

# JONATHAN AKHAGBOSU

Massachusetts, USA

Mobile: [+1\(413\)-463-0439](tel:+14134630439)

Email: [jonathanakhagbosu@gmail.com](mailto:jonathanakhagbosu@gmail.com)

LinkedIn: [Jonathan Akhagbosu](#)

Website: [Jonathan Akhagbosu](#)

---

## PROFESSIONAL SUMMARY

PhD Candidate in Industrial Engineering and Operations Research with deep proficiency in Python, R, and advanced optimization techniques. Passionate about transforming complex operational challenges into actionable, data-driven insights through advanced modeling and analysis.

## EDUCATION

**University of Massachusetts Amherst**

*2023 - Present*

PhD (*in view*) Industrial Engineering and Operations Research

**University of Ibadan, Nigeria**

*2016 - 2021*

BSc. Industrial and Production Engineering (First Class Honors)

## TECHNICAL SKILLS

- Programming: Python, R, AMPL, Gurobi
- Tools: Microsoft Office Suite, Google Workspace
- Core Competencies: Stochastic Modeling, Operations Research, Data Analytics

## PROJECTS

### Healthcare Optimization

#### Surgical Workload Quantification & Queueing-Based Tradeoff Analysis

- Developed a novel data-driven surgical workload classification using unsupervised learning (clustering) on large healthcare dataset.
- Integrated workload classes into a stochastic queueing model to quantify tradeoffs between pre-surgery waiting time and surgeon utilization under uncertainty.
- Conducted sensitivity analysis on staffing levels and priority rules, showing up to 82.5% reduction in waiting time for lowest-priority cases via additional staffing and 42.5% reduction via priority reordering without increasing utilization.

#### Equitable Surgical Case Allocation via Stochastic Integer Programming

- Formulated a stochastic integer optimization model to allocate surgical cases while explicitly incorporating workload equity among surgeons.
- Defined equity using a pairwise envy-based metric and minimized inequity, while also incorporating uncertainty in cases durations.
- Applied the model to data from a US Medical center, achieving up to 70% reduction in maximum pairwise workload envy relative to baseline practices.

## Aviation

### Pilot Fatigue Analytics & Risk Indicator Identification

- Analyzed pilot fatigue using operational flight metrics combined with subjective and objective fatigue measures.
- Developed decision tree and regression models to identify key fatigue-related indicators and characterize relationships between workload, duty patterns, and fatigue outcomes.
- Translated model results into interpretable indicators for assessing fatigue-related operational risk.

## EXPERIENCE

University of Massachusetts Amherst

2023 - Present

### Research Assistant

- Designed and implemented advanced mixed-integer optimization models using Gurobi and Python for complex industrial engineering research projects across different industries, including healthcare and aviation.
- Developed stochastic optimization models and performed rigorous data analysis to evaluate system performance under uncertainty, identifying key risk factors and improvement opportunities that informed robust design recommendations.
- Collaborated closely with faculty and research teams to author peer-reviewed publications, prepare comprehensive technical reports, and deliver results through conference presentations, contributing to successful dissemination of novel methodologies.

Anambra State Polytechnic, Nigeria

### Graduate Assistant

2022 – 2023

- Managed end-to-end administrative projects and coordinated large-scale events for 200+ participants, ensuring seamless execution, on-time delivery, and high attendee satisfaction through meticulous planning and stakeholder collaboration.
- Streamlined record-keeping and reporting processes using advanced MS Office tools (Excel, Word, PowerPoint), reducing administrative errors and cutting monthly reporting time while maintaining 100% accuracy and compliance.

Chevron Nigeria Limited, Nigeria

2020

### Joint Ventures (JV) Relations Intern

- Supported effective stakeholder communication and data management for joint venture operations.
- Contributed to the preparation of compliance reports and required documentation for regulatory agencies, specifically the Nigerian National Petroleum Corporation (NNPC) and Department of Petroleum Resources (DPR).

## PUBLICATIONS

- **Akhagbosu, J., Capan, M., & Kamine, T. H. (2025).** A Learning-based Queuing Approach to Measure Surgical Workload and Inform Case Prioritization Policies. In *IISE Annual Conference. Proceedings* (pp. 1-6). Institute of Industrial and Systems Engineers (IISE).
- **Akhagbosu, J., Capan, M., Balasubramanian, H., & Kamine, T. H. (2025).** Characterizing Surgeon Workload with EHR Data to Predict Time Interval Between Surgeries and Postoperative Care Delivery. [Manuscript submitted for publication to the Journal of the American Medical Informatics Association].

## CONFERENCE PRESENTATIONS

- **Akhagbosu, J., Capan, M., & Kamine, T. H. (2025, June).** *A Learning-based Queuing Approach to Measure Surgical Workload and Inform Case Prioritization Policies.* IISE Annual Conference, Atlanta, GA.
- **Akhagbosu, J., Capan, M., Balasubramanian, H., & Kamine, T. H. (2025, October).** *A Stochastic Optimization Approach to Robust and Equitable Surgeon Workload Allocation.* IISE Annual Meeting, Atlanta, GA.

## AWARDS

- NNPC/Total Energies Undergraduate Scholarship

2016-2021

## OTHER PROFESSIONAL ACTIVITIES AND SERVICES

- Member, Institute for Operations Research and the Management Sciences (INFORMS)
- Member, Institute of Industrial and Systems Engineers (IISE)
- Member, National Society of Black Engineers (NSBE)

## **LEADERSHIP & VOLUNTEERING**

- **Volunteer Member** – Environmental Community Development Service. *2022 - 2023*
- **Sports Director** – Industrial Engineering Students' Association. *2020 - 2021*
- **Volunteer Member** – Oyo State COVID-19 Relief Package Distribution Team. *2020*