

# Will Forman

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## EDUCATION

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### Purdue University

Computer Engineering

May 2023

West Lafayette, IN

- **Concentration:** Computer Systems
- **Relevant Coursework:** Data Structures & Algorithms; Operating Systems; Computer Networking; Compilers
- Bioinformatics Club: Co-Founder and Executive Board member

## WORK EXPERIENCE

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### Meta (Facebook) - Software Engineer Intern

May 2022 - Aug. 2022

- Wrote C++ CLI test runner for Instagram's **100k unit tests** to replace old test runner *Menlo Park, CA*
- **Invoked 100+ times daily**, by automated code reviews and by engineers to test their changes locally
- **Improved performance by 2x** over old test runner, decreasing time and resource usage
- Eliminated flaky tests due to global state by running each test in its own process, leading to improved reliability
- Implemented multi processing system using Linux system calls: fork, waitpid, and kill
- Interfaced with Python code from C++ using CPython bindings for encoding and decoding Python types
- Investigated incremental bootstrap that loads data in manager process, then is COW into each worker process
- Took project ownership by meeting with stakeholders and producing quality code (low iterations in code review)

### Purdue University - NSF REU Research Assistant

Aug. 2022 - Current

- Improving efficiency of datacenter task scheduling by overcommitting resources
- Collaborating with Google Cloud Infra team, using simulator that mimics Google's production system
- Building big data pipeline with Apache Drill to train machine learning model with **30 TB of data**

### Amazon - Software Development Engineer Intern

May 2021 - Aug. 2021

- Created asynchronous processing job to be run daily to fix a critical bug some customers faced *New York, NY*
- Queried data from **10M row SQL table**, processed them in Java Spring using concurrency patterns
- Increased reliability with rate limiting for calling other services, load testing, and metrics + alarms
- Executed AB test to fix a different customer pain point, leading to a revenue increase

### Beat the Book Inc. - Backend Tech Lead

Aug. 2021 - May 2022

- Architected Typescript backend for betting social media platform, and deployed with Docker + AWS *Virtual*
- Designed PostgreSQL database schemas and custom authentication to support the application
- Interacted with 3rd party API to get real time sports data for use in the application

## PROJECTS

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### Chess Engine + Multiplayer Platform

Working on Jul. 2022 - Current

- Executes simple chess engine using Rust with minimax + alpha-beta pruning *Elixir, Rust*
- Arranges Phoenix Liveview website with multiplayer server, and communicates with Rust using NIF library

### Level 7 Load Balancer

Worked on Jun. 2022 - Jul. 2022

- Implemented load balancer for HTTP requests with Round Robin and Least Connections algorithms *Go*
- Checks health actively of hosts using multi-threading, to improve reliability of load balancer

### JOS Operating System

Worked on Jan. - Apr. 2022

- Designed OS with exercises from MIT 6.828, with preemptive multi-tasking and multi-level paging *C*

## SKILLS

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- **Languages:** Java, C/C++, Javascript, Python, Rust, Go, SQL
- **Technologies/Other:** Linux, Git, Algorithms and Data Structures, React, Spring, Express, Docker, PostgreSQL, AWS, Systems Programming, Distributed Systems