Daniel Ruskin

ruskin@umd.edu   danielruskin.github.io

Education

PhD Student, University of Maryland　　　　　　　　　　　　Aug 2025 – Present
Information Studies

Bachelor of Science, Washington University in St. Louis　　　Aug 2021 – May 2025
Computer Science | Second Major: Systems Science & Engineering | Minor: History
GPA: 4.00/4.00

Research Interests

Machine Learning, Network Analysis, Visualization, GIS, Digital History

Publications

1. **Ruskin, D.**, Rasul, R., & McCann-Pineo, M. (2022). Predictors of Emergency Department Opioid Use Among Adolescents and Young Adults. *Pediatric Emergency Care, 38*(8), e1409–e1416.

Research/Professional Experience

The Brent Lab at Washington University in St. Louis　　　　Aug 2023 – Aug 2025
Research Assistant

- Mentors: Michael Brent, PhD | Woo Seok Jung | Sandeep Acharya, PhD
- Mapped networks connecting transcription factors to their target genes in specific human tissues, utilizing an XGBoost model to capture information from various data sources in Python and R.
- Ran machine learning models to produce inputs for XGBoost, parallelized code to reduce runtime of models, and wrote scripts to evaluate results.
- Worked full-time in the lab for ten weeks from Jun 2024 – Aug 2024.

Regeneron Pharmaceuticals　　　　　　　　　　　　　　Jun 2023 – Aug 2023
Molecular Profiling and Data Science Intern

- Mentor: Hyunjin Kim, PhD
- Built user interface in R Shiny for biologists to visualize internal spatial transcriptomics data and run their own machine learning analyses.
- Developed novel approach for visualizing cell-cell interactions using ligand-receptor pairs; incorporated this approach as a tool in the user interface along with tools for visualizing clusters and gene expression.

The Feinstein Institutes for Medical Research at Northwell Health　Apr 2020 – Jun 2021
High School Researcher

- Mentors: Rehana Rasul, MA, MPH | Molly McCann-Pineo, MS, PhD
- Applied machine learning methods in R and SAS to identify predictors of emergency department opioid use among adolescents and young adults.
- Conducted literature search, integrated five machine learning techniques for variable selection, ran weighted logistic regressions to determine associations with opioid use, and performed separate sensitivity analyses to assess differences in patterns between adolescents and young adults.

Presentations

1. Jung, W.J., Acharya, S., **Ruskin, D. (presenter)**, Liao, S., Moghaddam, V.A., & Brent, M.R. (2024). Mapping Transcription Factor Regulatory Networks in Human Tissues Using Ensemble Learning. *Midstates Consortium Undergraduate Research Symposium in the Physical Sciences, Mathematics and Computer Science*. Talk.

2. Jung, W.J., Acharya, S., **Ruskin, D. (presenter)**, Liao, S., Moghaddam, V.A., & Brent, M.R. (2024). Mapping Transcription Factor Regulatory Networks in Human Tissues Using Ensemble Learning. *Undergraduate Research Symposium at Washington University in St. Louis*. Talk.

Course Projects

Contribution to the WashU & Slavery Project   Fall 2024
Anthro 373: Introduction to GIS for Anthropologists

- Digitized and georeferenced St. Louis property data using ArcGIS for the WashU & Slavery Project, a university-wide endeavor to uncover how WashU developed in the context of slavery after it was founded in 1853.
- Collaborated with classmates to create an ArcGIS StoryMap analyzing how prominent WashU affiliates benefited from their ties to slavery.

Assessing Walkability Around WashU   Fall 2024
Engr 310: Technical Writing

- Devised a formula to evaluate the walkability of four neighborhoods near WashU, incorporating travel times to essential locations as well as qualitative information on safety and neighborhood aesthetics.
- Wrote a magazine article providing guidance to WashU students searching for off-campus housing, incorporating novel walkability scores, walk-time maps created in ArcGIS, and interviews with students.

Exploring Algorithmic Bias in Healthcare   Fall 2022
ESE 359: Signals, Data and Equity

- Worked with two classmates to design a website reviewing racially biased algorithms in the healthcare setting, as part of Dr. Neal Patwari's course on recognizing tools of oppression in technology and systems.

Teaching Experience

Introduction to Engineering Design, Washington University in St. Louis   Spring 2023, Spring 2024
Assistant Instructor

- Helped students complete Python projects on the Raspberry Pi by sharing coding tips at weekly office hours and labs.
- Promoted applications on a breadboard, Pi camera, ADC, and motor, culminating in a project involving the autonomous control of a small car.

Introduction to ESE, Washington University in St. Louis   Fall 2022, Fall 2023
Peer Solving Team Leader

- Orchestrated weekly problem-solving sessions with eight students in Introduction to Electrical and Systems Engineering.
- Reinforced linear algebra concepts taught in lectures and guided students through real-world MATLAB assignments, with objectives such as modeling strategies for mitigating COVID spread in Missouri.

Extracurricular Experience

Washington University Design Build Fly Sep 2021 – May 2025
Simulation Development Lead (Sep 2022 − May 2025)

- Led Simulation Development team of eight members and collaborated with five other teams to construct an aircraft for an annual competition.
- Taught team members essential coding skills through work on design optimization, score sensitivity analysis, and flight simulation in MATLAB.

Washington University Sports Analytics Sep 2021 – Feb 2024
Executive Board Member (Jan 2022 − Feb 2024)

- Organized workshops on acquiring and analyzing data to answer intriguing sports questions, each involving a presentation from the executive board and a mini-hackathon in Python or R.
- Hosted a guest speaker from the Texas Rangers in 2023 and competed at the 2022 Society for American Baseball Research Analytics Conference.

Awards

Research Excellence Award Apr 2025
WashU Department of Computer Science and Engineering

- One of three students in the 2025 graduating class selected for excellence in computer science research.

Senior Academic Excellence Award and Antoinette Frances Dames Award Apr 2025
WashU McKelvey School of Engineering

- One of 13 students in the 2025 graduating class with a 4.0 cumulative GPA.

Antoinette Frances Dames Award Apr 2023
WashU McKelvey School of Engineering

- One of 20 students with a 4.0 cumulative GPA after three semesters.