

Madison Hanberry

SOFTWARE ENGINEER · CLOUD AUTOMATION EXPERT · PHYSICS RESEARCHER

Seattle WA, USA

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Skills

Programming Languages

Typescript, Node.js/Javascript, Python, C/C++, Rust, JAVA, PHP, OCaml, \LaTeX , Bash, Fortran, Matlab, ARM/NASM Assembly

Web Technologies

HTML, CSS, Angular, React, modular.js, REST/GaphQL API development, CGI web backend implementation

Infrastructure Automation

Serverless, Terraform, Ansible, Docker, Kubernetes, Bazel, GitHub Actions, CircleCI, Jenkins, VMware vSphere

Cloud Platforms

Amazon AWS, Microsoft Azure, Google Cloud, Digital Ocean

Experience

Amazon

SOFTWARE DEV ENGINEER II

Seattle, Washington

December 2022 - PRESENT

- Designed and implemented a platform to accelerate Amazon's business expansions
- Achieved an 80% reduction in operation cost and a 30% increase in velocity of expansion operations
- Designed and implemented a platform to optimize and redistribute teams based on skill level and location
- Reduced team reorganization lead time from months to weeks

Very Good Security

SENIOR SOFTWARE ENGINEER

Seattle, Washington

March 2022 - December 2024

- Implemented and brought to market a file processing and obfuscation product for enterprise customers
- Implemented a standardized approach to IaC and CI/CD with company-wide impact
- Overhauled the company's observability stack for 60% cost savings and increased reliability

Home Depot

SENIOR SITE RELIABILITY ENGINEER

Seattle, Washington

March 2021 - March 2022

- Maintained Google Cloud Infrastructure and Policies
- Implemented IaC for production and non-production environments using Terraform
- Implemented continuous integration pipelines using Circle CI
- Implemented continuous deployment pipelines to Google Kubernetes Engine clusters using Harness and Spinnaker

Symetra

SENIOR FULL STACK ENGINEER

Seattle, Washington

September 2020 - March 2021

- Created an automated insurance approval system
- Built an entire platform on AWS technologies utilizing Serverless
- Implemented a machine learning to aid in the evaluation of insurance candidates
- Developed a distributed blockchain ledger to track contract history

AppyMeal

CO-FOUNDER & LEAD SOFTWARE ENGINEER

Seattle, WA & Atlanta, GA

April 2019 - PRESENT

- Designed and implemented everything in the AppyMeal app (frontend, backend, payment processing, identity management, PCI compliance, etc.)
- Automated the server infrastructure for hands-off maintenance and lean operation
- Led a team of 6 developers and designers
- Successfully Launched on Google Play and Apple App Store

AIM Consulting

CLOUD ENGINEERING AND SOFTWARE DEVELOPMENT CONSULTANT

Seattle, Washington

June 2020 - September

- Worked on creating a FHIR-compliant REST api for Medinformatix
- Built serverless endpoints on AWS Lambda
- Implemented a go-forward CI/CD solution built on Cloudformation, CodeBuild, and Codepipeline

Fiserv

Atlanta, Georgia

CLOUD AUTOMATION ENGINEER

Aug. 2017 - June 2020

- Led the design and implementation of Fiserv's hybrid-cloud platform
- Created cloud-agnostic solutions to standardize infrastructure-as-code for Azure, AWS, GCP, and vSphere
- Deployed and managed multi-cloud Kubernetes clusters utilizing vanilla Kubernetes, Azure Kubernetes Service, Amazon EKS, Google Kubernetes Engine, and Rancher
- Deployed and managed additional container solutions including Docker Swarm and Pivotal Cloud Foundry
- Engineered standardized CI/CD solutions based on Jenkins, Azure Pipelines, and GitLab CI
- Contributed to design and delivery of the IaaS platform
- Created a self-service portal for the Fiserv Enterprise Hybrid Cloud
- Main contributor for cloud integration efforts during the Fiserv and First Data merger
- Created a chatbot from scratch to offload common support and DevOps tasks

Georgia State University Center for Nano-Optics (Dr. Alexander Kozhanov)

Atlanta, Georgia

STAFF SPINTRONICS RESEARCHER

Jan. 2015 - May 2018

- Designed a non-volatile base-six computer processor utilizing directional anisotropy in nanomagnetic triangle arrays
- Designed and implemented experiment-control interfaces
- Created software for fractal dimension analysis of magnetic domains
- Automated image analysis of MOKE microscopy footage
- Designed and simulated nanomagnetic interfaces

Georgia State University Center for Excellence in Teaching and Learning

Atlanta, Georgia

STUDENT INNOVATION FELLOW

July 2016 - July 2017

- Engineered software solutions for research teams at collaborating universities
- The subject matter was diverse and included the following:
 - Diabetes Treatment
 - Cognitive Development
 - Political Science
 - Literature and Language Analysis

Patents & Grants

PATENTS

Nanomagnetic Data Storage and Processing Device, PAT7869586

GRANTS

Trimagnetix - A Non-Volatile Low-Power Processor, NSF SBIR Grant

Notable Open Source Contributions

NMAG Nanomagnetic Simulator

nmag.soton.ac.uk/nmag

MAINTAINER & CONTRIBUTOR

2017 - PRESENT

- NMAG is a nanomagnetic simulator that has been cited in over 300 publications.
- Wrote a patch in 2017 that allowed it to be compiled easily with a modern software stack on Linux
- Continued maintaining said patch in the coming years.
- The patch saw significant use and led the creator of NMAG (Hans Fongohr), to ask if I would like to become the maintainer of the project in 2019.
- Since becoming the project maintainer, I have made the following contributions:
 - Worked to port the project off of the southampton.edu servers
 - Containerized the application using the Singularity container platform
 - Worked to modernize the codebase.

Modular.js Framework

berrybuilder.com

CREATOR & MAINTAINER

2018 - PRESENT

- Addressed the need for a light-weight way to distribute website components
- Implemented advanced caching and cache-baking to achieve native performance
- Integrated code isolation so that modular.js can coexist with all other code and frameworks without modification

Education

Georgia Tech (Georgia Institute of Technology)

Atlanta, Georgia

M.S. IN COMPUTER SCIENCE WITH A FOCUS IN COMPUTER ARCHITECTURE

2023

- Constructed a hypervisor management daemon using libvirt
- Implemented extensive processor caching mechanisms for MIPS emulation
- Analyzed and created a patch for malware within a sandboxed environment

Georgia State University

Atlanta, Georgia

B.S. IN COMPUTER SCIENCE WITH A FOCUS IN THEORETICAL COMPUTER SCIENCE

2018

- Received awards for research and academic excellence
- Staff researcher in Dr. Alexander Kozhanov's spintronics research lab
- Contributed to numerous research teams across multiple disciplines including:
 - Spintronics
 - Cancer Cell Migration
 - Diabetes Treatment
 - Cognitive Development
 - Political Science
 - Literature and Language Analysis

Awards & Certifications

CERTIFICATIONS

2021 **Google Cloud Architect**, GCA Exam October 2021

Seattle, WA

2019 **Google Cloud Engineer**, GCE Exam at Google Next 2019

San Francisco, CA

AWARDS

2016 **Best Oral Presentation**, GSURC for the presentation of *Triad Computing*

Atlanta, Georgia

2016 **Who's Who Among Students**, Georgia State University for academic excellence

Atlanta, Georgia

2014-18 **Honor Roll**, Georgia State University

Atlanta, Georgia

Presentations

Switching Dynamics in Triangular Nanomagnets

New Orleans, Louisiana

FIRST AUTHOR & PRESENTER, AMERICAN PHYSICAL SOCIETY MARCH 2017 MEETING

March 2017

- Unveiled simulation results of complex triangular nanomagnetic systems
- Detailed how said systems could be used to implement a non-volatile base-six processor

Dzyaloshinskii-Moria Interaction in CoNiPt Tri-Layer Heterostructures

New Orleans, Louisiana

SECONDARY AUTHOR, AMERICAN PHYSICAL SOCIETY MARCH 2017 MEETING

March 2017

- Detailed experimental observation and analysis of the DMI effect in a CoNiPt sample

Magnetization Reversal Dynamics in CoNi Heterostructures

New Orleans, Louisiana

SECONDARY AUTHOR, AMERICAN PHYSICAL SOCIETY MARCH 2017 MEETING

March 2017

- Detailed experimental observation and analysis of magnetization reversal in various CoNi samples

Spin Waves Propagation in Structured Magnetic Films with Perpendicular Magnetic Anisotropy

New Orleans, Louisiana

SECONDARY AUTHOR, AMERICAN PHYSICAL SOCIETY MARCH 2017 MEETING

March 2017

- Detailed results and analysis of spin wave simulation in thin magnetic films
- Summarized the potential for applications in computer logic

Triad Computing

Atlanta, Georgia

FIRST AUTHOR & PRESENTER, 2016 GEORGIA STATE UNIVERSITY UNDERGRADUATE RESEARCH CONFERENCE

March 2016

- Outlined the potential for higher-base computing using novel magnetic approaches, particularly the use of nanomagnetic triangles, or *triads*
- This was awarded first place for *Best Oral Presentation*