

RYAN HEISE

West Lafayette, IN

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Education

Purdue University

GPA: 3.5/4.0

August 2020 – December 2024

B.S. in Computer Science & Minor in Mathematics

West Lafayette, IN

Relevant Coursework: Data Structures & Algorithms, Analysis of Algorithms, Graduate Statistical Machine Learning, Operating Systems, Compilers, Systems Programming, Computer Security, Computer Architecture, Cryptography

Experience

CS252 (Systems Programming) | Undergraduate TA

January 2023 – May 2023

West Lafayette, IN

C, C++, LaTeX

- Led two lab sections, guiding students in implementing advanced C++ projects, including malloc, a standard shell, and a web server, fostering skill development and project success
- Designed effective assignments and exams to enhance student comprehension of course material

CACI | Software Engineering Intern

May 2022 – August 2022

Lisle, IL

Proxmox, Ghidra, PostgreSQL

- Implemented and deployed honeypot servers to capture and analyze attacker behavior at scale
- Engineered a data pipeline processing over 100 million packets to extract feature sets for machine learning models
- Configured Linux routing and iptables to isolate and sanitize networks for secure malware analysis

Youndle LLC | Co-Founder

August 2020 – August 2021

Valparaiso, IN

Django, React, AWS

- Developed a React/Django app that streamlined the communication between small businesses and local teenage workers
- Deployed the app on AWS EC2 with PostgreSQL RDS for scalable, secure hosting and maintenance
- Selected for the Purdue Boiler 2021 startup accelerator, iterating MVP features and validating market fit

Projects

Mini Java Compiler | C++, Lex, Yacc

May 2023

- Built a compiler translating a Java subset to optimized 32-bit ARM assembly using Lex & Yacc for AST construction
- Abstracted parsing operations into modular abstract classes for efficient, maintainable code generation

Clipy: An Automated Shorts Editor | Python, PyTorch, OpenAI API

April 2025

- Generated 100,000+ YouTube views with an automated deep learning video editing pipeline
- Used Whisper, ChatGPT, S3FD, TalkNet, and FFmpeg for transcription, highlights, tracking, detection, and rendering

Heise Powless Pickem | Python, Django, React, Nginx

August 2024

- Developed a ReactJS web app that communicated with a Django REST API to manage an annual football league
- Implemented a complete JWT-based authentication system for managing user accounts and dynamic user data

Secure Voting System | Python, Digital IDs, Asymmetric Cryptography

October 2024

- Designed modular election system using homomorphic encryption for secure, local vote tallying
- Utilized digital IDs and asymmetric cryptography to ensure end-to-end verifiability, voter privacy, and scalability

Active Learning Research Project | PyTorch, Numpy, Pandas

December 2023

- Developed an active learning framework to evaluate sampling and querying strategies across diverse models and datasets
- Compiled findings into a survey-style report, comparing performance metrics and recommending optimal approaches

Custom C++ Web Server Built on Raw System Calls | C++, Linux

December 2021

- Engineered a C++ server with raw system calls and socket programming to serve HTML and image files over HTTP
- Utilized both multiprocessing and multi-threading designs to optimize concurrency and throughput

Technical Skills

Languages: (Proficient) Python, C++, JavaScript, C, HTML, CSS (Familiar) x86 & Arm Assembly, Java, Bash

Technologies/Frameworks: ReactJS, NodeJS, AWS, Git, GitHub, PyTorch, NumPy, Pandas, Django, Linux

Awards & Certifications: AWS Partner Technical Accreditation; 1st Place Purdue Hello World Hackathon (Out of 55); 2nd Place Purdue Data Mining Competition (Out of 93)