Will Forman

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EDUCATION

Purdue University   **May 2023**
Computer Engineering   *West Lafayette, IN*
- **Relevant Coursework**: Data Structures & Algorithms; Operating Systems; Computer Networking; Compilers; Artificial Intelligence; Microprocessors; Linear Algebra; Probability
- Bioinformatics Club: Co-Founder and Executive Board member

WORK EXPERIENCE

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** every time changes are made to Instagram servers
- **Improved performance by 2x and reliability to 100%**, reducing server costs and speeding up execution
- Took ownership and drove impact by meeting with stakeholders and coming up with new features
- Implemented multi processing system where every test runs in it's own process using Linux system calls
- 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
- Investigated bootstrap that initially loads data in manager process, leading to further performance improvement

Amazon - Software Development Engineer Intern   **May 2021 - Aug. 2021**
- Solved critical bug that some customers faced by creating a daily asynchronous processing job   *New York, NY*
- Added new frontend feature to fix a different issue and executed an AB test, leading to a revenue increase
- Queried data from **10M row SQL table**, processed them in Java Spring using concurrency patterns
- Increased reliability with rate limiting for calling other microservices, load testing, and metrics + alarms

Purdue University - NSF REU Research Assistant   **Aug. 2022 - Current**
- Apply machine learning to increase the performance of distributed systems in datacenters   *West Lafayette, IN*
- Collaborating with Google Cloud Infra team, using simulator that mimics Google's production system
- Building big data pipeline with Hadoop and Apache Drill to train machine learning model with **30 TB of data**

Beat the Book Inc. - Backend Tech Lead   **Aug. 2021 - May 2022**
- Architected Typescript Express backend for betting social media, and deployed with Docker + AWS   *Virtual*
- Mentored engineers new to our tech stack and created tickets to drive development of our backend
- Designed PostgresSQL 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

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

- **Languages:** Java, C/C++, Javascript, Python, Rust, Go, SQL
- **Technologies/Other:** React, Express, Spring, Docker, Linux, Git, AWS, DS&A, Distributed Systems