

# Ethan Xu

No Sponsorship Required

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## WORK EXPERIENCE

**MemVerge, Inc.** | Milpitas, California

May. 2024 – Present

*Software Engineer Intern*

- Implemented AI infrastructure enhancements, such as portioning a single GPU card into multiple virtual GPUs to serve multiple users simultaneously, optimizing resources usage and efficiency.
- Developed and packaged the MM engine into an AMI for AWS Batch, facilitating data-intensive pipeline deployment on cost-effective AWS spot instances, using ECS, CRIU, and JuiceFS to optimize cloud resources and reduce costs.
- Engineered a container orchestration solution with runc and Docker, Podman, and k8s enabling seamless pipeline execution on AWS spot instances without manual maintenance, simplifying workflows in high-compute environments.

**Northeastern University College of Engineering** | Boston, MA

Jan. 2024 - April. 2024

*Graduate Teaching Assistant for Cloud Computing and Network Structures (Part-time)*

- Mentored 200 students in navigating Google Cloud architecture, including VPC, Cloud SQL, and security with keyrings; emphasized hands-on experience with serverless technologies and cloud service integration.
- Led CI/CD instructional workshops utilizing GitHub Actions and HashiCorp Packer for automated builds and taught efficient cloud solution development with pub/sub models and cloud functions for scalability.

**MDI Biological Laboratory** | Maine, Bar Harbor

Jul. 2023 – Dec. 2023

*Software Engineer Co-op*

- Collected RNA-seq data on axolotls from diverse biological experiments, serving as a vital dataset input (> 1 TB).
- Developed a transcriptome annotation pipeline included 15 nf-core modules using Python and NextFlow as well as designed an innovative subworkflow with a custom insertion, search, sort algorithm to optimize data integration.
- Deploying stateful workloads on Spot instances with Memverge to achieve up to 80% cost savings on EC2 instances.

**Syracuse University College of Engineering and Computer Science** | Syracuse, NY

Jan. 2021-Aug. 2022

*Graduate Research Assistant – Mentor: Distinguished Prof. Charles T. Driscoll*

- Utilized R to analyze 60 years of environmental monitoring data, comprising of over 1 billion data points. Developed hundreds of R scripts and functions to clean, process and visualize the data using ggplot2 and dplyr.
- Made a presentation at the HUBBARD BROOK ECOSYSTEM STUDY ANNUAL COOPERATORS' MEETING

## PROJECT EXPERIENCE

**High-Performance Cloud-Native Web Application | Spring Boot, Amazon Web Service, CI/CD, DevOps**

- Addressed pain points in backend application deployment, focusing on secure user data management, efficient networking, server automation, CI/CD pipelines, domain registration, and performance monitoring.
- Developed secure RESTful APIs, configured AWS CLI and networking, custom AMIs, added various resources to the Terraform template, such as S3 bucket, Lambda, CloudWatch, Route 53, Auto Scaling, Load Balancer.
- Maintained logs and metrics on AWS CloudWatch for real-time monitoring and debugging. Configured auto-scaling and load balancing features for dynamic traffic adjustments, ensuring high availability and scalability.

**News Aggregator | Spring Boot, Mybatis, Redis, Web Clawer, Docker**

- Developed a Web Crawler application with Spring Boot, aggregating news from various portals like CNN, New York Times, and FOX news, and crafted a responsive interface using React for device compatibility.
- Leveraged Mybatis for efficient compilation of news into a database and implemented caching with Redis, significantly enhancing the application's performance.

## SKILLS

**Programming Languages:** Java, Python, JavaScript, TypeScript, C++, HTML, CSS, Linux, Rust, Solidity, R, SAS, Groovy

**Tech Stacks & Skills:** Spring Boot, Node.js, React, CI CD, Terraform, Packer, Docker, Kubernetes, RESTful, MySQL, Mybatis, Redis, Hardhat, User Experience Design, Figma

## EDUCATION

**Northeastern University** | Boston, MA

Sep. 2022 – Dec. 2024 (Expected)

*Master of Science in Computer Software Engineering*

**Syracuse University** | Syracuse, NY

Aug. 2020 - May 2022

*Doctor of Philosophy in Engineering (Incomplete)*