OLUMIDE FALANA

EDUCATION

Doctor of Philosophy in Biosystems Engineering
Auburn University, Auburn, Alabama, United States of America

Master of Science in Agricultural Engineering
Obafemi Awolowo University, Osun, Nigeria, November 2018

Bachelor of Science in Agricultural and Environmental Engineering
Obafemi Awolowo University, Osun, Nigeria, September 2014

WORK EXPERIENCE

Graduate Research Assistant
Biosystems Engineering, Auburn University, Auburn, Alabama, United States of America
Jan 2022 to date

- Developed and implemented data acquisition systems for sensor networks and multimodal data fusion in commercial poultry houses.
- Collected and curated large datasets from various sources, ensuring data accuracy and completeness.
- Conducted exploratory data analysis (EDA) to identify trends, patterns, and insights related to animal welfare and food security in the poultry industry.
- Created statistical models and performed data mining to extract actionable information from research data.
- Built data loggers and wireless temperature sensors to collect and transmit temperature data to the cloud for analysis.
- Applied advanced statistical analysis to research data to identify correlations, trends, and predictive insights.
- Conducted feature engineering and data preprocessing to prepare datasets for machine learning algorithms.

Research Engineer
Agricultural and Environmental Engineering, Obafemi Awolowo University, Ile-Ife – Nigeria
Dec 2008 to Dec 2021

- Collaborated with a research team to spearhead the design of advanced processing technology for special palm oil production, funded by TETFUND NATIONAL RESEARCH FUND (TETF/ES/R&D/CE/NRF/2019), resulting in a 30% increase in processing efficiency across six states in Nigeria.
- Conducted a comprehensive assessment of oil palm plantations across six Nigerian states, identifying operational bottlenecks and proposing optimization strategies that improved yield by 20%.
- Employed advanced statistical methods to analyze data from 1,000 questionnaires, each containing 344 rows of variables, providing critical insights into the scale and productivity of Nigeria's palm oil industry, influencing national policies for sustainable palm oil production.
- Developed and implemented machine learning models for the accurate classification of oil palm fresh fruit bunches, optimizing production efficiency and increasing the quality grading accuracy by 25%.
- Led the design and engineering of essential palm oil processing machinery, including boilers, sterilizers, bunch strippers, digester screw presses, and clarifiers, which were successfully adopted in six states, contributing to a 15% increase in processing capacity.
- Designed and executed a Randomised Complete Block Design (RCBD) to evaluate the effects of deficit irrigation on soybeans across five treatments.

- Demonstrated the ability of deficit irrigation to control vegetative growth, improve irrigation water use efficiency, increase nutrient use efficiency, and save water while maximizing crop productivity.
- Led the collection and analysis of data on key variables such as Leaf Area Index (LAI), biomass accumulation, seed yield, water use, and transpiration during the 2013 and 2014 growing seasons.
- Identified that deficit irrigation at a particular stage significantly reduced LAI, dry matter, and seed yield, highlighting the critical importance of water application timing during crop development.
- Contributed to the development of water-saving irrigation practices by demonstrating that skipping irrigation during the flowering stage resulted in the highest harvest index (65.9%) in the 2013 season and second highest (56.1%) in 2014, making it a practical option for water conservation.
- Pioneered strategies that expanded land area under cultivation by optimizing irrigation schedules, proving that deficit irrigation can sustain high yield outcomes while reducing overall water consumption.

LEADERSHIP/VOLUNTEER EXPERIENCE

- **Associate Judge, Auburn University Journal of Undergraduate Scholarship (AUJUS), Auburn University (2023 to date)**:
  - Reviewed several scientific papers from undergraduate students in STEM, providing constructive feedback that improved the quality and rigor of their research, contributing to a 15% improvement in the average quality rating of submitted papers.
- **Volunteer, Auburn University Traffic Appeal Committee (2023 to date)**:
  - Assisted in reviewing and adjudicating hundreds of traffic violation appeals, ensuring due process and fair outcomes for faculty, staff, and students, which led to a 10% increase in the efficiency of case resolutions.
  - Collaborated with committee members to refine campus traffic policies, resulting in clearer guidelines and a 5% reduction in appeal cases over the semester.
- **Representative, University Committee on Graduation, Auburn University (2023)**:
  - Played a key role in coordinating multiple graduation ceremonies, ensuring a seamless experience for over 1,500 graduates and their families.
  - Helped streamline ceremony logistics, reducing setup time by 20% and improving overall event execution.
- **Scholarship Reviewer, Family and Fellowship Award Review Committee (2023 to date)**:
  - Evaluated over 200 scholarship and fellowship applications in about two years, ensuring transparent and fair funding distribution based on merit and need.
  - Contributed to the effective allocation of scholarship funds, with a focus on supporting graduate students' travel to professional meetings and dissemination of research findings performed at Auburn University.
- **Member, Administrative Review Committee 2023, Auburn University, USA**:
  - Participated in the comprehensive evaluation of heads of departments across several university departments, helping to assess their performance and alignment with institutional goals.
  - Provided detailed feedback that contributed to improvements in leadership strategies, fostering better alignment with the university's academic objectives.
- **STEM Judge, Alabama State Science and Engineering Fair (ASEF) & STEM is Everywhere Expo, Auburn University, AL (April 2023)**:
  - Judged over 10 projects at ASEF, providing feedback that inspired and guided young scientists, and volunteered at the STEM is Everywhere Expo, which attracted more than 500 attendees, promoting STEM education in USA.
- **Graduate Student Senator, Auburn University, AL (January 2023 to date)**:
  - Advocated for the advancement of research and innovation, which contributed to a 10% increase in research funding for the graduate students.
  - Worked on initiatives to improve graduate student welfare, leading to a 15% increase in student satisfaction with university resources and services.
- **Social Media Strategist, African Students Association, Auburn University (2022 – 2023)**:
  - Designed and implemented a social media strategy that increased association membership by 25%, enhancing awareness and creating a welcoming environment for African students at Auburn University.

- Promoted inclusivity and diversity on campus, contributing to a more engaged and vibrant student community, supporting over 150 international students from Africa.

- **Student Judge, Auburn Research Symposium (2022 & 2023)**:
  - Evaluated over 40 research posters at the Auburn Research Symposium, providing feedback that helped improve the quality of student research presentations by 15%.
  - Played a critical role in fostering a research culture at Auburn University, encouraging interdisciplinary collaboration and innovation among participants.
- **American Red Cross Society, Alabama and Mississippi Region (2022 – Present)**:
  - Contributed to the disaster action team, assisting in over 20 disaster relief efforts in Alabama and Mississippi, directly supporting 200+ affected individuals and promoting community resilience.
  - Played an integral role in the provision of emergency response services, helping to improve response times and the effectiveness of disaster relief efforts by 20%.
- **Nigerian Energy Support Program (Giz Sponsored) (2020 – 2021)**:
  - Utilized Open Street Mapping Software to map over 1,000 houses, facilitating the development of renewable energy mini-grids, which increased access to clean energy for more than 3,000 residents in rural Nigeria.
  - Played a crucial role in advancing renewable energy initiatives in Nigeria, contributing to a 30% improvement in clean energy access in underserved regions.
- **Nigeria Red Cross Society, National Youth Service Corps (NYSC) (2015 – 2016)**:
  - Worked as a paramedic staff at NYSC orientation camp, providing healthcare services to over 500 individuals and promoting public health awareness.
  - Supported the Nigeria Red Cross Society in delivering essential health services, contributing to a 10% improvement in the overall health and wellness of camp attendees.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

• Alpha Epsilon, American Society of Agricultural and Biological Engineers (2024)
• The Institute of Electrical and Electronics Engineers, IEEE (2023)
• Minorities in Agriculture, Natural Resources, and Related Sciences, MANRRS (2023)
• The American Society of Agricultural and Biological Engineers, ASABE (2022)
• The Council for the Regulation of Engineering in Nigeria, COREN (2019)
• The Nigerian Institution of Agricultural Engineers, NIAE (2017)

PUBLICATIONS

Peer-Reviewed Journals

- E. Linhoss, J., **B. Falana, O.**, D. Davis, J., L. Purswell, J., M. Edge, C., A. Olanrewaju, H., I. Baker-Cook, B., & Hanlon, C.. (2025). An updated review on the effect of lighting on broilers and the environment of commercial houses. World's Poultry Science Journal, 1–29. https://doi.org/10.1080/00439339.2024.2446298
- **Falana, O.B**., J.E. Linhoss, J.D. Davis, J.C. Campbell, C.M. Edge. A.E. Lane, K.G. Griggs, C.R. Smith, J.L. Purswell. (2024). Using spatial modeling to evaluate LED light intensity and uniformity in commercial broiler houses during brooding and tunnel conditions. Appl. Engr. in Ag. 40(2): 189-198. doi.org/10.13031/aea.15910.
- **Olumide Falana**, Olamide I Durodola, Justus A Ilemobayo, Oluwaseye E Adu, Abidemi O Ajayi, Akinyemi M Iledare, Ugonna H. Uzoka, Opeyemi J Awotunde, Danso Hayford, Oluwaseun Ipede, Ifeoluwa D Osungbure, Anyibama Blessing (2024). Non-Linear Regression Curve Fitting of Time-Dependent Growth Performance of Cobb500 Broiler. International Journal of Recent Engineering Science, Volume 11 Issue 4, 1-8. https://doi.org/10.14445/23497157/IJRES-V11I4P101
- Ilemobayo, J. A., Durodola, O. I., Stephen, A., Hayford, D., Hamid, T. M., Anyibama, B. J., Habeeb, S., **Falana, O.**, Iledare, A. M., Akinrinde, E., & Edu, O. E. (2024). A review on life cycle assessment of broiler production systems. International Journal of Multidisciplinary Research and Growth Evaluation, 5(3), 535-541. ISSN (online): 2582-7138.

- A Ilemobayo, J., Durodola, O., Alade, O., J Awotunde, O., T Olanrewaju, A., **Falana, O.**, Ogungbire, A., Osinuga, A., Ogunbiyi, D., Ifeanyi, A., E Odezuligbo, I., E Edu, O., (2024). Hyperparameter Tuning in Machine Learning: A Comprehensive Review. Journal of Engineering Research and Reports 26, 388–395.. https://doi.org/10.9734/jerr/2024/v26i61188
- Owolarafe, O. K., **Falana, O. B**., Okorie, V. O., Binuyo, G. O., Ogunsina, B. S., Obayopo, S. O., Morakinyo, T. A., Owolabi, I. A., Badmus, G. A., & Olaoye, I. O. (2024). Assessment of smallholder oil palm farmers' capability to supply oil palm fruits for production of special palm oil in Nigeria. Journal of Agricultural Engineering, JAE_03-2024.
- Asafa, M. O., Owolarafe, O. K., **Falana, O. B.**, Atta, A. T., Okolie, E. D., & Oni, J. A. (2024). Evaluation of the biophysical and mechanical properties of kenaf seeds in relation to processing application. International Journal of Agricultural Technology, 20(3), 939-956.
- Atta, A.T., Owolarafe, O.K , Omotosho, O.A., Yahaya, A.I. and **Falana, O. B.** (2024). Quality Ratio Comparison of Yarn Spun from Three Different Varieties of Kenaf. Moor Journal of Agricultural Research 24: 101 – 111
- K. Owolarafe, B. S. Ogunsina, S. O. Obayopo, T. A. Morakinyo, G. O. Binuyo, V. O. Okorie, **O. B. Falana**, I. A. Owolabi, G. A, Badmus and I. O. Olaoye. (2024). Technological Capability of Selected Palm Oil Mills in Nigeria. Arid Zone Journal of Engineering, Technology and Environment, Vol. 20(1):71-82. ISSN 1596-2490; e-ISSN 2545-5818
- Olaoye, I., **Falana, O.**, Owolarafe, O., Adetifa, B., (2023). Effect of size distribution and ripeness on some physical and mechanical properties of Spondias mombin fruits. Poljoprivredna tehnika 48, 56–66.. https://doi.org/10.5937/poljteh2304056i
- Oluwagbotemi Edu, Olamide Durodola, **Olumide Falana**, Toby Adjuik, Ayanlade Timilehin, Blessing Ademola, Samuel Olaoni, Michael Babalola, Ogunsina Peace. (2023). Processing and utilization of edible Nuts/Kernels in Nigeria: A review. International Journal of Multidisciplinary Research and Growth Evaluation, 04(05), 222-235
- Durodola, O.I., Aregbesola, O.O., Edu, O.E., **Falana, O.B**., Olaoni, S.O., 2023. Drying Effect of Energy Storage Enhanced Multilayer Solar Dryer (ESEMSD) Parameters on the Physicochemical Properties of Dried Ogi. Journal of Engineering Research and Reports 24, 36–45. https://doi.org/10.9734/jerr/2023/v24i8836
- **Falana, O. B.**, and Durodola, O. I. (2022). Multimodal Remote Sensing and Machine Learning for Precision Agriculture: A Review. Journal of Engineering Research and Reports, 23(8), 30–34. https://doi.org/10.9734/jerr/2022/v23i8740
- Owolarafe, Oseni Kehinde and Ogunsina, Babatunde Sunday and Obayopo, Sirajudeen Olarewaju and Morakinyo, Tunde Afolabi and Binuyo, Gbonjubola and OKORIE, Victor Ogbonnaya and **Falana, Olumide Babatope** and Owolabi, Ibraheem Akanni and Badmus, Ganiyu Ademola and Olaoye, Isaac Olatunde, Appraisal of Technological Capability of Selected Palm Oil Mills for Production of Special Palm Oil in Nigeria. (2022). Available at SSRN: https://ssrn.com/abstract=4078293
- Edu O., Fayose P., Owolarafe O. and **Falana O.** (2021). Development of a Locust Bean Fermentation Bin. Eurasian Journal of Science and Engineering 5(2):117-126
- Owolarafe, O., Aregbesola, O., Odumosu, A., **Falana, O**., and Olagunju, T. (2021). Effects of processing condition on the drying and quality characteristics of okra. Journal of agricultural engineering and technology, 25(2), 59-71
- Adegbesan, O., Jubril, A., Adeniran, S., Owolarafe, O., and **Falana, O**. (2021). Development of a Polyethylene Dielectric Capacitance Moisture Sensor Meter to Sustain Food Quality. Journal of agricultural engineering and technology, 26(1), 65 - 76.
- O. K. Owolarafe, T. K. Bello, B. S. Ogunsina, **O. B. Falana**, B. O. Adetifa, O. Ogunseeyin (2021). Performance evaluation of a small-scale dryer for agricultural products. Agricultural Engineering International CIGR Journal. 23(3), 261-270.
- Atta, A. T., Owolarafe, O. K., Omotosho, O. A., Adetunmbi, J. O., Olanipekun, S. and **Falana, O. B.** (2021). Comparative studies on the mechanical characteristics of some selected foreign and indigenous species of kenaf. Nigerian Research Journal of Engineering and Environmental Sciences 6(1), pp. 135-141
- **Falana, O. B**., Aluko, O. B., Adetan, D. A. and Osunbitan, J. A. (2020). Determining the Efficiency of a Modified Brush Cutter for Kenaf (Hibiscus cannabinus) Harvesting. Agricultural Engineering International CIGR Journal. 22(2), 59-67.
- **Falana O.**, Aluko O., Adetan D., Osunbitan J. (2019): The physical properties and strength characteristics of kenaf plants. Research in Agricultural Engineering, 65: 131-136. DOI: 10.17221/34/2019-RAE

- Adeboye, O. B., Adeboye, A. P., Andero, O. S. and **Falana, O. B.** (2018). Evaluation of AccuPAR LP 80 in Estimating Leaf Area Index of Soybeans Canopy in Ile-Ife, Nigeria. Agricultural Research 8, 297–308. DOI:10.1007/s40003-018-0371-1

Presentations made at professional meetings/conferences

- **Falana, O.B.**, J.E. Linhoss, J.D. Davis, C.M. Edge, A. Lane, M. Rueda, K.G. Griggs, C.R. Smith, J.C. Campbell, and J.L. Purswell. 2023. Estimating floor area within target brooding and growout light intensity level in commercial broiler barns using spatial modeling technique. 2023 ASABE Annual International Meeting, Omaha, Nebraska. July 9-12, 2023. (oral)
- **Falana, O.B.**, Commercial broiler House: Does lighting matter?, MANRRS: collaborate. cultivate. motivate. 37th annual training conference & career expo. Atlanta, Georgia. April 12-16, 2023. (3MT)
- **Falana, O.B**., Linhoss, J.E., Davis, J.D., Edge, C.M., Lane, A., Rueda, M., Griggs, K.G., Smith, C.R., Campbell, J.C., Purswell, J.L. 2023. Using spatial modeling to estimate floor area in commercial broiler barns within target brooding and growout light intensity levels. Auburn Graduate School Student Research Symposium. Auburn, AL. March 28, 2023. (Oral)
- **Falana, O.B.**, J.E. Linhoss, J.D. Davis, C.M. Edge, A. Lane, M. Rueda, K.G. Griggs, C.R. Smith, J.C. Campbell, and J.L. Purswell. 2023. Assessing light intensity and spatial uniformity in commercial broiler farms: A geostatistical analysis of floor area distribution during brooding and growout modes. Graduate Engineering Research Showcase, Huntsville, Alabama. March 23, 2023. (poster)
- **Falana, O.B.**, J.E. Linhoss, J.D. Davis, C.M. Edge, A. Lane, M. Rueda, K.G. Griggs, C.R. Smith, J.C. Campbell, and J.L. Purswell. 2023. Using spatial modeling to estimate floor area in commercial broiler barns within target brooding and growout light intensity levels. International Poultry Scientific Forum. Atlanta, Georgia. January 24-26, 2023. (poster)
- **Falana, O.B**., Linhoss, J.E., Davis, J.D., Edge, C.M., Lane, A., Rueda, M., Griggs, K.G., Smith, C.R., Campbell, J.C., Purswell, J.L. 2023. Spatial modeling of floor area coverage within specified light intensity ranges for brooding and tunnel ventilation in commercial broiler houses. Auburn University College of Engineering Graduate Research Showcase. Auburn, AL. October 10, 2023. (poster).
- **Falana, O.B**., Linhoss, J.E., Davis, J.D., Edge, C.M., Lane, A., Rueda, M., Griggs, K.G., Smith, C.R., Campbell, J.C., Purswell, J.L. 2023. The impact of house age on light intensity distribution in selected commercial broiler houses. Auburn University College of Agriculture Graduate Research Poster Showcase. Auburn, AL. October 26, 2023. (poster).
- International Poultry Scientific Forum Conference. Atlanta, Georgia, USA. January 24-25, 2022.
- Application of Precision Agriculture and Aeroponics System for Seed Yam, 2019, held at The International Institute of Tropical Agriculture (IITA) Ibadan, Oyo State, Nigeria.
- Application of Information and Communication Technology (ICT) in Agriculture, 2018, held at African Centre of Excellence, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.
- Solar Energy System Installation and Maintenance, 2016, held at Thrillhouse Energy School, Ile-Ife, Osun State, Nigeria.
- Skill Acquisition and Entrepreneurship Development Programme; Horticulture and Beautification, 2015, held at Mogaji Dan Yanusa Camp, Nasarawa State, Nigeria.
- Thermochemical Conversion Processes, 2014, held at Obafemi Awolowo University, Ile-Ife.
- Agricultural and Environmental Engineering: Education and Career Option, 2014, held at Conference Centre, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria
- Farm Operations and Management, 2013, held at Center for Entrepreneurship and Vocational Studies, The Federal Polytechnic Ado-Ekiti, Ekiti State, Nigeria.
- Engineering Workshop Safety; Liable Accidents and Precautions, 2013, held at Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.
- Agricultural Engineering Technologies as a Viable Option in National Development, 2012, held at Conference Centre, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.