

VANESSA KWARTENG

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EDUCATION

Purdue University, West Lafayette, IN **Aug 2018 – May 2023**
Direct PhD Student, Mechanical Engineering
Advisor: Dr. Ilias Bilionis

Prairie View A&M University, Prairie View, TX **May 2013**
B.S., Mechanical Engineering, *Magna Cum Laude*
Thesis: Fluidized bed reactor for the conversion of plant biomass waste into biofuel
GPA: 3.74/4.00

RESEARCH EXPERIENCE

Purdue University, West Lafayette, IN
Graduate Research Assistant
Sociotechnical Modeling & Incentive Mechanism Design for Smart & Connected Communities **Aug 2018 - Present**

- Developed mathematical framework to understand community interactions.
- Created baseline mathematical algorithm to quantify resident's energy consuming behaviors.
- Collaborated with 8 professors, 7 graduate students across 5 departments and 2 Indiana community partners.

Research Study Abroad on Renewable Energy in Peru **June 2019**

- Presented research to students and faculty members at UNSAAC (Peru University) to show integration of machine learning with renewable energy systems. Learned about water desalination using portable microgrid systems.

Prairie View A&M University, Prairie View, TX
Research Assistant
Energy & Environmental Sustainability **Jan 2011 – Dec 2011**

- Investigated various sized wood chips as a biomass to go through the fast pyrolysis process to produce 1mL sample of bio-oil.

TEACHING EXPERIENCE

Prairie View A&M University, Prairie View, TX
Supplemental Instructor **Jan 2011 – May 2013**

- Tutored thermodynamics I, II and Heat Transfer for the College of Engineering, 30 to 40 students attended evening sessions weekly.

University of Houston, Houston, TX
Workshop Facilitator **Jan 2009 – Dec 2009**

- Calculus I and Engineering Math: Taught recitation course offered by the Program for Mastery in Engineering Studies (PROMES) that students could earn 1 credit.
- TA for Intro to Engineering Course; taught students beginner programming skills using Lego Mindstorms

INDUSTRY EXPERIENCE

Tenaris, Houston, TX
Technical Sales Engineer **Oct 2017 – May 2018**

- Managed tubular supply for customers operating in the East Texas region, which involved sales, consulting and providing technical expertise of products depending on the customer's application.

ExxonMobil, Sakhalin, Russia
Lead Project Engineer **July 2014 – Jan 2017**

- Created technical evaluations, \$1.8M cost savings from previous contract negotiations. Collaborated with advisers to revise and implement brine displacement method; saving potential troubleshooting costs of \$15M.

Surveillance Engineer **July 2013 – July 2014**

- Redesigned temporary plug and abandonment design for water source well, saving 76 tons of cement with cost savings of \$500K.

INTERNSHIP EXPERIENCE

Chevron, Bakersfield, CA

Drilling Engineer Intern

May 2012 – Aug 2012

- Identified opportunities to optimize drilling program and conducted trials in Cymric field; saving 6 hours of drill time and an average of \$600K for every 3 wells drilled.

Williams, Tulsa, OK

Fixed Structures Engineering Intern

May 2011 – Aug 2011

- Participated in assessment of equipment at Larose Plant to evaluate maintenance needs and potential financial impact of equipment downtime

PROFESSIONAL ORGANIZATIONS

Purdue University

- Black Graduate Student Association (BGSA)
- Graduate Women in Engineering Network (GWEN)
- Engineering Academic Career Club (EACC)

National Society of Black Engineers

- **Region 5 Collegiate Co-Chair** (2017-2018); NSBE Houston Professionals member (2013-2018)
- **Prairie View A&M: President (2012-2013)**, Business Development Chair (2011-2012)

American Association of Drilling Engineers

Society of Petroleum Engineers Young Professionals

Houston Area Urban Young Professionals

HONORS AND AWARDS

- **GEM Associate Fellow, 2018** (National Award)
- **2nd place Oral Presentation Award**, Purdue Office of Diversity and Inclusion SROP/Bridge Program
- BGSA, 2018 New Member Spirit Award & Dr. Johnny E. Brown Membership Scholarship
- Black Engineer of the Year (BEYA) **National Community Award**, 2013 BEYA Conference, New York City
- **Most Outstanding Mechanical Engineering Senior Award (2013)**; selected by faculty from department
- **Most Distinguished NSBE Chapter Award (National)**, 2013 NSBE National Conference
- **Most Distinguished Chapter President Award**, 2013
- Inducted into Pi Tau Sigma (Mechanical Engineering Honor Society)
- Inducted into Tau Beta Pi (Engineering Honor Society)

VOLUNTEER EXPERIENCES

- **Purdue BGSA**, Panelist for Grad 101 event for undergraduate students
- **Vinton elementary (Lafayette)**, informed students about black scientists' contributions during Black History Month
- **Purdue Women in Engineering Program (WIEP)**, Mentor for Introduce a Girl to Engineering Day
- **NSBE National Conference**, 2019 Representative for the Graduate Education team
- **Purdue Pathways to the Faculty**, panelist for URM discussions with prospective graduate students
- **Purdue School of Mechanical Engineering**, recruitment ambassador, panelist for URM Roundtable discussion for prospective diverse graduate students
- **Herrick refrigeration, compressor and buildings conferences**, Vice-chair of two seminar sessions
- **KIPP Charter School (Houston)**, Speaker for science day for 6th, 7th and 8th graders
- **National Action Council for Minorities in Engineering robotics competition (NACME)**, Annual Judge (2009-2018)
- **NSBE "A Walk for Education"**, provided information about college to families in underserved communities and hosted science activities for the neighborhood (2008-2017)
- **Mentoring and Enrichment Seminar in Engineering Training (MESET)**, summer camp counselor for 10th – 12th graders (July 2008)

RESEARCH PRESENTATIONS

- [1] **Kwarteng, V.**, Kim, H., Ham, S.W., Bilonis, I., Karava, P., Nguyen, T., Castillo, L., “Sociotechnical Modeling and Applying Machine Learning for Peru Energy Applications”, *Oral Presentation, Universidad Nacional de San Agustin, Arequipa, Peru, June 18, 2019.*
- [2] **Kwarteng, V.**, Kim, H., Ham, S.W., Bilonis, I., Karava, P., Nguyen, T., Castillo, L., “Sociotechnical Modeling and Applying Machine Learning for Peru Energy Applications”, *Oral Presentation, Universidad Nacional de San Antonio Abad del Cusco, Cusco, Peru, June 7, 2019.*
- [3] Kim, H., Ham, S.W **Kwarteng, V.**, Bilonis, I., Karava, P., “Sociotechnical systems to enable smart and connected energy-aware residential communities”, *Poster Presentation, Purdue Office of Interdisciplinary Graduate Programs Spring Reception, West Lafayette, Indiana, May 1, 2019.*
- [4] Ham, S.W., Kim, H., **Kwarteng, V.**, Bilonis, I., Karava, P., “Sociotechnical systems to enable smart and connected energy-aware residential communities”, *Poster Presentation, NSF 2019 Smart and Connected Cities PI’s Meeting, Denver, Colorado, April 1-3, 2019.*
- [5] Ham, S.W., Kim, H., **Kwarteng, V.**, Bilonis, I., Karava, P., “Sociotechnical systems to enable smart and connected energy-aware residential communities”, *Poster Presentation, Purdue Women in Engineering Program 50th Symposium, West Lafayette, Indiana, March 23, 2019.*
- [6] Kim, H., Ham, S.W., **Kwarteng, V.**, Bilonis, I., Karava, P., “Sociotechnical systems to enable smart and connected energy-aware residential communities”, *Poster Presentation, NSF Purdue Center for Resilient Infrastructures, Systems, and Processes Workshop, West Lafayette, Indiana, March 19, 2019.*
- [7] **Kwarteng, V.**, Kim, H., Ham, S.W., Bilonis, I., Karava, P., Nguyen, T., “Designing a Game Mechanism to Incentivize Energy Conservative Behaviors in Subsidized Residential Communities”, *Poster and Oral Presentation, Purdue Office of Diversity and Inclusion SROP/Bridge Program, West Lafayette, Indiana, July 11, 2018. 2nd Place Oral Presentation Award*