Joreen Arigye

701 W Stadium Ave, West Lafayette IN
jarigye@purdue.edu • jarigye.github.io

Education

Ph.D., Engineering Education   Purdue University, 2021–
Dissertation: Exploring computational modeling and simulation
reflections of undergraduate engineering students

M.S., Information Technology   Carnegie Mellon University Africa, 2018
Concentration in software engineering and data science

B.S., Software Engineering   Makerere University, 2015

Journal Publications

- **Arigye, J.**, Lyon, J. A., Magana, A. J., & Pienaar, E. (2024). The Reflective Modeling Practitioner: Promoting Self-regulation and Self-confidence in Computational Modeling and Simulation Practices. The *International Journal of Engineering Education*, 40(1), 179–195.www.ijee.ie/1atestissues/Vol40-1/19$_i$jee4423.pdf

- Magana, A. J., **Arigye, J.**, Udosen, A., Lyon, J. A., Joshi, P., & Pienaar, E. (2024). Scaffolded team-based computational modeling and simulation projects for promoting representational competence and regulatory skills. *International Journal of STEM Education*, 11(1), 34–33. doi.org/10.1186/s40594-024-00494-3

- **Arigye, J.**, Magana, A. J., & Pienaar, E. (2024). Commitment to team coordination: Reflections from undergraduate engineers following three team projects. [*In Review*]

Peer Reviewed Conference Proceedings

- Purzer, S., Zoltowski, C. B., Zakharov, W., & **Arigye, J.**(2024). Developing the design reasoning in data life-cycle ethical management framework. *2024 ASEE Annual Conference & Exposition*, Portland, Oregon. doi.org/10.18260/1-2–47172

- **Arigye, J.** (2024). Exploring the landscape of online coding education in Africa: A literature review. *2024 47th MIPRO ICT and Electronics Convention (MIPRO)*, Opatija, Croatia, 678–683. doi.org/10.1109/MIPRO60963.2024.10569900

- **Arigye, J.**, Udosen, A. N., Joshi, P. P., & Magana, A. J. (2023). The evolution of team coordination commitments in the context of computational projects. *2023 IEEE Frontiers in Education Conference (FIE)*, College Station, Texas, 1–5. doi.org/10.1109/FIE58773.2023.10343201

- **Arigye, J.**, Magana, A. J, Lyon, J. A., & Pienaar, E. (2023). Biomedical and Agricultural engineering undergraduate students programming self-beliefs and changes resulting from computational pedagogy. *2023 ASEE Annual Conference & Exposition*, Baltimore, Maryland. doi.org/10.18260/1-2–42275

- Brijmohan, Y., Olayemi, M., Dansu, V., Babalola, I., Gamieldien,Y., Ezika, I., **Arigye, J.**, Asogwa, U., & Vaye, C. (2022). African diaspora engineering education student experiences in the US: A collaborative autoethnographic study. *2022 IEEE IFEES World Engineering Education Forum-Global Engineering Deans Council (WEEF-GEDC)*, 1-7, Cape Town, South Africa. doi/10.1109/WEEF-GEDC54384.2022.9996261

Book Chapter and Magazine Feature

- Purzer, S. & **Arigye, J.** (in press). Engineering design reasoning for conscientious decision-making. In L. English & T.H. Lehmann (Eds.), Ways of thinking in STEM-based problem solving: Learning in a new era. Routledge. isbn/9781032520339

- Kirabo, L. (2019). The one about resilience, energy, culture, and crafting. In XRDS : Crossroads, The ACM Magazine for Students, 26(2), 60-63. doi/10.1145/3368079

Honors and Awards

- Best Poster, Collaborative Network for Engineering and Computing Diversity Conference   2024

- Second Place, Facebook (Meta) and CMU Africa Cybersecurity Hackathon   2018

- Mandela Institute for Development Studies Scholarship Award for masters at CMU-Africa   2017

- National Merit Sponsorship Award for undergraduate at Makerere University   2010

Posters and Presentations

- Zakharov, W., Purzer, S., Zoltowski, C.B., **Arigye, J.**, Maza Nava, J.J.R., Sewell, S.M. (2024, Jun). Prioritizing data life cycle ethical management for shaping next generation researchers. *Improving Undergraduate STEM Education (IUSE) Summit*, Washington, D.C., US.

- **Arigye, J.** (2024, Feb). Learning to code online: Exploring the African landscape. *Collaborative Network for Engineering and Computing Diversity (CONECD) Conference*. Arlington, VA, US.

- **Arigye, J.** (2024, Feb). Coordination commitments during computational modeling. *3rd Annual Symposium of Graduate Women in Engineering Network*, PechaKucha Presentation, Purdue University, West Lafayette, IN, US.

- Olayemi, M., Adeniranye, D., Dansu, V., **Arigye, J.**, Benjamin, M., Babalola, I., (2024, Mar). From virtual premises to real promises: Tracking the formation of the African engineering education fellows in diaspora. *68th Annual Meeting of the Comparative and International Education Society (CIES)*, Abstract Presentation Miami, FL, US.

- Udosen, A., **Arigye, J.**, Magana, A. J., Pienaar, E. (2024, Mar). Predicting quantized students team-based reflection data using supervised machine learning approaches. *50th National Society of Black Engineers (NSBE) Convention*, Technical Research Exhibition, Atlanta, GA, US. doi.org/10.13140

- Ahn, S., Shindhe, N., **Arigye, J.**, Koh, D., Maselli, A. (2023, Nov). A cost benefit analysis of the co-surgeon model in DIEP flaps and other microsurgical procedures. *Warren Alpert Medical School Academic Symposium*, Brown University, Providence, RI, US. repository.library.brown.edu

- **Arigye, J.**, Magana, A. J., Lyon, A.J., Pienaar, E. (2023, Mar). Biomedical and Agricultural Engineering Undergraduate students Programming self-beliefs and changes resulting from computational scaffolding. *49th National Society of Black Engineers (NSBE) Convention*, Technical Research Exhibition, Kansas City, MO, US.

- **Arigye, J.** (2019, May). Leveraging data to develop sustainable energy and financial inclusion in Africa. *SDM Workshop for Data Mining in/for Africa by IBM Research Africa*, Workshop Presentation, Nairobi, Kenya.

Teaching Experience

- ENE 506: Content, Assessment, and Pedagogy (Spring 2024)   Faculty Apprentice

- ME 597: IoT for Smart Manufacturing, Intro to Google Colab (Spring 2023)   Guest Instructor

- Python for the Future, Gifted Education Research Institute (Summer 2023)   Python Instructor

- Server-side Development, Clarke International University (Nov 2019 - Jul 2021)   NodeJS Instructor

- Intro to Git and GitHub, LaunchLab at Stellenbosch University (Jul 2021)   Workshop Facilitator

- Intro to Data Science on Youtube, Upskill, Innovation Village (Mar 2020)   Workshop Facilitator

- 18-641: Design Patterns for Smartphone Devt, CMU Africa (Fall 2018) Graduate Teaching Assistant

Research Experience

- **Graduate Research Assistant**, Purdue University   Aug 2021 - Present

  In the ROCkETEd and ELO labs, I conducted literature reviews, designed and executed experimental studies, and managed data collection and analysis. Collaborated with team on proposals, abstracts, and manuscripts, contributing to multiple publications and presentations. Additionally, I mentored undergraduate students in research methods and data analysis, enhancing their academic growth and engagement in the research process.

- **Independent Study**, CMU Africa and UMEME   2018

  A study on UMEME's organisational capability maturity level. This study assessed UMEME's readiness to become a data-driven organization by examining its internal systems, databases, and their interactions. This exploration clarified the data flow structure, providing essential baseline knowledge for the company's data-driven transformation.

Industry Experience

- **Software Engineer**, Software & Application Innovation Lab, Boston University   Summer 2023

  Developed a Docker pipeline for the deployment of SPICE-based simulator PACT and Visual PACT and developed a Python pipeline to enhance the accessibility of large SAS data for School of Medicine.

- **Data Analyst**, Fenix International (Now Engie Energy Access)   Feb 2019 - Jul 2021

  Managed the analytics database scripting needs for business reporting. Conducted team training to boost data analysis capacity, gathered A/B testing requirements, and designed experiments. Oversaw the maintenance of machine learning models, ensuring data-driven business interventions.

- **Data Fellow**, Fenix International (Now Engie Energy Access)   Summer 2018

  Performed experimentation and analytics for solar loan repayment interventions.

- **Administrative Assistant**, Carnegie Mellon University Africa   Sep 2017 - Jun 2018

  Conducted surveys and polls to understand student needs, assisted the student services officer in coordinating events such as cultural nights, sports days, and lecture series, and developed targeted marketing materials to promote these activities.

- **Business Process Analyst**, UMEME   Apr - Aug 2021

  Coordinated the successful implementation of a company-wide off-the-shelf HR system for a workforce of over 1000 employees. Provided support in identifying, designing, and executing business process re-engineering initiatives to enhance overall efficiency.

- **System's Developer**, InfoTronics Business Systems   Oct 2016 - Jun 2017

  Developed three information systems for data capture and business reporting, involving requirements elicitation and comprehensive testing. Executed data input, cleaning, and analysis based on client specifications. Additionally, provided client training on system usage.

- **Supply Chain Management Apprentice**, Medical Access Uganda Limited   Dec 2014 - Sep 2016

  Coordinated implementation and testing of the company's information system with contractors, analyzed data for monitoring and evaluation, managed business process review for ISO certification, supported procurement and distribution of ARVs to health centers in Uganda, and ran a help desk providing IT support including installation, maintenance, and troubleshooting.

- **Software Engineering Intern**, Uganda Revenue Authority   Summer 2013

  Developed a Windows web service as part of the company's integration process.

Travel Awards and Features

- GradTrack Mentor Award??, Purdue Graduate Engineering   Fall 2024
- Travel Award to recruit at NSBE, Purdue Graduate Engineering   Mar 2024
- Travel Award to present poster, CONECD   Feb 2024
- Travel Award to present at conference, Graduate Women in Engineering   Feb 2024
- Featured as Change maker Spotlight, MINDS Africa   2023
- Social Media Feature, Fenix(Engie), Women's day campaign on inspiring women into Tech   2020

Professional Development

- What Works Hub for Global Education, Annual Conference   Sept 2024
- AI Workshop, Purdue Digital Agriculture   Aug 2024
- Transforming Engineering Education Symposium by MIT, Harvard and Alborg   June 2023
- Equip Training UK Certificate, Level 3 Certificate in Education and Training   Feb 2021
- Mandela Institute for Development Studies, Certificate in Leadership Training   2017 & 2020
- Transform Africa Summit, Kigali Rwanda   2018
- Lecture on fundamentals of oil and gas exploration and production, Total   2013

Invited Talks

- "Research or Professional path", Women in Tech, CMU Africa   Nov 2021
- "Getting the workforce ready for data science opportunities", DataFest Africa   Apr 2021
- "Data science in industry", Pyladies Kampala, Outbox   Nov 2020
- Panelist, Resources, skills, challenges in data analytics, African Women in Tech   Feb 2020
- Panel and Talk, "Leveraging ML in energy", Women in Machine Learning & Data Science   Jan 2020
- Panelist and Judge, Educating The Children   Sept 2019 & Dec 2020
- "How to be deliberate about gaining technical skills", Coding Girls, Cavendish University   Aug 2019
- "Data Science for Health", Data science in Africa workshop, Pulse Lab Kampala   Aug 2016

Leadership and Professional Membership

- Graduate Student Representative, Engineering Education Student Association   2023/2024
- Vice President Membership, Techy Talkers Toastmasters, CMU Africa   2017/2018
- Communication Chair, NSBE Graduate Committee   Fall 2023
- Technical Advisor and Cofounder, AnJ Data Management Solutions Ltd   2021/2022
- Advisory board member, Code Queen under Educating the Children, Uganda   2019
- Member, Black Graduate Student Association
- Member, Society of Women Engineers
- Member, Maryhill high school old girls, Girl Child Education Fund
- Member, Engineering Education Research in Africa
- Education Advisory, Island of Hope (Non-profit for climate advocacy)

Community Service

- Journal Reviewer, Education and Information Technologies

- Mentor for undergraduates and graduate students

- Volunteer, Conservation Effort for Community Devt, Youth Advocacy & Environment   2009/2010

- Volunteer, Kakukuru Primary School, Community Service teaching Maths & Science   2009/2010