

Braden Lockwood

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EXPERIENCE

• Software Engineer

Kiewit

October 2023 - Present

- Developed a company-wide safety app using React and TypeScript, streamlining the management of construction job safety processes to 2,000 daily users,.
- Managed the data and API within the safety app utilizing Python and Django, employing its ORM and REST framework.
- Proficient in SQL, efficiently interacting with complex stored procedures for efficient data querying.
- Effectively managed CI/CD pipelines using Azure DevOps and demonstrated a solid foundation in Azure for robust software deployment.
- Initiated the adoption of E2E and Integration testing strategies, enhancing software reliability and testing efficiency in the department.
- Implemented effective branching strategies in Git to optimize team collaboration and workflow management.

• Machine Learning Engineer

Kiewit

January 2023 - October 2023

- Engineered a Numpyro Bayesian Regression model, predicting equipment costs with 75% accuracy and providing uncertainty estimates, enhancing strategic bidding and contract wins across U.S. transportation departments.
- Trained a series of XGBoost models using hand-crafted features to boost performance and optimized hyperparameters for efficient training.
- Pioneered a department-wide initiative at Kiewit by executing an automated data scraping strategy, resulting in over 9,000 engineering contracts being collected and subsequently utilized for a pivotal transportation cost prediction model.

• Software Engineer Intern

Kiewit

May 2022 - August 2022

- Improved project management at Kiewit by developing an Angular-based web application, simplifying real-time tracking and storage of project requirements.
- Developed secure C# .Net APIs facilitating the storage and retrieval of project-specific images and sensitive data, enhancing the efficiency and security of data management.
- Established SQL databases using Entity Framework Core and database migrations for process simplification.
- Collaborated in an Agile software development team to produce efficient code.

PROJECTS

• Stython

A Compiler for Python

- Implemented a Hand-Coded Scanner using C++
- Designed the language using a series of regular expressions.

• NanoGrad

A Smaller Implementation of Pytorch

- Initiated and developed a custom machine learning framework to deepen understanding of PyTorch internals.
- Employed Python for user interaction with the framework, emulating PyTorch's easy-to-use interface.
- Utilized modern C++ for the backend, optimizing matrix multiplication operations and memory management with smart pointers.
- Bridged Python frontend with C++ backend using ctypes library, and managed compilation with CMake, ensuring smooth and efficient performance.

• Drewgon

A Compiler Implemented in C++

- Implemented the Scanner and Parser by using Flex and Bison.
- Optimized the intermediate representation using techniques such as dead code elimination and constant propagation
- Generated Assembly code for the x64 ISA, optimizing for efficient code by utilizing the memory zones.

EDUCATION

• University of Kansas

B.S. Computer Science

August 2018 - December 2022

SKILLS SUMMARY

- **Languages** TypeScript, Python, Go, SQL, C#, C++
- **Frameworks** React, Tanstack Query, Django, Numpy
- **Tools** Git, SQL Server, Linux, Azure DevOps, Azure Pipelines