

M. COOPER HEALY

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EDUCATION

2019 **Bachelor of Science, Computer Science**
Missouri University of Science and Technology, Rolla MO
GPA: 3.5/4.0, Major GPA: **3.9/4.0**
Cum Laude

RESEARCH EXPERIENCE

2018 **Research Assistant — Data Science**
2017 *Dr. Gayla Olbricht*, Missouri University of Science and Technology

- Looked for statistical connection between certain alleles and presence of alzheimer's disease
- Analyzed neuroimaging datasets to look for relationship between age and SOD2 allele
- Tested for differences in structures and SOD2 status using multivariate analysis of covariance
- Measured five different aspects of white matter structural integrity by analyzing DTI data
- Co-authored a paper describing the project and presented research to a board of peers
- Collaborated with other scientists to ensure research aligned with existing work
- Performed statistical analysis over several gigabyte dataset using Numpy, Pandas, and R

ASSOCIATIONS

2016-2019 **Missouri University of Science and Technology Underwater Robotics Team**
2017-2018 **Missouri University of Science and Technology Sig-Game**
2015-2016 **American Nuclear Society**

WORK EXPERIENCE

— **Senior Software Engineer**
2023 *Copper Labs*, San Fransisco CA

- Designed and implemented distributed job system to parallelize computation
- Restructured microservices in a serverless pattern, greatly reducing runtime cost
- Worked directly with product manager to adapt to changing requirements based on user feedback
- Brought brand-new product to public launch seamlessly
- Worked with Designers and front-end engineers to adapt to changing usage requirements
- Performed time-series data analysis to determine meaningful parameters for user's relationships
- Developed comprehensive analysis tool for client relationship insights
- Integrated new analysis tool with existing infrastructure to increase application's ability to respond to user needs
- Developed internal tools to prevent common issues in development and deployment of distributed system

Tech *Go, Julia, gRPC, Docker, Kubernetes, Kafka, DynamoDB*

2023	Software Engineer	
2021	<i>C2FO</i> , Leawood KS	<ul style="list-style-type: none"> Developed AWS Lambda functions in Python as part of a completely event-driven architecture Developed core NestJS-based design for microservices to follow Migrated backend from event-driven architecture to distributed microservices Created testing suite for entire suite of microservices, reducing service fragility and downtime Created team standards for code quality and test coverage, enforcing them with GitHub Actions Created injectable, distributed authentication system for both internal and external users Architected and owned use of Multi-Factor Authentication site-wide Owned and standardized design and use of data access layer across microservices with Prisma Designed and implemented cardholder signup workflow and dataflow Automated process to search all customers and extend line-of-credit offers with Python Coordinated with Data Engineers to ensure that queries were performant and concise Created API allowing tool for generating line-of-credit offers to be triggered by internal tool Created cardholder onboarding page in react, working with design team and ops team to ensure a pleasant customer experience Led other junior engineers in planning and executing work Brought CashFlow+ Card from ideation to production in 9 months Worked closely with product teams to shape and prioritize work Created and maintained connective APIs with third party vendors, ensuring stability of service
Tech	<i>TypeScript, React, Python, PostgreSQL, AWS Lambda, Docker, Kubernetes, NestJS, Kafka, RabbitMQ</i>	
2021	Software Engineer II	
	<i>Garmin International</i> , Olathe KS	<ul style="list-style-type: none"> Added authentication for integration tests, removing the need to store credentials Wrote new layer to allow use of SSL in customer-device authentication Secured internal endpoints on production services by adding secured connective layer Wrote custom application-layer API handling in C++ to allow for more complex internal API usage Updated server to handle requests for map data by customer navigation devices in C++ Owned and maintained authentication system for all incoming traffic from customer navigation devices Diagnosed issues with route-planning AI by dissecting graph datastructure to find integrity issues
Tech	<i>C++, Boost, PostgreSQL, Docker, QEMU</i>	
2021	Software Engineer / DevOps Liason	
2020	<i>Service Management Group</i> , Kansas City MO	<ul style="list-style-type: none"> Developed tools to monitor and diagnose data quality issues on a large scale Mitigated client-impacting issues with data quality in a timely and permanent manner Redesigned messaging architecture for critical and high load infrastructure applications Owned and maintained orphaned projects and updated and upgraded them to fit new standards Wrote Python tool to analyze millions of records of data to determine source of data issues Created infrastructure to automate future data-integrity analysis, severely reducing workload Updated all data-accessing code to be parallelized and performant Added tests to all legacy code to allow for more stable iteration and improvement
Tech	<i>C#, PostgreSQL, Kafka, RabbitMQ, elasticsearch, TypeScript, AngularJS</i>	
2020	Software Engineer	
2019	<i>Cboe Global Markets</i> , Lenexa KS	<ul style="list-style-type: none"> Designed scalable software to automate analysis of market data Prioritized business logic by representing consumers of analysis in design discussions Managed the migration of hundreds of scripts to improved analysis framework Promoted TDD for all new software through development of new test suite Designed overarching structure for new data engineering workflows with Hadoop and Spark Created Python microservices to analyze market data to create trend reports Wrote performant PostgreSQL queries to perform statistical analysis of market data nightly Worked in on-call cycle to mitigate company-wide data quality concerns at all hours Coordinated with NYSE and Nasdaq to create common format for new SEC compliance report Collaborated with platform team to create new framework for large-scale market analysis
Tech	<i>Python, PostgreSQL, Hadoop, Spark</i>	

2019 **Software Engineering Intern**

2018 *Garmin International*, Olathe KS

- Owned and maintained .NET tool for configuration of airframes
- Designed testing framework to ensure integrity of new airframe configurations
- Guided two other interns in updating and maintaining said testing framework
- Collaborated directly with users to design new features based on need
- Created comprehensive tests for all existing code within .NET codebase
- Refactored process-scheduling functionality within embedded GIA64 Operating System

Tech *C#, Python, Embedded C*