530.601.6705
elmore.eng@gmail.com
Davis, CA 95616

MARK ELMORE

http://www.linkedin.com/in/markelmore
http://www.github.com/elmorem
http://www.markelmore.com

Summary

Experienced Backend Engineer with 8 years of experience designing robust software architecture, specializing in Python, Go, Django, REST APIs, and SQL. Known for my ability to write clean, robust, and maintainable code that is well-tested, I have extensive experience in writing and maintaining billing and purchase-related code. Most recently, I have been focused on building deep research agents and leveraging the power of LLMs.

Skills Summary

- **Languages**: Python, Go, JavaScript, TypeScript, SQL, Java
- **Frameworks**: Django, FastAPI, Flask, Starlette
- **Tools/Libraries**: Amazon Web Services (AWS), BigQuery, Bootstrap, Cassandra, Celery, CI/CD, CSS, D3, Django REST Framework, Docker, EC2, ECS ElasticSearch, ElastiCache, Etcd, Flask, Flink, GCP, GDAL, Generative AI, GeoDjango, GeoPandas, GIT, GitHub actions, Google Cloud Platform, GraphQL, Gunicorn, Hadoop, HTML, Jenkins, Kafka, Keras, Kubernetes, LangChain, LangGraph, Leaflet.js, MariaDB, Matplotlib, MongoDB, MySQL, Neo4j, Neovim, NewRelic, Nginx, Node.js, NOSQL, Numpy, OAuth, Pandas, PHP, PostGIS, PostgreSQL, PyTest, RabbitMQ, Rag applications, React, Redis, REST APIs, Riak, Shell Scripting, Spark, Split test frameworks, SQL, SQS, Tableau, TensorFlow, Terraform, Waffle, Zookeeper.

Employment

Founder and CEO — Deep Homework — 2024-present

- Deep Homework revolutionizes academic research with AI that thinks like a scholar. Simply ask any question, and our Plan-and-Solve system creates a custom research strategy, investigates across web sources and your uploaded materials, then delivers professional reports (300-4,000 words) with citations, bibliographies, and follow-up questions.
- The application can query all contemporary LLM APIs. It can tailor Reponses based on specific web resources and/or local vectorized documents.
- Deep Homework implements the latest in multi-agent architectures employing innovative context engineering.
- Selected core technologies: WebSockets, LangChain, LangGraph, OpenAI, LangSmith, NextJS, MongoDB, FastAPI.
- https://www.deephomework.com

Senior Software Engineer — Multimedia LLC — 2022-present

- Code owner for a Django repository responsible for **50 million+** monthly purchase events.
- Refactored spending limit system for **hundreds of millions of users**—reducing queries by **more than 85%.**
- Developed a cutting-edge mock billing service, empowering QA and developers with a seamless interface to test purchase flows and supercharge productivity.
- Increased testing coverage on the most critical billing repository by over 35%.

Backend Software Engineer — Ablative Software — 2016-2022

- Created RESTful API for California Department of Forestry, automating tasks that previously required 5 full-time positions. The Django application manages CDF's hired equipment, overseeing a budget exceeding $750 million annually.
- Dockerized and refactored a series of microservices for a public water utility reducing devops related costs by over 75%.

- Built an entire testing suite for code related to wildlife management. The testing coverage went from 12% to 78%.

Instructor, Data Analytics   **UC Davis Bootcamp**   **2020-2021**
- Taught bootcamp-style courses on the fundamentals of Data Analytics.
- I taught classes on Python fundamentals, database systems and data science libraries like Pandas, and NumPy.

Assistant Professor   **UC Davis and NYU**   **2006-2016**
- Extensive experience teaching graduate and undergraduate classes, doubling the number of majors and tripling the number of graduate students.
- Leadership experience creating a new graduate program and directing a national academic society.
- Built student management and learning system software.

Education

- PhD. 2005. University of California, Santa Barbara, Religious Studies. Cumulative GPA 3.85.
- MA. 2000. University of Colorado, Boulder, Religion/Philosophy
- BA. 1995. University of California, Santa Barbara, Majors: Environmental Science, Geography, Religious Studies.
- Relevant Coursework: Data Structures, JavaScript and ActionScript, Designing LMS. Geographic Information Systems, Advanced Data Modeling for GIS, Python for GIS, Remote Sensing Modeling.

Projects

- Deep Homework: Deep Homework, a multi-agent deep research tool optimized for educational use cases that tailors its results to different education levels--from junior high school to graduate school. It uses the plan and solve approach to deep research agent creation. It dynamically generates its agents on the fly according to the query. It allows researching of local documents and the web or a hybrid approach. It can be integrated with virtually any LLM API provider.
- ContactIntro: ContactIntro is an ai agent that uses LangChain and LangGraph and a series of related tools to query a person via their LinkedIn profile and to generate a summary of that person's background and a series of questions or prompts that the user might employ to begin a conversation with that person.
- FowlData: FowlData is an advanced geo-referenced data storage and mapping tool built around Django and PostGIS tailored for waterfowl hunters. This application offers a comprehensive suite of features: enabling users to log hunts with detailed spatial and weather data, share scouting and conditions reports among peers, and aggregate information from public resources.
- FunkyFish: Created sensor network and Arduino microcontrollers to collect metrics for aquarium environments. Created constant logs of temperature, salinity, pH, and turbidity which called an API that stored the data in PostgreSQL. Data was then used to create alerts when water conditions became dangerous.
- South Asian Archive: A meticulously designed data storage system with a user-friendly interface, housing a vast collection of geo-referenced images, videos, and textual translations spanning South Asian history and culture. Over the past decade, this monumental repository has introduced this invaluable material to tens of thousands of students.

Publications and Awards

- Mark Elmore. *Becoming Religious in a Secular Age*. (Berkeley: UC Press, 2016).
- Fulbright-Hays Fellow, Lilly Endowment Fellow, UC President's Fellow.