

# Alaa Alghwiri, Ph.D.

Pittsburgh, PA 15239

+1-330-389-2904

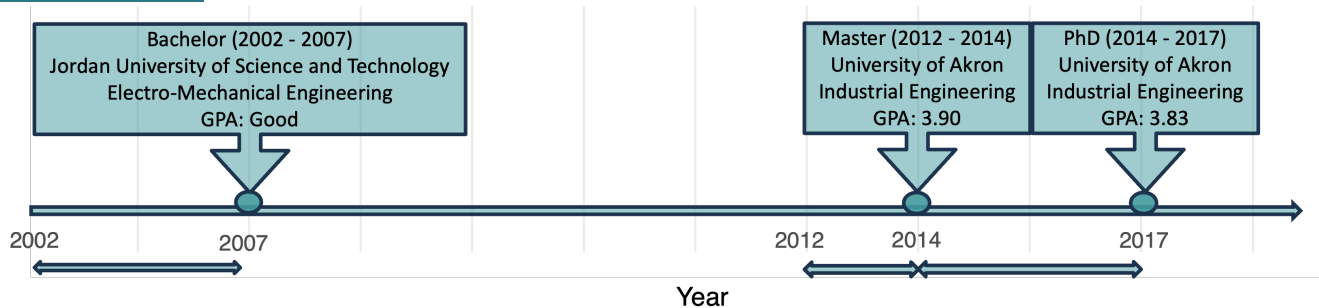
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[Portfolio](#) | [alaa.alghwiri84@gmail.com](mailto:alaa.alghwiri84@gmail.com) | [LinkedIn Account](#) | [Google Scholar Account](#)

## Professional Summary

Highly skilled data scientist, entrepreneur, and educator with a Ph.D. in Industrial Engineering with specializing in data science and simulation. Over 7 years of impactful experience in diverse industries including Transportation, Higher Education, Energy, and Healthcare. Published significant research in high-impact journals. Proficient in teaching Data Science courses encompassing foundational coding, mathematics, and statistics, as well as applied data science and machine learning algorithms using R and Python programming languages. Effective communicator, adept problem solver, and collaborative team player

## EDUCATION



## Teaching Experience

### Adjunct Professor | TrineOnline University | Part Time | April 2024 - Current

- Deliver course materials focused on statistical methods and analysis techniques pertinent to IT research. Guide students in applying statistical tools to real-world IT problems and projects
- Teach fundamental and advanced concepts of computer science using Python. Create hands-on projects to reinforce learning and encourage practical application of programming skills
- Instruct students on the principles and practices of data science and big data analytics

### Data Science Instructor | Simplilearn | Part Time | April 2023- Current (Rating: 4.6/5.0)

- Instructed comprehensive courses on Data Science, covering a spectrum from foundational mathematical and statistical concepts to advanced topics
- Designed and delivered engaging modules on data exploration, visualization techniques, and best practices, fostering a deep understanding among students
- Equipped learners with practical skills in applied Data Science and Machine Learning, utilizing both R and Python programming languages
- Received consistently positive feedback for adeptly balancing theoretical knowledge with hands-on learning experiences, ensuring students grasp concepts effectively and confidently apply them in real-world scenarios
- Demonstrated expertise in simplifying complex concepts, fostering a dynamic and inclusive learning environment, and providing personalized guidance to students of varying skill levels, contributing to high course completion rates and student satisfaction

## Entrepreneurial Experience

### **C0-Founder and CTO | Algebra Intelligence | Part Time | January 2020 - June 2022**

- Led a pioneering team in creating and deploying Taqtak, a groundbreaking mobile/web application that revolutionizes real-time monitoring within energy plants. Successfully secured \$700,000 in funding in the pre-seed stage
  - Spearheaded the development lifecycle from conceptualization to execution, overseeing database architecture, backend infrastructure, and front-end design to ensure seamless integration and optimal performance
- Led the data science team in the conceptualization and development of an energy generation forecasting tool using advanced statistical analysis and machine learning algorithms

## Professional Experience

### **Senior Data Scientist | University of Pittsburgh | Center for Population Health Management | Full Time | July 2022 - Current**

- Spearheaded the development of precise predictive models aimed at identifying patients susceptible to adverse events through the implementation of sophisticated machine learning methodologies
- Tested the effectiveness of a multifaceted Electronic Health Records (EHR)-based Population Health Management (PHM) intervention to improve evidence-based Chronic Kidney Disease care in high-risk patients
- Utilized mixed-effect models to analyze the impact of various factors on pain, fatigue, and depression, providing valuable insights into effective intervention strategies
- Designed and implemented a Tkinter application in Python to map addresses into the Area Deprivation Index (ADI), facilitating targeted resource allocation for underserved communities

### **Data scientist | University of Pittsburgh | Office of the Provost | Full Time | October 2017-June 2022**

- Utilized data analytics tools to automate generation of yearly/ad-hoc insights in static and dynamic formats, integrating data from multiple resources for students, faculty, and University data management
- Improved University of Pittsburgh's US News Ranking by 4 steps (between 2020 and 2021) using cutting-edge Machine Learning techniques including SVM, Random Forest, and Gradient Boosting
- Developed highly accurate (96%) predictive models for students' success indicators (retention, dropout, and graduation) across all 3 regional campuses, enabling proactive advising for students in need
- Collaborated with schools' deans to make data-informed investment decisions, optimizing the school's US News and World Report ranking
- Automated recurring reports on gender and ethnic group equity, as well as admission and financial aid reports for the office of the provost and deans

## Peer-Reviewed Articles (Publications listed below are hyperlinked for easy access)

- **Journals:**
  - Jhamb, M., Weltman, M. R., Devaraj, S. M., Lavenburg, L. M. U., Han, Z., Alghwiri, A. A., ... & Yabes, J. G. (2024). **Electronic Health Record Population Health Management for Chronic Kidney Disease Care: A Cluster Randomized Clinical Trial**. *JAMA Internal Medicine*.
  - Al-Zaiti, S. S., Alghwiri, A. A., Hu, X., Clermont, G., Peace, A., Macfarlane, P., & Bond, R. (2022) **A clinician's guide to understanding and critically appraising machine learning studies: a checklist for Ruling Out Bias Using Standard Tools in Machine Learning (ROBUST-ML)**. *European Heart Journal-Digital Health*, 3(2), 125-140
  - Alghwiri, A. A., Almomani, F., Alghwiri, A. A., & Whitney, S. L. (2021). Predictors of sleep quality among university students: the use of advanced machine learning techniques. *Sleep and Breathing*, 25, 1119-1126

- Weltman, M. R., Han, Z., **Alghwiri, A. A.**, Yabes, J., Lavenburg, L. M. U., Nolin, T. D., & Jhamb, M. (2023). **Use of Guideline-Recommended Medication Therapy in a High-Risk CKD Population in the Kidney CHAMP Trial**: SA-PO295. *Journal of the American Society of Nephrology*, 34(11S), 804-805
- MOSSLEMI, M., WELTMAN, M., LAVENBURG, L., MARIE, U., **ALGHWIRI, A.**, YABES, J., ... & JHAMB, M. (2024). 399-P: **Association of Social Determinants of Health with Initiation of Novel Glucose-Lowering Drugs in Patients with Diabetes—A Post Hoc Analysis of the Kidney-CHAMP Trial**. *Diabetes*, 73(Supplement\_1)
- **Conference Papers:**
  - **Alghwiri, A.**, Wang, S., & Coleman, J. D. (2017). **University Parking System Analysis through Discrete Event Simulation**. In *IIE Annual Conference. Proceedings* (pp. 2039-2044). Institute of Industrial and Systems Engineers (IISE)
  - **Alghwiri, A.**, Wang, S., & Coleman, J. D. (2017). **Modeling and Optimizing University Shuttle Bus System through Bus Diversions**. In *IIE Annual Conference. Proceedings* (pp. 2045-2050). Institute of Industrial and Systems Engineers (IISE)
- **Conference Posters:**
  - Kallem CJ, Roumelioti M, **Alghwiri AA**, Yabes JG, Jhamb M, Unruh M. **Day-to-day and diurnal variations in patient-reported symptoms among patients on dialysis**. Poster presentation at: National Kidney Foundation 2024 Spring Clinical Meetings. May 14-18, 2024; Long Beach, CA. Abstract ID: 4454
  - Kallem CJ, **Alghwiri AA**, Yabes JG, Roumelioti M, Erickson S, Unruh M, Vodovotz Y, Jhamb M, Steel JL. **Associations between pain, depression, fatigue, and cytokines in patients with end-stage kidney disease**. Poster presentation at: Society of Behavioral Medicine 45th Annual Meeting & Scientific Sessions. March 13-16, 2024; Philadelphia, PA. Abstract ID: 1623084
  - Manisha Jhamb, Melanie Weltman, Susan Devaraj, Linda-Marie Lavenburg, Zhuoheng Han, **Alaa Alghwiri**, Gary Fischer, Bruce Rollman, Thomas Nolin, Jonathan Yabes. **Electronic Health Record based Population Health Management to optimize care in CKD: A Cluster Randomized Clinical Trial (Kidney CHAMP)**: American Society of Nephrology (ASN) 2023; Philadelphia, PA
  - MR Weltman, Z Han, **AA Alghwiri**, J Yabes, LU Lavenburg, TD Nolin, M Jhamb. **Use of guideline-recommended medication therapy in a high-risk chronic kidney disease population in the Kidney CHAMP trial**: American Society of Nephrology (ASN) 2023; Philadelphia, PA
  - Susan M. Devaraj, Jonathan Yabes, **Alaa Alghwiri**, Manqi Cai, Linda-Marie Lavenburg, Khaled Abdel-Kader, Manisha Jhamb. **A demographic and community characteristic comparison of advanced chronic kidney disease patients seeing versus not seeing a nephrologist**: American Society of Nephrology (ASN) 2022; Tampa, FL

## **SCHOLARSHIPS**

- Full scholarship including tuition and salary to pursue M.Sc. and PhD at University of Akron

## **TRAINING & CERTIFICATES**

- Computational thinking using Python- 2022 (MITx)
- Introduction to Computer Science and Programming Using Python- 2020 (MITx)
- SQL Tips, Tricks, & Techniques- 2019 (LinkedIn Learning)
- Git Branches, Merges, and Remotes- 2019 (LinkedIn Learning)
- Python for Data Science- 2018 (Udemy)
- Extending Hadoop for Data Science- 2018 (LinkedIn Learning)
- Machine Learning A-Z: Hands on Using R and Python- 2018 (Udemy)
- Learning Git and GitHub- 2018 (LinkedIn Learning)
- Mastering Tableau for Visualization- 2018 (LinkedIn Learning)
- Advanced SQL for Data Scientists- 2017 (LinkedIn Learning)

- Apache Spark for Big Data Applications- 2017 (LinkedIn Learning)
- Machine Learning and AI foundation- 2017 (LinkedIn Learning)
- Practical Data Science in R- Certificate, 2017 (Udemy)
- Advanced Analytics in R for Data Science- 2017 (Udemy)
- R Programming A-Z- 2017 (Udemy)
- AWS Big Data- 2017 (LinkedIn Learning)
- Certified Six Sigma Green Belt, American Society for Quality (ASQ)- 2017
- Rapid Modeling with Simio Intelligent Objects- 2016

## **COMPUTER SKILLS**

- Programming/Scripting: Python, R, Julia, SQL, VBA, Unix/Linux, Git
- Databases: Hadoop, Spark, PostgreSQL, MySQL, Oracle, Apache Cassandra, Mongo DB
- Cloud Services: Digital Ocean, Amazon Web Services, Google Cloud, and Microsoft Azure
- Other Tools: Tableau, Jupyter Notebook, Toad, Ubuntu VM, MS Office, Simio, Jira and Docker

## **SOFT SKILLS**

- Critical Thinking, Curiosity, Problem Solving, Professional Communication, Creativity, Lifetime Learning, Professional Presentations, Public Speaking, Multi-domain Knowledge and Story Telling