Eriberto Lopez

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Skills

- AWS | EKS | ECS | IAM | Kinesis | DynamoDB | S3 | CDN | CloudWatch | Serverless | Lambda | RDS
- Python | Flask | FastAPI | Java | SpringBoot | JPA | Hibernate | Gradle | TypeScript | React | Nextjs
- ArgoCD | Helm | GitHub Actions | Jenkins | OpenAPI | GraphQL | REST | Microservices | Terraform | Docker

Experience

Senior Software Engineer Strateos, Inc. *Remote* **12/2021 - 07/2024**

Enable enterprise users to plan experiments, command-and-control robotic execution, securely capture proprietary data, and visualize real-time execution history from remote or on-site devices.

- Migrated core monolith features to microservice architecture. Reduced deployment time, reduced system up-time latency, increased fault isolation, and increased team productivity. Standardized backend technologies to Java, Springboot, Python, and FastAPI.
- Developed OpenAPI codegen devtools to generate server, client, and type schema library code used across microservices. Decoupled various domain schemas to libraries to reduce redundant de/serialization code across microservices.
- Optimized front-end React components by migrating to a MobX bi-directional stage-management approach, leading to a 53% reduction in workflow builder front-end total load time.
- Led the design and development of enterprise level microservice applications in Workflows domain, offering scientists a platform to execute complex workflows on shared infrastructure while safeguarding proprietary data. Full-stack service applications used React, GraphQL, Python, Flask, Java, Springboot, and Postgres deployed onto EKS using ArgoCD.

Software Engineer III Strateos, Inc. *Menlo Park, CA* **08/2019 - 12/2021**

Designed & maintained device-agnostic scientific intent schemas and features, ensuring reproducible execution in workcell

- Achieved 64x increase in cloud lab sample throughput by optimizing computer vision and robotic commands, specifically for genetic isolate identification. Presented innovative use case and proof of concept at the SynBioBeta Conference 2020, subsequently leading to multiple client $100k+ contracts.
- Developed Python statistical software to automate viable cell cluster identification of multidimensional flow cytometry data, significantly reducing the hands-on quality control validation time for operational teams by 50%.
- Curator of open-source machine readable scientific intent schemas, *autoprotocol.org* & *autoprotocol-py*
- Streamlined data ingestion pipelines for both web and robotic domains, reducing complexity and enhancing monitoring of raw data capture. Migrated data and software from Heroku cloud to AWS cloud infrastructure.
- Scaled Strateos' legacy scientific intent execution system from lambda functions to microservice architecture.

Research Engineer II University of Washington *Seattle, WA* **07/2017 - 08/2019**

Klavins Lab DARPA grant used to automate remote execution of the design, build, and test cycle for genetic systems.

- Enabled Synergistic Discovery and Design DARPA stakeholders to remotely design, build, and test genetic CRISPR systems, provided real-time access to results and significantly reduced experimental iterations.
- Developed a Python client to facilitate ETL processes, extracting and loading data from remote labs to Texas Advanced Computing Center's HPCs. Contributed to experimental intent schema used by DARPA remote labs.
- Integrated Klavins Lab scientific devices with web application (Ruby on Rails, Angular) and AWS cloud resources. Developed High Throughput Culturing workflow with web app and made it accessible to stakeholders.
- Teach, guide, and advise undergraduate research assistants through cellular & molecular experiments and software development.

Publications

Aquarium: open-source laboratory software for design, execution, and data management. Synthetic Biology – January 2021
Automated design of thousands of non-repetitive parts for engineering stable genetic systems. Nature Biotechnology – July 2020

Education

Master of Science Computer Science - Georgia Institute of Technology – Atlanta, GA – Dec 2024
Bachelor of Science in Biology - Gonzaga University – Spokane, WA – 2013