# David Thomason

## SOFTWARE ENGINEER

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## Experience

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**Invisible Technologies | Senior Software Engineer**                                        **2025 – Present**

- *React, Typescript, Next.js, FastAPI, Python, Kubernetes, Helm, GCP, Databricks*
- Built new ontology page for helping customers understand their data model
    - Created API to query customer data dictionary, categories, and entity relationship diagram
    - Rendered API results in UI with an interactive graph representing entity relationships
- Created a dashboard compiler
    - Reverse-engineered a data warehouse visualization tool with interactive filters, widgets, charts
    - Created an application that compiles and renders dashboard content into a custom interface, providing enhanced UI/UX for customers

**SpaceX | Software Engineer**                                        **2022 – 2024**

- *Angular, Typescript, .NET, Python, PostgreSQL, Kubernetes, Helm, Kafka, Azure, Terraform*
- Graph Database Application for Design & Manufacturing Data
    - Solved challenges of tracking frequent design changes and build discrepancies for complex rocket hardware by replacing a slow, query-complex legacy ERP system.
    - Developed a graph database solution with Kafka streaming for real-time data analysis, enabling fast data traversals and improved scalability.
    - Engineered 'As-Built' data traversal to capture current manufacturing status using physical part data (e.g., serial numbers).
    - In collaboration with Build Engineers, designed and implemented reconciliation logic to match design specifications with actual built components, identifying missing or inconsistent elements.
    - Built a reusable C# framework for consuming Kafka messages and populating graph data, accelerating the integration of many data types.
    - Delivered a system capable of answering critical queries, such as "Find all instances of part X in assembly Y" and "Find mismatches between design & build".
- Gantt Chart Scheduling System for Test & Launch Operations
    - Addressed managing of complex rocket test schedules, which were previously handled with static excel files, and involved critical time constraints and numerous event dependencies.
    - Developed a dynamic scheduling application to create events, define dependencies between them, and automatically propagate any schedule adjustments to downstream activities.
    - Focused on the dependency management aspect, including UI work for visualizing event relationships and backend logic for storing these relationships and correctly rescheduling downstream events using topological sorting.
    - Integrated streaming of work order and operation data from the ERP system to provide real-time data for the scheduling application.
- Led design & development of a property management system
    - Designed, built & deployed system from the ground up
    - In-house system to track the construction, waitlist, and leases for on-site housing
    - Implemented multi-stage waitlist review/approval process

- Site Information & Map Mobile App
    - Led the ground-up design and development of a "Google Maps for SpaceX" equivalent web and mobile application, serving as a central information hub for employees, their families, and third-party partners at the Starbase facility.
    - Architected a flexible system utilizing a headless CMS; designed distinct data handling strategies for less-sensitive public information and sensitive internal data, replicating data out to the network for enhanced security.
    - Implemented the solution on a public cloud leveraging Terraform for infrastructure, an API gateway, a Kubernetes cluster, object storage for assets, and SSO authentication.
    - The successfully rolled-out system comprised a client application (Angular), a headless CMS with an authentication guard, object storage for assets like images and files, and an API connected to a relational database.
- Improved system used for tracking risk tickets across rocket hardware
- Maintained and updated supply chain management system

**Nylas | Software Engineer**                                       **2021 – 2022**
- *Python, MySQL, AWS, GoLang, Kubernetes, Google Cloud, Redis, Temporal, Pub/Sub*
- Led integration of legacy & new systems for email, calendar APIs

**IBM | Software Engineer**                                         **2013 – 2021**
- *Node.js, PostgreSQL, Jest, Kubernetes, Python, Pandas, SciKit Learn, R Shiny, D3*
- Developed APIs for new "Actions" chatbot framework
- Redesigned E2E Testing Framework
- Refactored system dependency status framework

## Independent Projects

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**Startracker** (GitHub: **Startracker**)
- Interactive 3D satellite tracker with AI insights using LLM and Retrieval Augmented Generation
- *React, Next.js, three.js, IndexedDB, Python, FastAPI, Langchain, Gemini, Docker, GitHub Actions*

**HeroChat** (GitHub: **dtom90/HeroChat**)
- Chat with Historical Figures via AI text or voice (Speech-to-text, LLM, Text-to-Speech)
- *React Native, Typescript, Node.js, Websockets, Server-Sent Events, Gemini, Docker, Google Cloud*

**Pomodash** (GitHub: **dtom90/Pomodash**)
- Task management web/desktop app with pomodoro timer and activity tracking/visualization
- *Vue.js, Vuex, Bootstrap, Electron, Jest, Cypress, Docker, CircleCI*

## Education

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**Cornell University, MEng Computer Science**                       **2013**

**Cornell University, BS Electrical and Computer Engineering**      **2012**