

Byron Heads

LEAD SOFTWARE ENGINEER · SENIOR SOFTWARE ENGINEER · DEVELOPER

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Experience

Lead Software Engineer

Ann Arbor, MI

ITHAKA

2020 - Present

I have been working at Ithaka on the JSTOR and ARTSTOR products as the engineering lead on the Authentication and Authorization team. I lead a small team managing critical applications for realtime access to millions of documents, and the backend publishing system to manage that access. I have lead the team in the transition to kubernetes, transitioning monolithic legacy systems to on-demand scaling microservices and event driven architectures for live systems without transitional downtime. Current projects include transitioning legacy applications away from Java to Rust to reduce operations cost while increasing system performance and capabilities.

Senior Software Engineer

Dexter, MI

MOXIE GROUP

2013 - 2020

I worked as a developer and project lead for several large eCommerce clients and a genomics research platform. Major projects include Curio Genomics, Cabela's Mobile, Cabela's Checkout, Cabela's Site Performance Project, IMS, Orion Telescopes, and Highby Outdoors. Many of these projects were existing legacy systems that needed to be maintained, fixed, and developing new features.

Freelance Developer

Brighton MI

MACKINAW ADMINISTRATORS

2014 - 2015

Developed a custom website for Mackinaw Administrators to manage their insurance clients with a self reporting client portal. The client portal is a dynamic single page web application. Employees can use the portal to manage clients, site content, and run reports.

QA Software Engineer / Developer

Ann Arbor MI

BARRACUDA NETWORKS

2011 - 2013

I started as a QA Engineer for their Backup Solutions product. I created an automated platform for testing and verifying the product's web interface. I moved into a Software Engineering position maintaining and developing new features for their Windows backup client application.

Projects

JSTOR

ACADEMIC RESEARCH PLATFORM IN HUMANITIES ARTS AND SOCIAL SCIENCES

As a senior engineer and then lead software engineer on the Authentication and Authorization team I am responsible for realtime user access to the massive and complex collection of content on the platform. This included access via multiple methods (IP, SAML, Oauth, OIDC, Username) to determine a users institutional affiliation often without user action.

Major projects include the development of the platforms new session management system that enabled new product features to be designed and iterated on in ways that were not possible before. This work included a transition into Redis, Federated GraphQL, and transitional architecture that allow us to replace the system without clients needing to migrate at the same time.

Curio Genomics

GENOMICS RESEARCH PLATFORM

I was the senior developer on the Curio Genomics project. The Curio Genomics project is a collection of clustered data processors, message queues, distributed databases, and a dynamic web portal. I worked on streaming DNA across a farm of processing nodes and merging the results together, scanning and annotating variations in gene sequences for non-harmful mutations, and an application to support data transfers of massive DNA sequence files from clients.

Cabela's

E-COMMERCE SITE

Developer for the implementation of Cabela's mobile website. This required creating all new frontend and backend systems for the site, and dealing with the nuances in mobile between devices.

Senior developer for a new checkout implementation for Cabela's eCommerce platform. I implemented the front end and backend systems that supported an asynchronous and dynamic user interface. This new checkout system was integrated into an existing legacy payment and order processing system. Other projects included researching and implementing site wide performance optimization. Researched front end load times, pages sizes, external requests, backend CPU load, memory usage, and database access times.

Skills

Languages	Java, Rust, C, C++, JavaScript, TypeScript, D, Shell Scripting, Assembly, Zig, WinAPI, Posix
Databases	PSQL, MySQL, Redis, SQLite, LevelDB, HBase, SQL Server
Devops	Apache, Nginx, Linux, Kubernetes, AWS, On-Call, Gitlab Pipelines
Fullstack	Web Development, OAuth, SAML, Mobile Web, eCommerce, Testing, Order/Payment Processing
Backend	Spring, Kafka, Jetty, Tomcat, REST, GraphQL, gRPC, Axum
Architecture	Microservices, Event Based, ETL, Realtime, Multi-threaded, Asynchronous, Distributed
Legacy Systems	Maintenance, Migrations, Upgrades, Transitional Architecture, Rewrites

Education

Eastern Michigan University

Ypsilanti, MI

MASTERS PROGRAM

2009 - 2011

Awarded a Graduate Assistant position in the Computer Science Department

Started thesis work then took employment at Barracuda Networks before completion.

- Parallel Processing
- Real-time Operating Systems
- Data Mining
- Scientific Programming

Eastern Michigan University

Ypsilanti, MI

BACHELORS COMPUTER SCIENCE

2007 - 2009

- Undergraduate Symposium - Reactive Vision Based Navigation in Autonomous Robotic Vehicles
- Embedded Systems
- Compilers
- Web Development
- Java Programming
- Operating Systems

Lake Superior State University

Sault Ste. Marie, MI

COMPUTER SCIENCE AND ENGINEERING

2005 - 2006

- 2005 ACM Programming Competition
- C++ Programming
- Robotics
- Embedded Systems