

# Helena Lucia

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## Summary

Senior software engineer returning to tech with intentional focus on LLM systems and healthcare innovation. Completed specialized training in generative AI and RAG architectures. Seeking roles where I can contribute AI solutions, mentor emerging engineers, and help build sustainable technical cultures.

**Career Continuity Note:** Stepped back from engineering (2021–2025) for personal reasons and travel. Returned in 2025 with deep expertise in LLM systems, completed 3 Coursera specializations, and built a full-stack healthcare application using agentic engineering methods.

## Agentic Engineering Practice

I practice a disciplined seven-stage agentic engineering workflow where AI accelerates implementation but human judgment owns design and review. Full methodology documented at [helenalucia.vercel.app/process](https://helenalucia.vercel.app/process).

- **PRD-first development:** Every feature begins with a collaborative design session producing a written PRD before any implementation plan is approved or code is written.
- **Structured AI-DLC:** Uses Claude Code with Compound Engineering plugin across plan → TDD → automated review → human review → merge cycle. Custom CLAUDE.md skill files enforce architectural conventions and design standards consistently across all generated code.
- **TDD with CATCHES annotations:** Every test documents the specific bug it prevents — no tests that merely exercise mock libraries. Implementation follows tests, not the other way around.
- **Human-gated code review:** Reads every line of code and every test in the PR before merge. Maintains strict commit hygiene: formatting changes never mixed with feature work.

## Learning & Current Projects (2025–2026)

### Coursera AI Specializations & Courses

Intensive, hands-on learning across three specializations and 14+ advanced courses. Focus: LLM architectures, agentic AI, prompt engineering, Claude API integration, responsible AI development.

**Specializations:** Real-World AI for Everyone (Anthropic) • Generative AI Software Engineering (Vanderbilt) • AI Agent Developer (Vanderbilt)

**Key Courses (Perfect/Near-Perfect Scores):** Claude Code: Software Engineering with Generative AI Agents (100%) • AI Fundamentals with Claude (100%) • Trustworthy Generative AI (100%) • Introduction to Model Context Protocol (100%) • OpenAI GPTs (100%) • AI Agents & Agentic AI Architecture (100%) • AI Automation with Claude (90%) • Claude Code in Action (90%) • AI Collaboration with Claude (90%)

### Memo: AI-Assisted Women's Health Application

**Tech Stack:** SvelteKit + TypeScript, FastAPI + Python, Supabase (PostgreSQL + pgvector), Claude API, OpenAI API

**Key Features:** RAG pipeline for evidence-based responses across 10,000+ curated research documents, appointment prep flow with structured PDF generation, provider directory, symptom correlation tracking, row-level security, privacy-first LLM integration

**Status:** MVP complete, developing V2 features

## Technical Skills & Expertise

### AI/LLM Systems

Claude API • Claude Code • RAG pipelines • Vector embeddings • Prompt engineering • MCP

### Data & Analytics

Pandas • NumPy • PostgreSQL • Elasticsearch • TensorFlow • Plotly

### Cloud & Infrastructure

AWS • GCP • Supabase • Docker • Kubernetes • Terraform

### Backend & APIs

Python 3.9+ • FastAPI • Flask • REST/SOAP

### Frontend

SvelteKit • TypeScript • HTML/CSS

### Databases

PostgreSQL • Elasticsearch • Neo4J • Hadoop

## Experience

### Flashpoint | Remote (Vancouver, WA)

Nov 2019 – Oct 2021

#### Senior Software Engineer / Technical Lead

- **Compromised Credentials Monitoring (CCM-E):** Built real-time breach detection system alerting enterprises when employee credentials appeared in compromised datasets. Unified 6+ data sources into queryable system delivering 35B+ records via API, UI, and alerts.

- **Data Warehouse Cleansing:** Led effort to validate, enrich, and optimize 40TB raw dataset. Designed schema improvements enabling faster searches and new customer insights.

**Recall Masters | Remote (Vancouver, WA)**

*May 2019 – Sep 2019*

**Senior Software Engineer / Technical Lead / Supervisor**

- **Team Leadership:** Mentored engineers in best practices, code quality, testing, and healthy team dynamics.
- **Modernization:** Converted legacy Python monolith to modern architecture with Lambda microservices.
- **Data Integration:** Built Elasticsearch warehouse connecting siloed dealer data sources for unified reporting.

**Cox Automotive | Remote (Vancouver, WA)**

*May 2017 – May 2019*

**Senior Software Engineer – Data Solutions**

- **Vehicle Safety Recalls:** Led data integration uniting 20+ APIs to help Maryland DMV identify unrepaired recall vehicles at registration. Designed Python/Pandas/PostgreSQL pipeline with resilient AWS infrastructure. Shipped 2 weeks early.
- **Vehicle Valuations AI:** Replaced legacy valuation logic with deep learning model (TensorFlow/Keras) improving accuracy and enabling standardized pricing across brands.

**Cylance | Portland, OR**

*Apr 2016 – Apr 2017*

**Software Engineer**

Worked on highly-available async API (Twisted/Python). Built security forensics analytics tool (Elasticsearch ELK, C#/.NET).

**Intel | Hillsboro, OR**

*2012 – 2016*

**Software Engineer**

Started as intern, worked across data/analytics. Mapped Intel's entire ecosystem using Neo4J/Elasticsearch for emergency planning. Broad experience with Hadoop, Hive, Cassandra.

**Education**

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**Washington State University | Vancouver, WA**

*2014*

**Bachelor of Science, Computer Science | Cum Laude**

Chancellor's Award • Grace Hopper Scholar • Dean's List • ACM-W Vice Chair