Zac Freeman
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## Education

**B.S. in Physics | Florida State University** **August 2014 - December 2017**

- GPA: 3.889
- Minor: Mathematics
- Additional Coursework: Data Structures and Algorithms, Partial Differential Equations, Communication in Physics

## Experience

**Systems Engineer | AutoZone** **January 2020 - Present**

- Updated a custom Qt/C++ time clocking software to prompt employees with surveys to meet California payroll compliance, recovering $2,000,000 a year in penalties
- Hardened C++ payment processing software handling $5B a year across 20,000 devices
- Served as the final reviewer for large changes (∼10,000 lines) to the C++ software in the stores
- Collected, analyzed, and presented the performance impact of introducing Docker to the store environment using Bash, Perl, and LaTeX, respectively
- Used Python to enable internal dependency management and automate integration testing for build and deploy pipelines
- Trained a cohort of incoming systems engineers to traverse and troubleshoot a network of systems running a custom Linux distribution
- Increased visibility into store systems by configuring rsyslog and Filebeat to upload events from the registers to a central server

**Software Developer II | Frontdoor** **October 2018 - December 2019**

- Led the software development for a security initiative, implementing reCAPTCHA for login and registration, session token handling, email verification, and ADFS SSO into a legacy ATG B2B site
- Integrated a 3rd party payment processor to meet new PCI standards for a legacy ATG B2B site
- Designed and built a microservice with Go and Docker to enable B2B clients to place orders in database without interacting with legacy ATG B2B site

**Research Assistant | UAH Heliophysics** **May 2017 - August 2017**

- Created a model of gamma rays in a magnetic trap with the goal of reproducing real world data
- Used C++, CUDA, and the Runge-Kutta method to simulate many parallel gamma ray systems on various NVIDIA GPUs
- Analyzed data produced to discover novel behavior of cosmic rays inside expanding magnetic traps

**Research Assistant | FSU Math Department** **June 2016 - August 2016**

- Used MATLAB and numerical methods for partial differential equations to simulate the flow of two liquids and analyze the physical accuracy of the data using energy conservation and the maximality principle
- Results from simulations contributed to the paper *Maximally Preserving Finite Difference Schemes for the Allen-Cahn Equation using Operator Splitting*, presented at SIAM-SEAS 2017

## Skills

**Languages** C++, Python, LaTeX, CUDA, MATLAB, Perl, Javascript, Redstone
**Software** Linux, Qt, git, Docker