

Ethan Xu

Incoming SDE Intern at San Jose | 315-484-8018 | www.linkedin.com/in/ethan-xu1/

WORK EXPERIENCE

Northeastern University College of Engineering | Boston, MA

Jan. 2024 - present

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

- Led instructional sessions focusing on Git, CI/CD and AWS&GCP Services, providing academic support to a group of 200 students in their projects and classwork.
- Mentored students in the establishment and development of AWS&GCP infrastructure, leveraging tools like Terraform, and Packer.

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 distinctive nf-core module and a transcriptome annotation pipeline based on the RNASeq pipeline utilizing Python, NextFlow, and Groovy, enhancing computational resource efficiency and reducing processing time.
- Designed an innovative subworkflow featuring a custom insertion, search, sort algorithm, which significantly enhanced the data integration process.
- Automated the entire data integration workflow with NextFlow pipelines, harnessing the capabilities of AWS Batch and Terraform. Achieved up to 80% cost savings on On-demand EC2 instances by deploying stateful workloads on Spot instances via Memory Machine Cloud.

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.
- Wrote a peer-review paper and made a presentation at the HUBBARD BROOK ECOSYSTEM STUDY 59th 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.

Scalable Backend Application Deployment Framework | Kafka, Kubernetes, React, Serverless

- Designed, deployed, and administered Kafka consumers processing hypothetical traffic loads of up to 50k daily events on a Kubernetes cluster, leveraging a CI/CD pipeline and monitoring via Wavefront and Splunk. Enhanced reliability via custom state machines.
- Created reusable React widgets and integrated them with serverless functions for a mock e-commerce platform, enabling efficient DynamoDB updates.
- Orchestrated rigorous unit tests for the AWS Python Backend (using PyTest, Mock, Moto) and React.js frontend (using Jest & Enzyme), enhancing test coverage from 86% to 100%.

SKILLS

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

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

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)