

Kelly Justin Wilson

Software Engineer | Structural Engineer | Architect

Trained in architecture, structural engineering, and computer science, these passions are applied to develop software applications.

WORK EXPERIENCE

Founding Engineer

4/2024 – PRESENT

ARCHENGEL, LLC - Berkeley, CA (Remote)

- Small startup specializing in developing web applications to streamline AEC workflows so clients can increase their project acquisition, profit margin, design flexibility/fine-tuning, while reducing overhead.

Selected Projects:

- **SADE: Structural Analysis + Design Engine:** [Node.js, Typescript, AWS, Vercel, PostgreSQL, Next.js, React, tRPC, Zustand, Zod, Winston, Turborepo, RabbitMQ, YOLO, OpenCV, Python, ...]
 - Created, Architected, and now, leads the development of the proprietary structural analysis and design engine (10+ microservices) and UI platform that performs full building design in seconds.
 - Manage and mentor a team of engineers across multiple technical stacks ranging from 3D computational geometry and visualization to AI/ML/RAG workflows to parse PDF building plan information via line, shape, and image detection with libraries/models such as OpenCV, YOLO, respectively..
 - Architected and implemented an event-driven architecture to server-client end state management using websocket services and RabbitMQ for real-time synchronization with user-design edits and the design engine.
 - Established and sole-contributor to the technical architecture, roadmap, and best practices in CI/CD pipelines, version control, testing (TDD), and extensibility/scalability (DDD).
 - Regularly sync with two co-founders to execute milestones and align technical development with strategic business goals.

Software Engineer

9/2022 – 03/2024

OUTER LABS, INC - Covina, CA (Remote)

- 50+ person startup that specializes in converting real estate/workplace logic/heuristics into reactive web applications for big tech (Google, ...)

Selected Projects:

- **CLAI Studio: Programming App:** [NestJS, TypeOrm, Typescript, GCP, CloudSQL, PostgreSQL, React]
 - Prepared epics for FE & BE feature work to convert a custom 30+ tab google sheets doc into a web-based workplace programming application used nationwide.
 - Developed 50+ production-quality React components for a highly interactive UI using best-practices for modularity and tested with React Testing Library and Jest.
 - Co-authored an infrastructural feature to decrease time spent writing migrations to update BE logic by 99%.
 - Revised and streamlined deployment documentation/process to reduce production deployment process and onboarding by 50%.
- **Calibrator / OneWBS:** [Golang, Typescript, Apollo Client, GraphQL, React w/ Recoil, Firestore]
 - Orchestrated epics and led development to enhance app performance/functionality by adding 3+ features to increase user adoption by 50%.
- **Clay Briefs / Designs** [Golang, Typescript, Apollo Client, GraphQL, React, Firestore, Three.js, React-Three-Fiber]

CONTACT

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SKILLS

Programming Languages:

- Python
- Typescript / Javascript
- Golang
- C#
- MATLAB
- CSS / HTML
- Git / Git Bash

Version Control:

- GitHub / GitLab
- Docker

Frameworks, Libraries, & Runtimes:

- Node.js
- ExpressJS
- NestJS
- Next.js
- React (+ Libraries: Recoil, ...)
- Flask
- GraphQL
- Three.js

UX/UI Prototyping / Design Systems::

- Figma
- LucidChart / Miro
- Adobe XD, Photoshop
- Material UI

Data(- base, visualization), ML:

- Tableau
- D2.js, D3.js, & ChartJS
- PostgreSQL, PostgREST, Psycpg2
- TypeORM / Prisma (ORMs)
- MongoDB
- Pandas, Scikit-Learn, & Numpy
- YOLO, OpenCV, GPT-4 (openai API)

Modeling / F.E.M. Softwares:

- Revit, Rhino3D, AutoCAD, Adobe
- RISA 3D, Etabs, SAP2000, EnerCalc, ...

EDUCATION

THINKFUL

Full-Stack Development Bootcamp
Remote

UC Berkeley

M.S: Structural Engineering
M.Arch: Architecture / Computational Design
Berkeley, CA

Lehigh University

B.S. Structural Engineering
Bethlehem, PA
B.Arts: Architecture
Minors: Computer Science & Theatre
Bethlehem, PA

- Added a feature to import custom 3D building geometry for spatial programming analysis using rule-based algorithms to increase user adoption by 25%.

Engineering Manager

6/2018 – 9/2022

Structural Engineer / Software Developer

6/2015 – 6/2018

Projectfrog - San Francisco, CA (Remote during/ Hybrid after COVID)

- 25+ person fast-paced, cross-functional startup in the AEC space that developed a building as a product (ICaaS) delivery platform targeting the education, quick service restaurant, banking, and retail industry.

Selected Projects:

- **Frog Price Estimator (FrogPE)** [*Python, Scikit-learn, Pandas, Numpy, PostgreSQL, Javascript, JQuery, & Flask*]
 - Restructured and parsed 8+ smart-sheets into cleansed datasets for feature engineering using K-Nearest Neighbor, Random Forest, and Linear Regression ML methods.
 - Co-developed a ML web application that predicted wall panel price per square foot in wood and cold-formed steel from user input that saved ~40 hours of manual research/correspondence per project.
 - Prepared leadership with metrics that resulted in an increase in projects by 40%.
- **Revit - Construction Document / Component Model - Automation (RCDA/RCMA)** [*Python, Revit API, C#, WPF*]
 - Automated CD set content that minimized workflow by 8 hours per project.
 - Updated model automatically to reduce modeling/drafting overhead by 16 hours per project.
 - Established direct connection to engineering analysis that influenced building models and reduced the QA-QC process by 90%.
- **RevitToSaw (R2S)** [*Python, Revit API, C#, WPF*]
 - Produced project panel schedules, cut-lists, updated/labeled shop drawings, and data files consumed by third-party vendor saw-cutting software in minutes.
 - Decreased manual data processing by 32 hours for each project.
- **Structural Analysis Engine/Service (SAE/S)** [*Typescript, Javascript, NodeJS, ExpressJS, AWS S3 + EC2, Excel & API, React, ChartJS*]
 - Conceptualized, supervised, and co-engineered a back-end application that performed full-building structural analysis/design saving 24-36 hours of engineering work per project.
 - Implemented real-time structural validation and reduced time spent confirming client/customer design proposals by 99%.

PROFESSIONAL LICENSURE

CA Seismic Exam (Passed).

NCEES PE Exam (Passed).

NCEES EIT Exam (Passed).