Nicholas Rosenau

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Education

Northeastern University — Boston, MA
Graduate Certificate Computer Science — Sep 2019 - May 2020

Emmanuel College — Boston, MA
BS Neuroscience — Sep 2013 - May 2017

Work Experience

Lattice Automation — Remote
Software Engineer — January 2021 - Present

- Help plan and architect software as a part of the in silico group of a multi-year long research grant. Built a dashboard for scientists to design and order RNA constructs. Utilized React for the UI, built a REST API in Flask, and used MongoDB for data storage. Followed best practices in REST API development, added Swagger UI for API documentation.
- Translated a synthetic biology academic paper (https://doi.org/10.1021/acssynbio.5b00232) into a data science project written in Python. Used K-means clustering and linear regression to draw insights from biological datasets. Utilized Python libraries such as numpy and scikit-learn.
- Built a full-stack web application (React/Flask/AWS) from development to production, based around the open-source NCBI BLAST software. Utilized frontend technologies such as JavaScript/ES6, React, Sass, HTML and CSS. Gained experience with Typescript and frontend testing frameworks such as Cypress. Gained experience in UI/UX design through making mockups/wireframes using Adobe XD.
- Built a full-stack web application (React/Flask/PostgreSQL/AWS) from development to production for laboratory device management. Gained experience with MySQL and PostgreSQL.
- Engaged in DevOps work building Gitlab and Github CI/CD pipelines, contributing to and utilizing custom python libraries for creating CloudFormation JSON, and utilizing various AWS technologies such as ECS, ECR, s3, EC2, EFS, AWS Lambda, and RDS.
- Gained experience with client interactions which included weekly reports and meetings, managing client expectations, and communicating technical concepts effectively.

Whitehead Institute for Biomedical Research (MIT) — Cambridge, MA
Genetically Engineered Models (GEM) Technician II — January 2018 - January 2021

- Worked as a laboratory technician in the lab of MIT professor Rudolf Jaenisch. Designed and implemented wet lab CRISPR experiments for scientists across the research institute and MIT community. Completed multiple projects for 13+ scientists across MIT as well as pharmaceutical companies in Cambridge, MA.
- Published author in the scientific journal Molecular Cell (https://pubmed.ncbi.nlm.nih.gov/31422875/).

Technical Skills

Languages:	Python, Javascript/HTML/CSS, Rust, WebAssembly, SQL, Bash, Java, Typescript
Frameworks and Libraries:	React, Flask, Node.js, Express.js, Next.js, Keras, scikit-learn
Tools:	Git, Docker, AWS, GCP, CI/CD, Gradle, Google Colab, Storybook

Side Projects

UI Component Library
Designing a UI component library in React. Build components ranging from simple UI features (toggles, dropdowns, etc.) to more complex components such as a DNA/RNA sequence viewer. Using Storybook to interact dynamically with the component library and making automatic deployments with Next.js/Vercel.

Utilizing machine learning in the browser via Rust and WebAssembly
Built a React app that embeds WebAssembly and utilizes multithreading in the browser via the SharedArrayBuffer feature. Created a k-means clustering model in Rust that takes in CSV data as input and outputs cluster centroids and predicted data values. Compiled Rust model to WebAssembly and configured the React app to work in congruence with the model.