Neil Hendren

Versatile Fullstack Software Engineer | Chemical/Bio Engineer | TypeScript | Ruby | Python

neil.hendren@gmail.com • 719-651-1928 • linkedin.com/in/neilhendren/ • github.com/NeilTheSeal • neilhendren.com

Summary

Ambitious Software Engineer blending expertise in website design, database management, server design, and academic research to pioneer modern engineering solutions. Leveraging skills in JavaScript/TypeScript, Ruby on Rails, SQL, Python, and a suite of other programming languages and frameworks, I am committed to driving future advancements in technology through continuous learning and collaboration with subject matter experts.

Professional Experience

Software Engineer III (Full-stack) @ Cobank   Denver, CO
06/2025 - Present
- Build full-stack applications used by CoBank customers to pay bills, view investments, loans, and leases
- Design user interfaces for the customer portal, using a Material UI-based React components library
- Build APIs to access user data, financial information, change preferences, and perform CRUD operations
- Deploy applications to development, test, and production environments using scalable workflows
- Utilize scrum and Agile methodology within the Scaled Agile Framework (SAFe)
- Work closely with product team to ensure features are in compliance with company goals and directives
- **TypeScript, Express.ts, React.ts, Python, FastAPI, AWS, Terraform, Kubernetes, Docker, GH Actions, Splunk, ArgoCD**
- **Vitest, Playwright, Pytest, Swagger Docs, Axios, SCSS, Material UI**

Full-Stack Software Engineer @ University of Colorado Boulder   Boulder, CO
04/2018 - 06/2025
- Served as a tech lead and advisor to a team of engineers, managing the central repositories and doing PR reviews
- Designed virtual laboratories platform that uses REST APIs with CRUD functionality to track student progress
- Built more than 50 scientific simulations used for engineering education (JavaScript, Python, Matlab, and Mathematica)
- Designed 1200+ page educational website in collaboration with chemical engineering research professor
- **Node.js, PostgreSQL, Python, Django, HTML5, CSS, Heroku, AWS EB, WordPress**

Project Consultant and DevOps Engineer @ Cosmate   Boulder, CO
03/2025 - Present
- Building a social media app (https://cosmate.app) designed to compete with major players in its market sector
- Currently providing advisory work on writing tests (**Cypress, Jest**), cybersecurity, API design, and cloud services
- Deployed Node.js API to AWS EC2 instances using Elastic Beanstalk
- Migrated MongoDB database from MongoDB Atlas to AWS DocumentDB
- Designing continuous integration and deployment using GitHub actions
- **React.js, Node.js, AWS DocumentDB, AWS EC2, AWS S3, AWS Elastic Beanstalk, GitHub Actions**

Backend Software Engineer @ ThxRex   Boulder, CO
01/2025 - 04/2025
- Developed a restaurant recommendation engine to be used by travel agents and concierges
- Implemented testing, logging, prompt engineering, and dynamic content loading
- Debugged and fixed any broken functionality in the production environment
- **Ruby on Rails, RSpec, Docker, HotWire, Google Places API, OpenAI API, Heroku**

Laboratory Coordinator @ University of Colorado Boulder   Boulder, CO
06/2021 - 12/2021
- Designed and built durable chemical engineering experiments for undergraduate lab classes

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Engineering Intern @ Osypka Medtec Inc.   Longmont, CO
11/2017 - 03/2018
- Provide technical assistance for engineering of Class II and Class III medical devices

Research Intern @ Lawrence Berkeley National Laboratory   Berkeley, CA
09/2014 - 12/2014
- Proposed minimal-impact methods of growing biofuel crops in California using watershed modeling framework

Select Projects

LearnChemE.com | Deployed Application | Private Repository
Tech: PHP | WordPress | HTML5 | CSS | Google Scripts

An engineering education website containing screencasts, simulations, virtual labs, and resources for students and instructors
- WordPress page templates were programmatically generated from a large set of metadata with Google Scripts
- Custom WordPress themes were designed to allow non-technical contributors to aid in maintenance of the website

Cosmate.app | Deployed Application | Private Repository
Tech: React.js | Express.js | AWS | MongoDB | Netlify | Vite | Heroku

A social media app targeted at cosplayers and fostering cosplay culture
- Small team of engineers developed an application designed to compete with OnlyFans in the cosplay space
- Secure Express.js back-end framework provides content for a dynamically-generated social experience

MakeAIArgue.com | Deployed Application | Private Repository
Tech: TypeScript | React.ts | Express.ts | LLM APIs | Vite+Netlify | Heroku

A website to make two different LLM models (e.g. ChatGPT 4o-mini vs. Claude Sonnet 3.5) argue over controversial topics
- Custom prompts were injected on the back-end to instruct models to create humorous arguments over absurd subjects
- Text-to-speech was implemented using the Talkify API, with different (somewhat) realistic-sounding voices for each model

Catalytic Reactor Virtual Laboratory | Deployed Application | Private Repository
Tech: Express.js | PostgreSQL | Heroku

Graduate-level online laboratory simulation to characterize chemical reaction kinetics by nonlinear regression
- Utilized Node.js to verify credentials, record student progress, and provide administrative privilege to instructors
- REST API was designed with CRUD functionality to record and track measurements made within the laboratory UI

LearnChemE Front-End Simulations | Deployed Application | GitHub Repository
Tech: HTML5 | CSS | JavaScript | Bootstrap | Node.js | Webpack | Responsive Design

Collection of embeddable scientific simulations used in the instruction of engineering topics
- Our front-end simulations explore topics such as vapor-liquid-liquid equilibrium, distillation column design, chemical reaction kinetics, quantum physics, and other subject matters encountered by undergraduate engineering students

RuneFall | Deployed Application | GitHub Repository
Tech: React | Ruby on Rails | PostgreSQL | Test-Driven Development (TDD) | CI/CD | GitHub Actions | RSpec | Cypress

A search engine for playing cards used in the game Runeterra
- Designed a responsive frontend and RESTful backend using Ruby on Rails in an Agile, paired programming environment

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Technical Skills

Programming Languages	TypeScript	Ruby	JavaScript	Python	PHP	SQL	MATLAB	Mathematica
Front-end & UI	HTML5 & CSS3	Bootstrap	React.js	React Router	Hotwire	Webpack	Material UI	SCSS
Back-end & Frameworks	Ruby on Rails	Django	Express	Node	RESTful API design	CRUD services
Databases & Data Stores	PostgreSQL	MongoDB	AWS S3	AWS DocumentDB
DevOps & Deployment	AWS Elastic Beanstalk	EC2	Heroku	GitHub Actions	Terraform	Docker	Kubernetes
Testing & Quality	RSpec (Ruby)	Test-Driven Development (TDD)	Cypress.js	Playwright	Vitest	Jest	Pytest
Collaboration & Leadership	Repository Management	PR Reviews	Paired-Programming	Scaled Agile Framework (SAFe)

Education (formal)

Accredited Certificate in Backend Engineering
Turing School of Software and Design

B.S. Chemical and Biological Engineering
University of Colorado, Boulder

Education (online coursework)

React - The Complete Guide 2025 (incl. Next.js, Redux)
Udemy

React Advanced Concepts: Re-rendering, Performance & More
Udemy

GitHub Actions: The Complete Guide from Beginner to Expert
Udemy

AWS Trailhead:
AWS Cloud Basics | Core AWS Services | Application Deployment and Monitoring | Cloud Security Pricing and Support | Cloud Acquisition | AWS Cloud Practitioner Certification Prep

The Complete Python Bootcamp from Zero to Hero in Python
Udemy

Publications

Falconer, J. L., & Hendren, N. (2021). Virtual Catalytic Reactor Laboratory. *Chemical Engineering Education*, *55*(3), 183-188.