# Madison **Hanberry**

SOFTWARE ENGINEER · CLOUD AUTOMATION EXPERT · PHYSICS RESEARCHER

*Seattle WA, USA*

✉ mhanberry1@gmail.com | ⬛ mhanberry1

## Skills

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|---|---|
| **Cloud Platforms** | Amazon AWS, Microsoft Azure, Google Cloud, Digital Ocean |
| **Infrastructure Automation** | Terraform, Ansible, Docker, Kubernetes, VMware vSphere, vRealize Automation, vRealize Orchestrator, NSX Firewall, F5 Load Balancers, BlueCat DNS, Enterprise and Non-Enterprise GNU/Linux Systems, AIX |
| **Programming Languages** | Python, C/C++, JAVA, Node.js/Javascript, PHP, OCaml, LaTeX, Bash, Fortran, Matlab, ARM/NASM Assembly |
| **Web Technologies** | HTML, CSS, jQuery, angular.js, react.js, modular.js, CGI web backend implementation, REST API implementation |
| **Database Systems** | SQL, REDIS, MongoDB |

## Experience

### Very Good Security
*Seattle, Washington*

SENIOR SOFTWARE ENGINEER · *March 2022 - PRESENT*

- 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 observabiliy stack for 60% cost savings and increased reliability

### Home Depot
*Seattle, Washington*

SENIOR SITE RELIABILITY ENGINEER · *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
*Seattle, Washington*

FULL STACK ENGINEER · *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
*Seattle, WA & Atlanta, GA*

CO-FOUNDER & LEAD SOFTWARE ENGINEER · *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
*Seattle, Washington*

CLOUD ENGINEERING AND SOFTWARE DEVELOPMENT CONSULTANT · *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 implemtation 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-volitile base-six computer processor utilizing directional anisotropy in namomagnetic 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

## 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 component
- Implemented advanced caching and cache-baking to acheive 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
**B.S. in Computer Science wit a focus in Theoretical Computer Science**

*Atlanta, Georgia*

*2018*

- Received awards for research and academic excellence
- Staff researcher in Dr. Alexander Kozhanov's spintronics research lab
- Contributed to numerous research teams accross 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
First Author & Presenter, American Physical Society March 2017 Meeting

*New Orleans, Louisiana*

*March 2017*

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

### Dzyaloshinskii-Moria Interaction in CoNiPt Tri-Layer Heterostructures
Secondary Author, American Physical Society March 2017 Meeting

*New Orleans, Louisiana*

*March 2017*

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

### Magnetization Reversal Dynamics in CoNi Heterostructures
Secondary Author, American Physical Society March 2017 Meeting

*New Orleans, Louisiana*

*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
Secondary Author, American Physical Society March 2017 Meeting

*New Orleans, Louisiana*

*March 2017*

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

### Triad Computing
First Author & Presenter, 2016 Georgia State University Undergraduate Research Conference

*Atlanta, Georgia*

*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*