Joshua W. Anderson

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Summary

PhD Student in Intelligent Systems with a strong foundation in data science, specializing in bias, interpretability, and causal methods to develop fair, transparent, and effective models for real-world challenges in healthcare and international development. Current research focuses on bias mitigation in clinical decision-making. Passionate about leveraging AI to improve quality of life through robust, transparent, and practical implementations.

Education

PhD	University of Pittsburgh, Intelligent Systems	Expected: Sept 2026
MS	Chapman University, Computational and Data Sciences	May 2022
BS	Chapman University, Computer Science	May 2020

Work Experience

NIH T15 Research Fellow Jan. 2023 to Present
University of Pittsburgh, Pittsburgh, PA

- Evaluate the impact and clinical relevance of fairness metrics in decision support models
- Present findings to interdisciplinary audiences, bridging technical and clinical perspectives
- Publish peer-reviewed research on algorithmic bias & fairness for biomedical informatics

Contract Data Scientist & Graduate Research Assistant Aug. 2020 to Aug. 2022
World Bank & Chapman University, Orange, CA

- Developed multi-source data pipeline using AWS S3 buckets
- Utilized open-source GIS data to measure vulnerability in sub-Saharan Africa
- Managed two undergraduate research assistants

Data Structures & Algorithms Graduate Teaching Assistant Aug. 2021 to May 2022
Chapman University, Orange, CA

- Assist in grading assignments throughout the semester
- Hold TA sessions to review course content and help with questions about lectures
- Be available to students as a resource via email and slack

Statistical Models for Business Graduate Teaching Assistant Aug. 2020 to Dec. 2020
Chapman University, Orange, CA

- Graded problem sets and provide quality feedback to students
- Attended classes to help students get the most out of zoom lectures
- Held office hours to provide homework help and reinforce concepts from lecture

Applications Development & Vulnerability Analyst Intern Mar. 2019 to Aug. 2019
CISOSHARE, San Juan Capistrano, CA

- Built and debugged web application modules using React.js
- Interfaced with NoSQL databases for a web application using RethinkDB
- Applied cybersecurity concepts such as security architecture to application development

Data Analytics Intern Jun. 2018 to Aug. 2018
Ingram Micro, Irvine, CA

- Created SQL and other queries to acquire data accurately and efficiently
- Output insights describing exceptions or significant anomalies from queries
- Fully automated analytics project by configuring a server-based application

Computer Science & Mathematics Tutor Feb. 2017 to Jul. 2017
Oxford Tutoring, Irvine, CA

- Tutored AP Computer Science students to prepare them for coursework and the AP exam
- Taught mathematics to grade school students to assist them in accelerating their education
- Debugged and walked through student projects to help them learn to Java

Teaching Experience

Talks / Guest Lectures:

- [Fall 2025] Machine Learning for Managers @ Chapman University (Orange, CA)
  - Topics in Machine Learning: Algorithmic Fairness
- [Spring 2025] Machine Learning for Managers @ Chapman University (Orange, CA)
  - Topics in Machine Learning: Algorithmic Fairness
- [Spring 2023] ISP Forum @ University of Pittsburgh (Pittsburgh, PA)
  - Using the SHAP Method to Produce Explanations of Predictions in Clinical Alerting Systems
- [Spring 2022] Intro to Data Science @ Chapman University (Orange, CA)
  - Topics in Data Science: Causal Inference

Teaching Assistant:

- [Fall 2021, Spring 2022] Data Structures and Algorithms @ Chapman University (Orange, CA)
- [Fall 2020] Machine Learning for Managers @ Chapman University (Online)
- [Fall 2020] Statistical Models for Business @ Chapman University (Online)

Publications

Papers:

- Anderson, J. W., & Visweswaran, S. (2025). Algorithmic individual fairness and healthcare: a scoping review. *JAMIA Open*, *8*(1), ooae149.
- Anderson, J. W., Shaikh, N., & Visweswaran, S. (2024). Measuring and reducing racial bias in a pediatric urinary tract infection model. *AMIA Summits on Translational Science Proceedings*, *2024*, 488.
- Anderson, J. W. (2022). CausalModels: An R Library for Estimating Causal Effects. *Chapman University*.
- Anderson, J. W., & Rakovsk, C. (2023). An R package for parametric estimation of causal effects. *arXiv Preprint arXiv:2307.08686*.
- Anderson, J. W., Encina, L. I. A., Karippacheril, T. G., Hersh, J., & Stringer, C. (2022). A Topic Modeling Approach to Classifying Open Street Map Health Clinics and Schools in Sub-Saharan Africa. *arXiv Preprint arXiv:2212.12084*.

Awards:

- AMIA Informatics Summit 2024, *Student Paper Award nomination*: “Measuring and Reducing Racial Bias in a Pediatric Urinary Tract Infection Model”
- AMIA Annual Symposium 2023, *Distinguished Poster Award nomination*: “Assessing Racial Bias in Clinical Prediction for Urinary Tract Infections”