across six geo-political zones of the country for mass production and distribution of cassava peeling tools, cassava chipping machines, pelleting machines, cassava graters and dryers, 2004—2005.

- **Adaptive field machinery testing and writing of advisory notes to the presidency.**

National Center for Agricultural Mechanization, Routine Services; Testing and certification of suitability of agricultural field machines such as tractors, planters, harvesters, etc imported

## PUBLICATIONS

### A. JOURNAL ARTICLES

1. **A.O. Ani**, H. Xu and L. Shaogang. Modeling and Multiobjective Optimization (MOO) of Traction Performance for Autonomous Wheeled Mobile Robot (AWMR) in Rough Terrain. *Journal of Zhejiang University Science C (Computers and Electronics)*, Vol. 14(.1) (2013):11-29. Indexed in SCI, Accession Number: WOS: 000313369700002.
2. **A. O. Ani**, H. Xu , K. Xue , S. Liu and Z. Zhenyu. Analytical Modeling and Multiobjective Optimization (MOO) of Slippage for Wheeled Mobile Robot (WMR) in Rough Terrain. *Journal of Central South University (Mechanical Engineering, Control Science and Information Engineering)*, Vol. 19(9) (2012): 2458–2467. Indexed in SCI, Accession Number: WOS:000308549900010.
3. **A. O. Ani**, C. C. Mbajiorgu, C. O. Akubuo and A. P. Onwualu. A Proctor Cone Penetrometer for Insitu Soil Strength Studies in Nigeria. *International Journal of Agricultural and Biological Engineering*, Vol. 4 (3), (2011): 16-25. Indexed in SCI.
4. He Xu, X. Z. Gao, Yan Xu, Kaifeng Wang, Hongpeng Yu, Zhen Li, Khalil Alipour and **Ozoemena Anthony Ani**. Continuous Mobility of Mobile Robots with a Special Ability for Overcoming Driving Failure on Rough Terrain. *Robotica. Cambridge University Press Available on CJO 2016 doi:10.1017/S0263574716000606*. Indexed in SCI.
5. S.N. Ugwu, B.O. Ugwuishiwu , O.V. Ekechukwu, H. Njoku, **A.O. Ani**. Design, Construction, and Evaluation of a Mixed Mode Solar Kiln with Black-Painted Pebble Bed for Timber Seasoning in a Tropical Setting. *Renewable and Sustainable Energy Reviews 41 (2015) 1404–1412*. Indexed in SCI,
6. **A. O. Ani**, H. Xu and L. Shaogang. Influence of Wheel-Terrain Parameters and Multi-Objective Optimisation of Wheel Slippage for Wheeled Robots in Rough Terrain. *International Journal of Mechatronics and Automation*, Vol. 2(3), (2012): 195-206. doi: 10.1504/IJMA.2012.049401, Indexed in SCOPUS
7. H. Xu, Y. Xu, H. Yu, X. Lv and **O. A. Ani**. Web Based Decision Support System for Eye Movement Disorder Diagnosis. *Intelligent Decision Technologies 10 (2016) 59–68*, DOI 10.3233/IDT-150237 IOS. Indexed in SCOPUS
8. S.L. Ezeoha, C.O. Akubuo and **A.O. Ani**. Indigenous Design and Manufacture of Palm kernel Oil Screw Press in Nigeria: Problems and Prospects. *International Journal of Applied Agricultural Research, Research India Publications, Volume 7(2), (2012): 67-82*. Indexed in SCOPUS
9. **O. A. Ani**, B .B. Uzoejinwa and N. F .Anochili. Design, Construction and Evaluation of a Vertical Plate Maize Seed Planter for Gardens and Small Holder Farmers. *Nig. J. of Technology*, Vol. 35(3), (2016): 647-655
10. B.B. Uzoejinwa, **A.O. Ani**, U.C. Abada, A.O. Ezeama, J.E. Aleke. Investigation of the potentials of poultry and piggery wastes for electricity generation using two configurations of microbial fuel cells. *International Journal of Scientific and Engineering Research (IJSER)*, Volume 7, Issue 8, August 2016. ISSN 2229-5518.

11. B. B. Uzoejinwa, **A. O Ani**, U.C. Abada, B. O. Ugwuishiwu, C.J. Ohagwu , J. N. Nwakaire (2016) Small-scale Food Processing Enterprises: Measures for National Development and Addressing Food Security Challenges in Nigeria. *International Journal of Scientific and Technical Research in Engineering (IJSTRE) www.ijstre.com Volume 1 Issue 5, August 2016, pp 72 -82.*
12. S L Ezeoha, C O Akubuo and **A O Ani**. Proposed Average Values of Some Engineering Properties of Palm Kernels. *Nig. J. of Technology, Vol. 31(2), (2012): 168--173*
13. **A. O. Ani** and C. C. Mbajorgu. Development of a Digital Penetrometer. *Journal of Agricultural Engineering Technology, Vol. 16 (1), (2009): 84-93.*
14. O. A. Nwoke and **A. O. Ani**. Soil Moisture Balance Studies on Sandy Loam Soil in Nsukka South-Eastern Nigeria. *International Journal of Agriculture, Vol. 3(5), (2011): 125-137.*
15. F. Asoiro and **A. O. Ani**. Determination of Some Physical Properties of African Yam Bean. *Pacific Journal of Science and Technology. Vol. 12 (1), (2011): 374-380.*
16. B.O. Ugwuishiwu, **A. O. Ani** and A. Chibuko. Development and Testing of a Model Biofilter. *Journal of Applied Science, Engineering and Technology, University of Ibadan, Vol. 8, (2008): 24-32.*
17. B.O. Ugwuishiwu, **A.O. Ani** and E. Oyinvwi. Adsorption of Bioaccumulated Heavy Metals Using Activated Carbon Derived from Palm Kernel Shell. *Journal of Applied Science, Engineering and Technology, University of Ibadan, Vol.8, (2008): 16-23*
18. **A. O. Ani**, C.O. Akubuo and E.U. Odigboh. Tractability Conditions for Disc Ploughing on Sandy Loam Soil of Ilorin Agro-ecological Zone. *Nig. J. of Technology, Vol. 26(2), (2007): 5-12.*
19. Y. S. Ademiluyi, **A. O. Ani**, B. O. Ugwuishiwu and O. A Oyelade. Performance Assessments of Two-wheel Tractor on a Loamy sand soil of Ilorin. *Nig. J. of Technology, Vol, 26(1), (2007): 59-66.*
20. P. O. Ogbobe, B. O. Ugwuishiwu, C. O. Orishagbemi and **A. O. Ani**. Design, Construction and Evaluation of Motorized Okra Slicer. *Nig. J. of Technology Vol. 26 (2), (2007): 42-49.*
21. I. E. Ahaneku, A.P. Onwualu, D. James and **A. O. Ani**. Effect of Soil Moisture and Tool Speed on Draught and Power Requirement of Disc Plough. *Journal of Agricultural Engineering Technology , Vol.12, (2004):19-25.*

## **B. CONFERENCE PROCEEDINGS AND PAPERS READ AT CONFERENCES**

1. **Ozoemena A. Ani**, Benjamin B. Uzoejinwa and Godswill Chukwu. Mapping of soil Trafficability in Nsukka, Nigeria using GPS and GIS. *8th Americas Regional Conference of International Society for Terrain-Vehicle Systems, Troy, Michigan, U.S.A. September 12 – 14, 2016.*
2. **A. O. Ani**, B. B. Uzoejinwa, A. O. Ezeama, S. N. Ugwu, C. J. Ohagwu and E. U. Odigboh. Soil Bin Facility for Soil-machine Interaction Studies. *Proceedings of the International Soil Tillage Research Organization (ISTRO), Nigeria Chapter, held at Federal University of Technology Akure, 3-6 Novemeber, 2014*
3. **A. O. Ani**, B. B. Uzoejinwa, K. Idika , P. Nwosibe. Food Losses in Nigeria: Present Status and the Way Forward. *Proceedings of the Nigerian Institution of Agricultural Engineers (NIAE), held at Federal University of Technology Akure, October, 2014*
4. **A. O. Ani**. Mechatronics: Introduction and Applications. *Paper presented at a National Training Workshop on Mechatronics Engineering and LabVIEW Software, Organized by the National Center for Equipment Maintenance and Development (NCEMD), University of Nigeria, Nsukka, 10-15<sup>th</sup> November, 2014.*

5. **A. O. Ani.** Mechatronics Engineering and its Applications. *An Invited Seminar paper, presented to the Faculty of Engineering, University of Nigeria, Nsukka. February 25<sup>th</sup>, 2014.*
6. **A. O., Ani,** H. Xu and Z. Gang. Analysis and Modeling of Slip for a Five- Wheeled Mobile Robot (WMR) in an Uneven Terrain. *Proceedings of the IEEE International Conference on Mechatronics and Automation (ICMA) Beijing, China. 2011, pp 154-159.* Indexed in EI Compindex. Accession Number: 20114614521647
7. **A. O. Ani,** F.O. Okwudiuche, C.C. Anyadike, N. Onuoha and B.B.Uzoejinwa Applying the Concepts of Precision Agriculture to Tillage. *Proceedings of the ISTRO Nigeria Symposium, held at University of Ilorin, Nigeria, 21-24 February, 2011, pp. 171-186*
8. N. Onuoha, C. C. Anyadike, and **A. O. Ani.** Precision Agriculture: an Overview. *Proceedings of the International Conference of the Nigerian Institution of Agricultural Engineers, held at Enugu, November, 2010.*
9. **A. O. Ani,** G. I. Ezenne, J. N. Nwakaire and C. J. Ohagwu. Enhancing Agricultural Productivity in Sub-Saharan Africa through the Application of ICT. *Proceedings of Alexander von Humboldt International Conference, Humboldt Kolleg Akure, June 7 – 9, 2010.*
10. **A. O Ani,** and F. C. Okoli. Production of Biodiesel from Algae: Prospects for Nigeria Energy Industries. *Proceedings of the second Raw Materials Research and Development Council Abuja International Conference on Natural Resources Development and Utilization, Feb. 9 – 11, 2010.*
11. **A. O. Ani,** B. O. Ugwuishiwu and K. R. Idika. Development of a Computer Package for Tractor and Machinery Management for Tillage Operations. *Proceedings of the West African Society for Agricultural Engineering (WASAE). Vol.3,2009, pp.414-421*
12. J. N., Nwakaire, C. J. Ohagwu and **A. O. Ani.** Possibilities of Information and Communication Technologies (ICTs) as Means of Poverty Alleviation for Rural Dwellers in Nigeria. *Proceedings of the West African Society for Agricultural Engineering. Vol. 3, 2009, pp. 408-412.*
13. C.C. Anyadike, **A.O. Ani** and C.O. Akubuo. The Potential Use of Agricultural and Agro-Industrial Waste Materials for Animal Feed Production. *Proceedings of WASAE, Vol. 3, 2009, pp.331-338.*
14. F.U. Asoiro, F. I. Idike and **A.O. Ani.** Effect of Polythene as a Packaging Material on Packaged Sachet Water. *Proceedings of WASAE Vol. 3, 2009, pp.344-349.*
15. **A. O. Ani** and C. S. Ogbonna. Integrated Weed Management for Rice Farms. *Book of Abstracts of the Nigerian Institution of Agricultural Engineers, South - East Zonal Conference, held at Abakaliki, Ebonyi State, Nigeria; September, 2009.*
16. N. I. Nwagugu and **A. O. Ani.** An Overview of Food Shortage in Nigeria: Post Harvest Technology Perspective. *Proceedings of the First Nigerian Institution of Agricultural Engineers (NIAE) South-East Regional Conference, 2008, pp. 162-174.*
17. **A. O. Ani** and A.P. Onwualu. Commercialization of Indigenously Developed Technologies in Nigeria with Particular Reference to Agricultural Engineering Technology. *Proceedings of the Nigerian Institution of Agricultural Engineers. Vol. 26, 2004, pp. 133-140*
18. **A. O. Ani** and F.I. Idike . Odour Control Technology in Livestock and Poultry Production Facilities. *Proceedings of the Nigerian Institution of Agricultural Engineers, Vol. 26,2004, pp. 463-468.*
19. **A. O. Ani,** I.C. Ozumba and J.A. Adebija. An Improved NCAM Semi-Automatic Jab Planter. *Proceedings of the West African Society for Agricultural Engineering (WASAE), Vol.3, 2004, pp. 13-19*
20. Y.S. Ademiluyi and **A.O. Ani.** Design Considerations for an Animal-Drawn Combination Tillage Implement. *Paper Presented at the 4<sup>th</sup> International Conference/25<sup>th</sup> AGM of the NIAE, held at State Hotels Damaturu, Yobe State, 8<sup>th</sup> –12<sup>th</sup> September, 2003.*
21. **A. O. Ani** and A.P. Onwualu. Agricultural Mechanization: A Pre-requisite for Food Security in West Africa. *Proceedings of the West African Society for Agricultural Engineering. Vol. 1, 2002, pp. 252-274.*

# THESES AND PROJECT REPORTS

1. **Ani, A. O.** Multiobjective Optimization of Traction Performance for Wheeled Mobile Robots in Rough Terrain. PhD Dissertation, Harbin Engineering University, China, 2013
2. **Ani, A. O.** Tractability Conditions for Disc Plowing on a Loamy Sand Soil of Ilorin Agro-ecological Zone. M. Eng. Project Report, University of Nigeria, Nsukka, Nigeria, 2004.
3. **Ani, A. O.** Computer Aided Design of a Pedal Operated Screw Press. B. Eng. Project Report. University of Ilorin, Ilorin, Nigeria, 1999.

## TEACHING PHILOSOPHY OF DR. OZOEMENA ANI

1. To help students find and acquire knowledge and skills that will place them at the forefront at the international and local labour markets.
2. To give/transfer to students engineering and technical knowledge/skills that most adequately prepare them for further research and/or teaching anywhere in the world.
3. To educate and expose the mind of my students to prepare them as effective problem solvers and for excellent leadership roles in any society or organization they may find themselves in the future

## UNIVERSITY AND COMMUNITY SERVICES

- Departmental PG Representative 2015-present
- Departmental Exam Coordinator 2008-2009
- Coordinator, Committee on Development of Bachelor of Engineering Mechatronics Curriculum for the Faculty of Engineering, University of Nigeria, Nsukka 2014-2015
- Principal Investigator, University Multidisciplinary Mechatronics Research Group 2015-present
- Secretary, University Multidisciplinary Food Security Research Group 2015-present
- Secretary, Committee on Branding of Nigerian Liquefied Natural Gas (NLNG) University Support Program in the University of Nigeria, Nsukka 2015-present
- Secretary, Committee on Commissioning of Nigerian Liquefied Natural Gas (NLNG) University Support Program in the University of Nigeria, Nsukka 2015-present
- Faculty Representative, Committee on Exhibition of Significant Research Findings at local and National fairs 2008-2010
- Member, Committee on Development of Cassava Processing and Bioethanol Production Plant 2016
- Member, African Save Food Initiatives (ASFI) Organization 2014-present
- Member, Other Adhoc University Committees

## REFEREES

1. Dr. S. O. Enibe  
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