JILLIAN MILES

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EDUCATION:

CARNEGIE MELLON UNIVERSITY — Pittsburgh, PA
Third Year Ph.D. Student in Engineering and Public Policy — Exp. 2026

THE GEORGE WASHINGTON UNIVERSITY — Washington, DC
Bachelor of Science in Systems Engineering, Minors in Computer Science, Psychology — May 2018

UNIVERSITY OF CAPE TOWN — Cape Town, South Africa
Semester Study Abroad — January 2016 – June 2016

RESEARCH EXPERIENCE:

CMU ENGINEERING AND PUBLIC POLICY DEPARTMENT, Pittsburgh, PA
Laboratory for Energy and Organizations & Workforce Supply Chains Laboratory, PhD Research Assistant

Determining Feasible Workforce Pathways for Displaced Fossil Fuel Workers — **January 2025-Present**

- Determining the possible workforce pathways for previously employed fossil fuel workers such as coal miners and power plant operators in Southwest Pennsylvania.
- Evaluating gaps in broader local support infrastructure to see if there are limitations due to lack in supportive wage policy, misalignment in curriculums for retraining programs, and understanding which investments development groups should target for their business development objectives

Assessing Labor Demand of EV Battery Manufacturing Sites and U.S. Labor Readiness — **April 2024-Present**

Findings Summary: Identified that labor needs for large-scale EV battery Gigafactories vary by plant, with some relying heavily on production workers and others on industrial engineers, who are the most common bottleneck in rural areas. Found that while many metropolitan areas are well-positioned to meet labor demands, over 20% of selected factory sites face severe workforce shortages, suggesting workforce availability was not a primary siting factor.

- Developed occupation-level estimates of Gigafactory labor demand using resume-based worker-job pairings from Lightcast, adjusted for data bias with BLS employment benchmarks
- Created regional labor readiness scores using skill similarity metrics (cosine similarity, mean-bound analysis) to evaluate the transferability of existing workforce skills into battery manufacturing roles
- Mapped U.S. metro and non-metro readiness and found significant rural-urban divides, with rural areas often lacking sufficient engineering talent even under relaxed hiring assumptions
- Analyzed labor supply in 32 announced or operating Gigafactory locations and identified industrial engineers as the most frequent bottleneck occupation, highlighting the need for targeted workforce development or relocation incentives

Regional Workforce Impacts of Decarbonizing Iron and Steel — **August 2022-April 2025**

Findings Summary: Identified that decarbonizing iron and steel facilities could result in the loss of over 2,000 jobs for large capacity blast furnace facilities, and the opportunities for employment for these workers outside of iron and steel were much more limited for production workers

Publication: https://www.pnas.org/doi/10.1073/pnas.2419294122

- Developed measures and visuals to represent steel workers occupational similarity to over 700 other jobs using skills, knowledge, activities, and wage requirements and restrictions data
- Used said measures to simulate a workforce transition from an integrated (blast furnace – basic oxygen furnace) steel making facility to a lower carbon electric arc furnace process, to determine what the possible outcomes would be for workers keeping their jobs
- Evaluated opportunities for workers outside of iron and steel and found that production workers were limited in the broader workforce based on acceptable jobs in terms of skills and wage

GWU SYSTEMS ENGINEERING DEPT in partnership with USAID and MIT
Research Assistant, Washington, DC, and Kampala, Uganda **June 2016-May 2018**

Program Summary: The USAID Feed the Future Uganda program aims to bolster the value chains of maize, beans, and coffee for increased crop quality, production, and profits for all members of the chain. This is done through multiple activities aimed at different initiative groups, including youth, women, small farmers, distributors and more.
Deliverables: https://dspace.mit.edu/handle/1721.1/127275

- Developed system mapping tools and indicators to represent the actors and subsystems in the marketplace and could visualize supply chains, value chains, relationships, trust, and money
- Analyzed M&E data from other USAID Feed the Future Uganda activities to look for evidence of sustainable, systemic change across and between the programs
- Conducted and facilitated training for stakeholders in various stages of the value chains to showcase ways that trust, relationship-building, investment, and financing impact business
- Participated in field interviews for case studies with agribusiness owners and workers to collect qualitative data which would later be used by USAID and other various stakeholders
- Created and tested a system dynamics model which analyzed the relative impacts of financing options for farmers and agribusinesses

GWU SYSTEMS ENGINEERING DEPT in partnership with the CDC
Research Team Member, Washington, DC and Atlanta, GA **Sept 2017-May 2018**

Project Summary: The CDC oversaw the Strategic National Stockpile (SNS) which holds supplies that are used to respond to many types of national emergencies. This project for a senior thesis focused on looking at the supply chain recovery of products that are stockpiled and then depleted during emergencies.

- Built a fully functioning disaster and supply chain recovery simulator to showcase the impact on the value chain of specific supplies after different disaster scenarios. This included using Monte-Carlo simulation of various disaster types to understand which recovery situations were the most robust.
- Summarized findings on the recovery situations by outlining which conditions had the most impact on the supply chain, and which combinations of situations helped the supply chain recover faster in different types of disasters
- Provided the working tool and preliminary analysis results to CDC clients for their use and further adaptation

WORK EXPERIENCE:

DELOITTE CONSULTING LLP – Government and Public Services **Arlington, VA**
Strategy Consultant – Department of State **May 2021- July 2022**

Program: Bureau of Energy Resources – Technical Assistance on Mining Governance in Serbia

- Supported the Government of Serbia's Ministry of Mining and Energy (MME) in the sustainable development and commercialization of the Jadar lithium-borate mine being developed by Rio Tinto
- Researched, wrote, and delivered an Economic Impact Assessment analyzing the change in various economic metrics, including GDP, industrial output, and national employment, from the Jadar mine development
- Investigated the geopolitical, funding, and infrastructure systems surrounding the mine, enabling the Serbian government to make informed policy decisions on topics like sourcing renewable energy and powering the mine
- Scoped, wrote and revised additional major reports developed for MME, specifically on the topics of the downstream commercialization of the lithium, and how to integrate renewable energy into the mine operations

Program: Bureau of Energy Resources – Technical Assistance on Global Mining Governance

- Aided the Ugandan Ministry of Mining with their decarbonization strategy, including modeling programs and projects to implement in their mining sector to reach global and regional decarbonization targets
- Assisted the Kenyan Ministry of Mining in their geological data collection, retention, storage, and commercialization efforts, and provides global leading legal and regulatory practices on mining governance

Technology Consultant – Transportation Security Administration **December 2019-May 2021**

Program: Recruit and Hire Candidate Cloud Operations and Maintenance Transition

- Led the transition of the Recruit and Hire Candidate Cloud O&M from an incumbent contractor to Deloitte through a 3-phase transition: self-guided knowledge transfer, shadowing, and reverse-shadowing
- Managed a team of 4 developers through the resolution of defects and reported out weekly on the progress being made to learn and overtake the system, and each of the technological components

Program: Enterprise Mission Architecture Support

- Created the Transportation Security Equipment (TSE) Data Architecture outlining the data properties in each of 11 different types of security equipment used at airports, including data models, security classification, retention information, and more. This included a significant analysis of TSE metadata and sample data.
- Led the development of a Mission Architecture Projects visualization, showcasing the 126 architectural initiatives happening simultaneously at the TSA, to make more informed investment decisions by identifying gaps and overlaps in current work.

Data and Systems Analyst – Internal Revenue Service **July 2018-December 2019**

Program: Enterprise Case Management

- Created, co-owned, and socialized a data strategy for the entire Enterprise Case Management Program including guidance on data quality, governance, services, metadata, security and much more. This data strategy provided an outline for future programs to align with and helped to inform the overall IRS Enterprise Data Strategy
- Co-led the execution of the Data Strategy Legacy Analysis which included a bottom-up analysis of three legacy systems and evaluating them to determine migration patterns, understand access needs, and map data models.

TEACHING EXPERIENCE:

CMU ENGINEERING AND PUBLIC POLICY DEPARTMENT

Teaching Assistant – Introduction to Engineering and Public Policy **January 2025 -May 2025**

- Designed and authored the final course project, incorporating core analytical methods to evaluate the economic, technical, and social implications of legalizing online sports betting at the state level
- Led three weekly recitation sections with ~15 students each to reinforce key concepts, guide students through assignments, and facilitate discussion
- Provided individualized support through weekly office hours sessions, assisting students with coursework and project development
- Evaluated and graded five practice problem sets and five case study assignments for a class of over 50 students

Teaching Assistant – Introduction to the Theory and Practice of Policy Analysis **August 2024- December 2024**

- Facilitated weekly discussion sections to reinforce lecture material and foster critical thinking around policy analysis frameworks
- Graded six major homework assignments throughout the semester for a class of over 30 students

SELECT PUBLICATIONS AND PRESENTATIONS:

- **INFORMS Annual Meeting,** Research Presentation – "Labor Implications of the Energy Transition: Assessing Transforming and Emerging Industries" Seattle, Washington October 2024
- **Technology, Data, and Policy Summit,** Research Presentation – "Local Labor Implications of Industrial Decarbonization: A Case Study of Southwest Pennsylvania's Iron and Steel Industry"
  Research Honorable Mention Award, Cambridge, Massachusetts, July 2024
- **When the Energy Transition Comes to Town,** *First and Corresponding Author*
  Published in Issues in Science and Technology, December 2023 https://issues.org/energy-transition-analytical-tools-miles-combemale-karplus/
- **Carnegie Mellon Electricity Industry Center Annual Meeting,** Research Presentation – "Local Labor Implications of Industrial Decarbonization: A Case Study of Southwest Pennsylvania's Iron and Steel Industry" Pittsburgh, Pennsylvania, October 2023
- **Lithium: Shaping Markets for a Green Future,** *Technical Writer and Research Contributor*
  Published in Global Mining Review, March 2021
- **Decision Support Tool for Strategy National Stockpile Supply Chain Policies,** *Author, Presenter, and Researcher*, Paper and Presentation - Systems and Information Engineering and Design Symposium 2018, https://ieeexplore.ieee.org/abstract/document/8374764
- **System Dynamics Model of Improve Financial Inclusion for Farmers & Agribusinesses in Uganda,** *Primary Researcher, Presenter;* Presentation - Production and Operations Management Society Conference 2018

AWARDS AND RECOGNITIONS:

Carnegie Mellon University:

- Robert W. Dunlap Award for Outstanding Solution Submitted for the Part B Qualifying Examination of the Department of Engineering and Public Policy (2024)
- Phillips and Huang Family Fellowship in Energy (2023)
- National Science Foundation Graduate Research Fellowship Program Recipient (2023)

The George Washington University:

- Magna Cum Laude
- Clark Engineering Scholar
- Dean's Scholar
- George Ellowitz Prize Recipient
- Selected Student Commencement Speaker
- Tau Beta Pi Engineering Honor Society Member and President (2017-18)

TOOLS & SKILLS:

Software/Tools: Python, R, Jira, Azure DevOps/TFS**,** Simio, Vensim, Ampl, SAS, SQL, VBA, Microsoft Office Suite including Word, Excel, PowerPoint, Project, Access
Skills: Data Collection and Interpretation, Project Management, Quantitative and Qualitative Research, Technical Writing