JOSHUA TIMMONS

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EXPERIENCE

Lattice Automation | Senior Software Engineer | July 2016 - Present

I create software for scientists. I have successfully led and executed internal and external projects.

Corteva Agriscience: Vector Design Platform

- Lead programmer in designing a DNA assembly platform for the largest agtech company in the USA.
- Implemented the DNA assembly planning platform with a decision tree of editable "assembly rules"; it is now used for over 60% of Corteva's DNA constructs (>10,000 per year).
- Codified the back end assembly logic in a 17-thousand-line C# library behind a Dockerized API.
- Created an SVG-rich front end Angular library to interact with and edit the platform's output.
- Built an extensive test suite with over 150 unit, integration, and end-to-end tests (MSTest).
- Proposed and implemented a novel dynamic-programming-based "DNA design in reverse" approach that saves the PhD biologists ~6 hours of planning per construct.

enEvolv: Protein Engineering Pipeline

- Lead programmer in researching and writing a CLI (Python) protein engineering pipeline for making thousands of protein variant sequences within single experiments. Supported 3 bespoke methodologies.
- Used scikit-learn to model and tune features within protein variant libraries for iterative improvement of the application's output quality.

Lattice Automation: Molecular Biology Web App

- Designed and wrote a web-based synthetic biology platform with React, Redux, and Node.js.
- Implemented numerous features including authorization, authentication, a GraphQL API, a MongoDB database, folder navigation, sequence viewers, restriction digest, and DNA assembly algorithms.
- Created a deployment pipeline from Github, CircleCI (build/test), AWS Elastic Beanstalk (server), AWS S3, and CloudFront (client). Reduced update times from 30 minutes to 5.

BIDMC and Harvard Medical School | Research Assistant | July 2014 - August 2018

- Published nine academic papers that have been cited 92 times to date: researchgate.net/profile/Joshua_Timmons. Conducted independent medical and biophysics research.
- Designed a 3D MRI toolbox (MATLAB) for studying patient response to a medical device. The toolbox, still in use, saves >100 human hours per patient scan.

EDUCATION

Northeastern University | B.S. Biology, Minor Economics | September 2012 - August 2016

Courses: Statistics and Software, Bioinformatics Programming, Bioinformatics Methods.

Awards: Advanced Research and Creative Endeavor Award, Above and Beyond CEP Award, University Honors Program Distinction, National Merit Scholarship.

SKILLS

Python, C#, JavaScript/TypeScript, Golang, HTML/CSS, Java, MATLAB, R, TCL, React, Angular, Redux, GatsbyJS, GraphQL, Apollo, Node.js, .NET., Google Cloud Platform, Amazon Web Services, CircleCI, Git, Github, Docker, Matplotlib, SVG, Sketch, scikit-learn, pandas, Jupyter, MongoDB, MySQL, SQLAlchemy.