KINGSLEY OKOLI

2045 Stotts Rd, Ames, IA 50010
515-567-4704 | kingsleyokoli9@gmail.com
LinkedIn: https://www.linkedin.com/in/kingsley-okoli-617651121
Google Scholar: https://bit.ly/GoogleScholar_Okoli_Kingsley

Education

2027 **Doctor of Philosophy | Iowa State University | Ames, Iowa**
Major: Mechanical Engineering
GPA: 4.0/4.0
Research Area: Life Cycle Assessment, Techno-Economic Analysis, Machine Learning
Advisor: Dr. Mark Mba-Wright

2024 **Master of Science | St. Petersburg Electrotechnical University 'LETI' | SPB, Russia**
Major: Computer Science and Engineering
GPA: 5.0/5.0
Dissertation Title: *Machine Learning for Energy Consumption Cost Prediction*
Advisor: Dr. Yana Bekeneva

2020 **Bachelor of Engineering | University of Agriculture | Makurdi, Nigeria**
Major: Mechanical Engineering
GPA: 3.67/5.0
Dissertation Title: *Smart Voice Controlled and Solar Assisted Wheelchair*
Advisor: Dr. Victor Achirgbenda

CERTIFICATIONS

2025 Rising Doctoral Institute | Iowa State University
2023 Supervised Machine Learning | Stanford University Online
2023 Introduction to Artificial Intelligence, GoMyCode Africa
2021 Mini MBA, Lagos Business School, Nigeria

TECHNICAL SKILLS

- Machine Learning
- Python Programming
- Mathematica/Wolfram Programming
- Fusion 360 design
- BioSTEAM modeling

TRANSFERABLE SKILLS

- Teamwork
- Leadership
- Effective Communication
- Creativity

PROFESSIONAL AREAS OF INTEREST

- Technology
- Research
- Healthcare
- Data Analysis
- Artificial Intelligence

RESEARCH AND SCHOLARLY INTERESTS

- Techno Economic Analysis
- Machine Learning
- Life Cycle Assessment
- Biofuels
- Renewable Energy

Professional Experience

2025 Research Assistant

Sustainable Energy Systems Analysis Group, Iowa State University | Ames, IA

- Conduct life cycle assessment and techno-economic analysis for bio-production of 3-hydroxypropionic acid, integrating BioSTEAM and OpenLCA tools.
- Develop and validate machine learning models to predict optimal siting of biorefineries
- Analyze electrochemical denitrification and ANAMMOX systems for sustainable decarbonization in water resource recovery facilities.
- Lead data preprocessing, feature selection, and model training using Python and Wolfram Mathematica for environmental impact prediction.
- Collaborate with faculty and interdisciplinary teams to write scientific manuscripts, present findings, and co-author peer-reviewed journal publications.
- Perform scenario analysis to identify trade-offs between cost, carbon intensity, and policy targets for renewable energy systems.

2024 Teaching Assistant

ME 3320: Engineering Thermodynamics II | Iowa State University | Ames, IA

- Facilitate weekly problem-solving sessions and practice classes for over 160 students, reinforcing concepts in energy systems, entropy, and second-law analysis.
- Provide one-on-one and group tutoring to support students' mastery of advanced thermodynamic cycles and exergy analysis.
- Assist faculty with grading assignments, exams, and lab reports, ensuring consistency with course rubrics and learning outcomes.
- Host regular office hours to address student questions and clarify complex topics related to power systems and refrigeration cycles.

2022 Research Assistant

Artificial Intelligence Lab, University of Nigeria | Nsukka, Nigeria

- Develop machine learning models for predictive analytics in energy consumption systems.
- Implement supervised and unsupervised learning algorithms using Python and scikit-learn for real-time classification and regression tasks.
- Contribute to research on AI-driven optimization of energy systems, supporting the lab's focus on smart and sustainable infrastructure.
- Conduct extensive data cleaning, feature engineering, and performance evaluation on several models.
- Collaborate with faculty and graduate researchers to publish findings and present at seminars and technical meetings.
- Mentor undergraduate students in introductory Python programming and AI concepts, promoting hands-on learning through mini-projects.

2022 Editor - The Engineer Magazine

The Nigerian Society of Engineers | Abuja, Nigeria

- Contribute to the editorial planning and content development of the Engineer Magazine, curating articles on engineering innovation, policy, and professional development.
- Oversee peer-review and publication processes, ensuring technical accuracy and relevance to national and international engineering audiences.
- Collaborate with engineers, academics, and industry experts to publish feature stories, interviews, and thematic issues that reflect evolving trends in engineering.

2021 Internship

International Aviation College | Ilorin, Nigeria

- Assist in the inspection, servicing, and routine maintenance of aircraft mechanical systems in compliance with aviation safety protocols.
- Support mechanical engineers and technicians in troubleshooting engine performance issues and conducting ground tests.
- Gain hands-on experience with aircraft components including propulsion systems, hydraulics, pneumatics, and environmental controls.
- Observe and document maintenance procedures in accordance with the Nigerian Civil Aviation Authority (NCAA) regulations.

Summary of Publications and Scholarly Activity

Publication Type	Current Appointment	Prior to Current Appointment
Peer-Reviewed Journal Publications	-	12
Peer-Reviewed Conference Paper or Presentation Proceedings	-	5
Peer-Reviewed Research Poster Proceedings	2	-
Professional Workshops and Invited Presentations	-	2
Public Media and Popular Press	-	2
Total	**2**	**21**

Peer-Reviewed Journal Publications (n = 12)

1. Maduabuchi C., **Okoli K.**, (2024). "Transient real-weather 4E optimization of two-stage segmented thermoelectric generators for enhanced solar energy conversion". Applied Energy Journal (IF: 10.1) https://doi.org/10.1016/j.apenergy.2024.123881. Citations = 3.
2. Alghamdi H., Maduabuchi C., **Okoli K**., Albaker A., Alatawi I, Alghassab M., Albalawi H., Alkhedher M., (2023). "Pioneering Sustainable Power: Harnessing Material Innovations in Double Stage Segmented Thermoelectric Generators for Optimal 4E Performance". Applied Energy Journal (IF: 10.1) https://doi.org/10.1016/j.apenergy.2023.121885. Citations = 13.
3. Alghamdi H., Maduabuchi C., **Okoli K**., Albaker A., Mohammad A., Alghassab M., Emad M., Alkhedher M., (2023). "From Sunlight to Power: Enhancing 4E Performance with Two-Stage Segmented Thermoelectric Generators in Concentrated Solar Applications" Journal of Cleaner Production (IF: 9.7) https://doi.org/10.1016/j.jclepro.2023.139314. Citations = 17.
4. Alghamdi H., Maduabuchi C., **Okoli K**., Abdullah A., Ibrahim A., Alghassab M., Albalawi A., Alkhedher M., (2024). "Performance optimization of nanofluid-cooled photovoltaic-thermoelectric systems: A study on geometry configuration, steady-state and annual transient effects". Energy Journal (IF: 9.0) https://doi.org/10.1016/j.energy.2024.131022. Citations = 7.
5. Alghamdi H., Maduabuchi C., **Okoli K**., Albaker A., Alatawi I, Alghassab M., Albalawi H., Alkhedher M., (2023). "Beyond Traditional Boundaries: Exergo-Economic and Thermo- Mechanical Optimization of Segmented Thermoelectric Generators with Varied Cross-Sections". Journal of Power Sources (IF: 8.1) https://doi.org/10.1016/j.jpowsour.2023.233500. Citations = 8.

6. Alghamdi H., Maduabuchi C., **Okoli K**., Abdullah A., Mohammad A., Alghassab M., Emad M., Alkhedher M., (2024). "Bayesian Neural Networks for Solar Power Forecasts in Advanced Thermoelectric Systems". Case Studies in Thermal Engineering (IF: 6.4). https://doi.org/10.1016/j.csite.2024.104940. Citations = 4.
7. Alghamdi H., Maduabuchi C., **Okoli K**., Albaker A., Alatawi I, Hind A., Alkhedher M., (2023). "Transient numerical simulations in innovative thermoelectric power: A comprehensive study on material segmentation and cross-section design for multi-facetted excellence". Case Studies in Thermal Engineering (IF: 6.4). https://doi.org/10.1016/j.csite.2023.103684. Citations = 7.
8. Alghamdi H., Maduabuchi C., **Okoli K**., Mohana A., Hassan F., Alghassab M., Emad M., Alkhedher M., (2024). "Harnessing solar power: Innovations in nanofluid-cooled segmented thermoelectric generators for exergy, economic, environmental, and thermo-mechanical excellence". Alexandria Engineering Journal (IF: 6.2). https://doi.org/10.1016/j.aej.2024.06.064. Citations = 3.
9. Alghamdi H., Maduabuchi C., **Okoli K**., Albaker A., Alatawi I, Alsafran A., Alkhedher M., and Chen W., (2023). "Smart Optimization of Semiconductors in Photovoltaic-Thermoelectric Systems Using Recurrent Neural Networks". International Journal of Energy Research (IF: 4.3). https://doi.org/10.1155/2023/6927245. Citations = 8.
10. Alghamdi H., Maduabuchi C., **Okoli K**., Mohammad A., Alghassab M., Ahmed A., Emad M., Alkhedher M., (2024). "Latest Advancements in Solar Photovoltaic-Thermoelectric Conversion Technologies: Thermal Energy Storage Using Phase Change Materials, Machine Learning, and 4E Analyses". International Journal of Energy Research (IF: 4.3). https://doi.org/10.1155/2024/1050785. Citations = 21.
11. Maduabuchi C., Eneh C., Nsude C., **Okoli K**., Eke E., Okolo T., Sunday I., Idogo C., Harsito C., (2023). "Renewable Energy Potential Estimation Using Climatic-Weather-Forecasting Machine Learning Algorithms". Energies (IF: 3.0). https://doi.org/10.3390/en16041603. Citations = 24.
12. Achirgbenda V., Kuhe A., & **Okoli K**., (2020) "Techno-economic feasibility assessment of a solar-biomass-diesel energy system for a remote rural health facility in Nigeria". Energy sources, Part A: Recovery, Utilization, and Environmental Effects (IF: 2.3). https://doi.org/10.1080/15567036.2020.1813848. Citations = 22.

Peer-Reviewed Conference Paper Presentations (n = 5)

1. **Okoli K**., Onah U., Ibukun H., Achirgbenda V., Joseph I., (2023). "Impact of Hyperparameter tuning on Solar PV Performance using Machine Learning for Moscow, Russia". XXVI International Conference on Soft Computing and Measurements (SCM). https://doi.org/10.1109/SCM58628.2023.10159093.
2. Ayodele E., **Okoli K**., Ibrahim B., Ebere E., Akinyemi O., Wosu N., (2023). "Decarbonization: Economic analysis of powering a filling station with solar energy system in Nigeria. 2023 Nigeria Annual International Conference & Exhibition; Society of Petroleum Engineers Conference. https://doi.org/10.2118/217114-MS.
3. Ejimuda C., **Okoli K**., Uzodiagu L., Olusola J., (2023). "Internet of things technology for photovoltaic smart sprinkler systems and its analysis. 2023 Nigeria Annual International Conference & Exhibition; Society of Petroleum Engineers Conference. https://doi.org/10.2118/217221-MS
4. Ejimuda C., **Okoli K**., (2021) "Design and Development of a Solar Powered Pump System and Remote Controller Using Internet of Things Technology (IoT)" 2021 Nigeria Annual International Conference & Exhibition; Society of Petroleum Engineers Conference. https://doi.org/10.2118/207188-MS

5. **Okoli K.**, & Bekeneva Y., (2023). "Accurate Neural Prophecy for Short-Term Load Forecasting of Optimal Renewable Energy". 2023 V International Scientific Conference on Control Problems in Technical Systems (PUTS-2023). https://doi.org/10.1109/CTS59431.2023.10288952

Peer-Reviewed Research Poster Presentations (n = 2)

1. **Okoli Kingsley** (2023). "Optimizing for Tomorrow: Digital Twins Driving Railway Environmental Sustainability". Workshop on Railways and International Activities St. Petersburg Electrotechnical University, LETI Russia. https://doi.org/10.13140/RG.2.2.26638.95043
2. **Okoli Kingsley** (2022). "Digital Transformation: Creating Work and Business Opportunities in Engineering Society" Engineering Forum of Nigerians (EFN), United Kingdom. https://10.13140/RG.2.2.32322.86721.

Honors and Awards

2024 Best International Student of the year, "LETI" Russia
2024 Open Doors Global Scholarship Winner
2022 3rd position, Signal Processing Hackathon LETI, Saint Petersburg
2021 Nigerian Society of Engineers Graduate Design Competition Award Winner
2021 African Aviation Quiz Powered by Embraer

Service

2025 Vice President, Africa Learning & Evolving Community, Iowa State University
2025 Vice President, Mechanical Engineering Graduate Student Organization, Iowa State Uni.
2024 Member, Iowa State University Student Senate Committee
2024 President, Africa Students Organization, 'LETI' University, Russia
2020 Class Representative, Mechanical Engineering Students, University of Agriculture Nigeria

Voluntary Research Service

2025 Peer Reviewer Scientific Reports, Springer Nature Journal
2025 Peer Reviewer Discover Applied Sciences Springer Nature Journal
2025 Elsevier Energy Conversion and Management X Peer Reviewer

Professional Affiliations

2024 American Society of Mechanical Engineers
2024 The Nigerian Society of Engineers
2024 The Nigerian Institution of Mechanical Engineers
2020 Society of Petroleum Engineers

Professional References

1. **Dr Mark Mba-Wright**
Professor, Iowa State University
markmw@iastate.edu 515-294-0913

2. **Dr. Felicia Agubata**
Deputy Manager, Nigerian Airspace Management Agency
agubataf@yahoo.com, +234-803-318-3074

3. **Dr. Sylvia Kelechi**
Senior Researcher, Purdue University, Indianapolis
skelechi@purdue.edu, 219-501-2890