

Brayden Riesberg

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Skills

Programming Languages: Python, C#, C, C++, R, Java, Bash, HTML, CSS, JavaScript

Libraries & Frameworks: .NET, React, NextJS, PyTorch, SQLAlchemy, Pandas, Numpy, LangChain, Matplotlib, Seaborn

Databases: SQL Server, PostgreSQL, MySQL, SQLite

Tools & Systems: Linux, Azure App Services, ROS 2, Gitlab CI/CD, Docker, Arduino

Experience

Construction Engineering Research Laboratory (CERL) - Champaign, IL

Data Scientist

Dec 2024 - Present

- Lead design and development for the Department of War Facility Sustainment (FSRM) Optimization System, a data-driven approach utilizing multi-dimensional tensors and linear programming to manage large budgets for installation managers, saving millions in sustainment costs.
- Creator and maintainer of PySMS, a research-oriented Python library providing civil engineering/data science utilities. Reduced duplicate code and strengthened code quality through unit testing and code reviews.
- Developed and deployed full-stack Facility Investment Plan optimization tool in Azure pulling live U.S Army data into a PuLP linear programming optimizer with a Streamlit frontend. Received the *L. R. Shaffer R&D Outstanding Technical Achievement Award* for this project.

Mathematics and Statistics Analyst

May 2024 - Dec 2024

- Created Power BI analytical dashboard for DoD/E-SMS clients, visualizing key DoD facility data for Army installation managers. Given the *James D. Prendergast Technology Transfer Achievement Award* for this effort.
- Developed research-backed, data-driven Python optimization pipelines based on team members' ASCE publications and facility condition-related metrics.
- Research in deep neural networks, RAG, CNNs, and other AI/ML technologies for use in automated facility inspections and condition assessments. Development in ROS 2 to apply research within the robotics domain.

Prairie Rivers Network - Champaign, IL

Data Assistant

Jul 2023 – Aug 2023

- Boosted workplace efficiency, developing a hierarchical system to aid employees in efficiently organizing, retrieving, and publishing data and digital media.
- Created a resource aid outlining this system for employees to refer to when dealing with data.

Education

University of Illinois Urbana-Champaign

2020 - 2024

- B.S. in Information Sciences, Minor in Music. GPA: 3.87/4.00. Dean's list. Marching saxophone Illini squad leader.