THOMAS TO

Oakland, CA, 510-387-5408, thomas.to.bcheme@gmail.com, Linkedin, AI/ML Portfolio

PROFESSIONAL SUMMARY

Senior AI Fullstack Engineer with 5+ years of experience specializing in the intersection of clinical drug development and generative AI. Founding Engineer with a proven track record of leading system design and implementing scalable, fault-tolerant solutions for complex, distributed computing challenges with RAG architectures for (multi) agentic AI. Expert in building intuitive, user-centric interfaces with Vue.js and robust backends via FastAPI, with proficiency in Docker/Kubernetes and Snowflake. Unique dual-competency in Biochemical Engineering and Fullstack DevOps, enabling the seamless integration of LLMs into complex clinical workflows and automated data processing pipelines. See https://thomas-to-bcheme-github-io.vercel.app/ for demo of RAG Agent.

RELEVANT EXPERIENCE

Founding Fullstack Engineer | **Canventa Life Sciences** | *Emeryville, CA* | *Oct 2023 – Present*

- Deployed in-house fullstack **DevOps SaaS** on **GCP** via **CI/CD**, converting serial to concurrent workflows reducing daily calculation time by 87% (-40 min), minimized calculation risk, and forecasted production within 3 of actual.
- Trained and monitored machine learning models on **Snowflake** to select for cell isolates from a set of donor characteristics with a **RAG AI Agent** to reduce stakeholder decision-making from hours to minutes.
- Augmented natural knowledge by **enriching RAG fine-tuning** with Atlassian (Confluence) to enhance **GenAI** (data-to-text, text-to-image) context improving learning rate up to 80% (Wright's Law: Stanford-B model).
- Fine-tuned Snowflake Doc. AI Arctic-TILT model to extract 5+ years of handwritten documents to cloud infrastructure; **ETL/ELT** pipelines with **Python**, **Google Apps Script, dbt** to transform and load to **Snowflake**.
- Reverse engineered data pipelines using **Tableau, Snowflake, dbt, fivetran, GCP, SAP, and SQL** for gap analysis to deploy stop-gap data pipelines and scope scalable & sustainable long-term cloud architecture process improvements.

Founder | AI/ML Open Source | Oakland, CA | *Oct 2023 – Present*

- **Github** Monolith for **CI/CD RAG** frontend on **AWS (Vercel: Next.js, TypeScript**), and **CT/CD Python ML models (scikit, pytorch, tensorflow**) on **Huggingface (FastAPI, Docker)**, with **Google Vertex AI** for MLOps monitoring.
- Multi-agentic orchestration (**langGraph**) with tool-use (**MCP, langChain**) to plan-and-execute tasks initiated with **retrieval augmented generation (RAG)**, optimized with **fine-tuning** for domain specific use case action items.

Software Engineer | **Genentech** | *South San Francisco, CA* | *Jun 2022 – Dec 2022*

- Engineered scalable full-stack applications using **Python RESTful API**, **Vue.js**, and **Node.js** using **git** & **GitHub** for version control to streamline workflows for medical writing teams.
- Designed knowledge management platforms using **HTML, CSS, JavaScript** to incorporate **UI/UX** feedback.

Process Engineer | **Genentech** | *Vacaville, CA* | *Jun 2021 – Jun 2022*

- Developed automated data consolidation algorithms using **Python, R,** and **SQL**, reducing time by over 99%.
- Deployed data-driven process monitoring tools on Google Cloud Platform (**GCP**) to track KPIs.

SUPPLEMENTAL EXPERIENCE

Research Engineer | Dr. Alex Dunn | *Stanford, CA* | *Dec 2025 – Present*

- Computational de novo protein design of malaria target.

Founder | **Proprietary FinTech** | *Oakland, CA* | *Jun 2022 – Present*

- Optimized Python Algorithmic & Agentic trading frequency to Coinbase's allowable public **REST API** limit.

Laboratory Technician | **Canventa Life Sciences** | *Emeryville, CA* | *Jan 2023 – Oct 2023*

- Leveraged hands-on bioprocessing expertise to architect data systems & data models to physical reality.
- Modeled empirical data using **python (numpy, pandas)** to scale validated datasets over 300k datapoints.

Research Engineer | **UC Davis (Nandi, McDonald, Wan, Siegel Labs)** | *Davis, CA* | *Sep 2019 – Jun 2021*

- Optimized model using **Python (numpy, pandas) and numerical methods** to reduce costs by $63.2 Million.
- Quantified organoid growth using **Python (OpenCV, ImageJ, Fiji)** for image processing analysis.
- Published novel variants using **pyRosetta**, **pyMol**, and **Benchling** with wet-lab techniques to biomanufacture.

EDUCATION

Bachelor of Science, Biochemical Engineering University of California, Davis (Graduated) Davis, CA

Advanced Machine Learning with Agentic AI (on going)

AWS Cloud Technical Essentials (completed)