**Oluwadare A. Badejo**

+1-302-772-8871 |4 Winterhaven Drive Newark DE, 19702| [badejo@udel.edu](mailto:badejo@udel.edu) | [LinkedIn](https://www.linkedin.com/in/oluwadare-badejo/)| [*Google Scholar*](https://shorturl.at/epqrS)

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| **CAREER**  **OBJECTIVE:** | Chemical engineer with extensive experience in research and development for process systems engineering, focused on building supply chain and enterprise-wide optimization models. Proficient in creating models that boost process profitability and operational excellence. Actively seeking industrial research opportunities to advance sustainable development efforts. | |
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| **EDUCATION** | **University of Delaware**, Newark DE Aug. 2019 – Present  Ph.D. Candidate, Chemical and Biomolecular Engineering  Advisor: Prof. Marianthi Ierapetritou | |
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| **SKILLS AND**  **INTERESTS** | *Tools*: Python (Pyomo, Pandas, networkx, geopandas, Matplotlib, Scikit-learn, Keras, Tensor flow & Pytorch), MATLAB, GAMS , R , Minitab, Aspen Suite (Aspen Plus, Aspen Hysys ) , SQL.  *Skills*: Modeling and Optimization , Process Design , Uncertainty Quantification , Life Cycle Assessment, Techno-economic analysis, Data Science and Machine learning, large scale optimization, Simulation.  *Interests* : Sustainability, Algorithm design , Industrial statistics, Six-Sigma | |
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| **WORK**  **EXPERIENCE:** | **University of Delaware**, Department of Chemical and Biomolecular Engineering  ***Graduate Research Assistant*** Aug. 2019 – Present   * Developed a stochastic model in GAMS Python that balances operational flexibility and cost to minimize cost while meeting demands. * Implemented data gathering and analysis for feature engineering and dimensionality reduction in Python. * Developed an integrated supply chain model in GAMS and Python, enhancing computational efficiency. * Developed a model in GAMS to bolster decision-making resilience amid disruptions, ensuring operational robustness and effective uncertainty management. * Implemented a novel algorithm using rolling horizon, decomposition improved computational efficiency. * Collaborated with a cross-functional team to develop a comprehensive plastic waste management tool, integrating life cycle assessment, techno-economic analysis, and supply chain optimization. * Worked with researchers and stakeholders from multiple disciplines to refine optimization models and enhanced communication skills for explaining complex mathematical concepts to stakeholders.   **University of Lagos**, Department of Chemical and Petroleum Engineering  ***Graduate Research Assistant,***July 2018 – Aug. 2019   * Pioneered a mentorship program that improved student performance by 40%, designing initiatives that enhanced academic achievements and personal growth. * Specialized in technical tutoring, teaching numerical computations across MATLAB, VBA, Python, and spreadsheets, enhancing students' skills for complex problem-solving.   **Eunisell Limited** Lagos/Rivers State  ***Oilfield Engineer****,*  Jan. 2018 – June 2018   * Engineered chemical optimization strategies for Nigerian oil firms, improving production efficiency by 20% through targeted testing in brown and green field operations. * Overhauled chemical handling SOPs, reducing process redundancy, enhancing efficiency and cost savings.   **Shell Petroleum Development Company of Nigeria,** Rivers state  ***Process Engineering Intern***Aug. 2014 – Dec. 2014   * Developed a dynamic simulation model in Aspen Hysys, validated with real-time data to optimize processes and prevent hydrate formation, saving an estimated $350,000. * Collaborated with multidisciplinary teams to assess flow impacts on gas quality in brown field operations, significantly enhancing gas processing efficiency. | |
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| **RESEARCH PUBLICATIONS** | * **Badejo, O**., Ierapetritou, M. 2024. Enhancing Pharmaceutical Supply Chain Resilience: A Multi-Objective Study with Disruption Management , *Under Review* * **Badejo, O**., Hernandez B., Ierapetritou M., Vlachos D. G. 2023, Design of Sustainable Supply Chains for Managing Plastic Waste: A Case Study for Low Density Polyethylene, *Accepted*. * **Badejo, O**., Ierapetritou, M. 2023. Supply Chain Optimization Considering Disruption Demand Uncertainty. Computer Aided Chemical Engineering, 52 , 3345-3350 * **Badejo, O**., Ierapetritou, M. 2023. A mathematical modeling approach for supply chain management under disruption and operational uncertainty. AIChE Journal, 69(4), e18037. * **Badejo, O.,** Ierapetritou, M., 2022. Mathematical Programming Approach to Optimize Tactical and Operational Supply Chain Decisions under Disruptions. Ind. Eng. Chem. Res. * **Badejo, O.,** Ierapetritou, M., 2022. Integrating tactical planning, operational planning and scheduling using data-driven feasibility analysis. Computers & Chemical Engineering 161, 107759. * Bhosekar, A., **Badejo, O**., Ierapetritou, M., 2021. Modular supply chain optimization considering demand uncertainty to manage risk. AIChE Journal, e17367. | |
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| **CONFERENCE**  **AND**  **INVITED TALKS** | * Borja Hernandez, **Oluwadare Badejo**, Marianthi Ierapetritou.  “Process Systems Engineering Tools for Assessing Upcycling Technologies of Plastic Waste,” AIChE Annual Meeting, Orlando, FL, Nov. 2023. * **Oluwadare Badejo**, Borja Hernandez, Marianthi Ierapetritou.  “Designing a Sustainable Supply Chain for Polyolefins Waste Management,”, AIChE Annual Meeting, Orlando, FL, Nov. 2023. * **Oluwadare Badejo,** Borja Hernandez, Marianthi Ierapetritou.  “Supply Chain Optimization for Plastic Upcycling Considering Economic and Environmental Indicators,", World Congress of Chemical Engineering (WCCE11), Buenos Aires, Argentina, June 2023. * **Oluwadare Badejo**, Marianthi Ierapetritou. “Supply Chain Optimization Considering Disruption Demand Uncertainty” ESCAPE 33, Athens, Greece, June 2023. * **Oluwadare Badejo**, Borja Hernandez, and Marianthi Ierapetritou. “Optimal Design of Supply Chain for Plastic Upcycling Considering Economic and Environmental Indicators” FOCAPO/CPC, San Antonio, TX, Jan. 2023. * **Oluwadare Badejo,** Marianthi Ierapetritou “A Novel Framework for Supply Chain Optimization Under Major Disruptions”, AIChE Annual Meeting, Phoenix, AZ, Nov. 2022. * **Oluwadare Badejo**, Marianthi Ierapetritou "Integration of Planning and Scheduling using Data-Driven Feasibility Analysis ", AIChE Annual Meeting, Boston, MA, Nov. 2021. * **Oluwadare Badejo**, Atharv Bhosekar, Marianthi Ierapetritou "Supply Chain Optimization for Modular Manufacturing with Production Feasibility Analysis Under Uncertainty", AIChE Annual Meeting, Boston, MA, Nov. 2021. | |
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| **AWARDS**  **AND HONORS** | * ***Finalist,*** CAST Director's Student Presentation Award AIChE * ***Travel Award***, Pan-American Advance studies institute (PASI) on Optimization and Data science for Net-Zero Carbon Sustainability Award 2023 * ***Travel Award***, Foundations of Computer Aided Process Operations/Chemical Process Control 2023 * ***Best Undergraduate design project***, University of Lagos ( 2015) * ***Best Undergraduate design project***, Nigerian Society of Chemical Engineering (2015) * ***Best graduating student,*** Department of chemical engineering, University of Lagos (2015) * ***Professor Harmon Ray Award***, Best student in process control (2015) * ***National Scholarship*** (Top 5%): Chevron Nigeria Limited (2011 – 2015) | |
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| **LEADERSHIP**  **EXPERIENCE:** | ***President***  **African Graduate Student Organization** (University of Delaware) Jan. 2023 – Dec. 2023  Spearheaded initiatives to enhance cultural integration and academic support among African students.  ***Public Relations Officer*** (volunteer position)  **Drug Free Community Development Group** April 2016 – March 2017  Organized sensitization for community members & schools educating them about the effects of drugs  ***President***  **Academic Resource Team** (University of Lagos) Jan. 2012 – Dec.2015  Organized the first design paper competition and championed the fund-raising campaign. | |