David M. Perry

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github.com

EDUCATION

Purdue University
M.S. in Computer Science
Spring 2019
West Lafayette, IN

University of Kentucky
B.S. in Computer Science
Spring 2013
Lexington, KY

SKILLS

Languages
C • C++ • Python • Assembly
Java • Ruby • Javscript/Typescript • R
• Go LaTeX• HTML • CSS • MySQL

Environments
Linux • Windows • Android
OpenBSD

Libraries/Tools
React • git • NextJS
NestJS • React Native •
Angular • NodeJS • IDA
GCloud • Microsoft Azure

COURSEWORK

Graduate
Software Engineering
Operating Systems
Security
Automated Program Reasoning
Parallel Computing
Networking
Compilers
Algorithms
Modeling and Simulation

Undergraduate
Software Engineering
Operating Systems
Security
Networks
Programming Languages
Algorithms
Theory of Computing
Artificial Intelligence

EXPERIENCE

Curtain Call LLC | Founder and Software Engineer
2022 – Present | Louisville, KY

As a full-stack software engineer, I developed and maintained, Curtain Call, a SaaS platform for venues to manage their events, ticket sales, and customer relationships. The platform is fully hosted in the cloud using multiple google services including: Cloud Run, Cloud Build, Cloud Storage, Cloud Functions, and Firebase. Over the last year, the platform has sold over over 50,000 tickets and processed over $1,000,000 in ticket sales.

- **Admin Dashboard:** created an advanced admin dashboard using Next.js and TailwindCSS. This dashboard allows venue operators to efficiently create and manage their events, oversee ticket sales, and handle customer support operations
- **Customer Website:** Developed a customer-oriented website using Next.js and TailwindCSS, which features a secure ticket purchasing system through Stripe.
- **Backend Server:** Implemented a robust server using NestJs to manage all backend functionalities, including event coordination, ticket inventory control, customer service workflows, and email dispatch for ticket distribution via Sendgrid API.
- **Javascript Widget:** Created a JavaScript widget that can be embedded seamlessly into any website. This widget automatically updates with event details and ticket availability, facilitating event promotions directly on venue websites.
- **Mobile App For Ticket Verification:** Developed a mobile application using React Native that enables venue staff to scan ticket QR codes using either the device's built-in camera or an external Bluetooth scanner.
- **Automated Reporting with Google Cloud Functions:** Utilized Google Cloud Functions and Google Cloud Tasks to establish automated cron jobs. These jobs periodically send detailed reports to venue owners and artist managers.

InfoBeyond LLC | Software Engineer and Operations Manager
2019 – 2022 | Louisville, KY

I worked as a software engineer to develop and maintain a Software as a Service (SaaS), Preworkscreen for companies to manage their employees's health and safety during the COVID-19 pandemic. Additionally, I worked on variouis SBIR and STTR research projects awared to the company by the DoD, DoE, NSF, and NIST.

- **Preworkscreen**
  - Designed and implemented all of the platform's marketing website using HTML, CSS, and C# Razor Pages.
  - Implemented customer-specific requirements, including custom questionnaires, reports, and branding, through code modifications and MySQL database updates.
  - Managed SOC II accreditation in a Microsoft Azure environment, enhancing security through strict backup policies, advanced malware analysis, and robust authentication controls. Additionally, I enforced workplace policies covering password management, document control, and employee training to ensure compliance and data protection.
  - Helped grow the platform from 0 to 2,000 paying customers with monthly subscriptions.

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EXPERIENCE (CONTINUED)

- **SBIR/STTR Projects**
  - Security Policy Tool- Developed a system that allows engineers to create and enforce security policies on their platforms to ensurce compliance with National Institute of Standards and Technology (NIST) federal access control requirements: NIST SP 800-192, 800-162, NISTIR 7316, NISTIR 7874, SP 800-37, and SP 800-53/53A.
  - VehChain- Developed an intra-vehicle cybersecurity program for validating communications between trusted and entrusted vehicle control systems. The system secures, authenticates, and responds to threats in a distributed way using blockchain technologies.

Purdue University | Research Assistant

2014 – 2019 | West Lafayette, IN

Worked with advisors, Xiangyu Zhang and Roopsha Samanta, researching topics in the field of software engineering, programming languages, and program verification.

- **Symbolic Execution Optimizations**
  - Found optimizations that drastically reduce the time required to symbollically execute programs that are control dependent on large arrays
  - Implemented optimization in the symbolic execution engine KLEE
- **Program Clustering**
  - Implemented a tool, SemCluster, that leverages machine learning and program semantics to classify programs based on their bugs and implementation strategies

MIT Lincoln Laboratory | Summer Intern

Summer 2014, 2015 | Lexington, MA

Worked with advisor Hamed Okhravi in the Cyber Analytics and Decision systems group to develop a tool, TRACER, for defending against information leaks and memory disclosures.

Purdue University | Teaching Assistant

2014 – 2018 | West Lafayette, IN

- Intro. to C Programming (Fall 2018)
- Graduate Software Engineering (Fall 2017)
- Software Testing (Spring 2017)
- Networking (Spring 2014)

Sandia National Laboratory | Cyber Defenders Intern

Summer 2012 | West Lafayette, IN

Worked with a team of interns researching malware detection, genetic programming algorithms, and super computer simulations.

PUBLICATIONS

Perry, D. M., Kim, D., Samanta, R., & Zhang, X. (2019, June). SemCluster: Clustering of Imperative Programming Assignments Based on Quantitative Semantic Features. In Proceedings of the 40th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI '19). ACM.

You, W., Liu, X., Ma, S., Perry, D., Zhang, X., & Liang, B. (2019, May). SLF: Fuzzing without Valid Seed Inputs. In Proceedings of the 41st International Conference on Software Engineering (ICSE '19). ACM.

Perry, D. M., Mattavelli, A., Zhang, X., & Cadar, C. (2017, July). Accelerating array constraints in symbolic execution. In Proceedings of the 26th ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA '17). ACM.

Huang, J., Aafer, Y., Perry, D., Zhang, X., & Tian, C. (2017, October). UI driven Android application reduction. In Proceedings of the 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE '17). IEEE Press.

Kim, D., Kwon, Y., Liu, P., Kim, I. L., Perry, D. M., Zhang, X., & Rodriguez-Rivera, G. (2016). Apex: Automatic Programming Assignment Error Explanation (OOPSLA'16). ACM.