

Timing Liu (Tim)

Full-Stack Clinician · Applied AI, LLM Evaluation & Agentic Systems

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PROFILE

Full-stack clinician building applied-AI systems in health, with technical work since 2017. Evaluate foundation models at Prima Mente, and design the LLM evaluation and multi-agent orchestration infrastructure that runs my own work end to end — tasks, comms, research and shipped software. Co-founder and engineering lead at Finomics, an NHS rostering platform piloting at two hospitals. Six research programmes led as first or joint-first author, seven more as second author; 27 publications and 1,450+ citations.

APPLIED AI & LLM SYSTEMS

Prima Mente · Deep Learning Engineer

2024 to Present

Lead components of Pleiades, an epigenetic foundation-model programme spanning 90M to 7B parameters and 1.9T methylation-data tokens.

- Build and evaluate model components: benchmark design, dataset curation, and the analyses behind whether a checkpoint is dependable enough for clinical use.
- Design cytosine-methylation analysis for nucleotide-level regulatory prediction, cell-free-DNA simulation and cell-type-of-origin classification, applied to early detection of Alzheimer's and Parkinson's disease.

Autopilot Fleet · Designer & Operator

2026 to Present

Mission control for a fleet of coding agents, running the whole of my working life unsupervised — planning and executing tasks, triaging comms into work, running research and due diligence, and shipping and reviewing its own software. I act only as CEO: it escalates the few decisions that genuinely need one. ~1,000 commits of platform code across a dozen live projects.

- **Intake & harness:** comms, feeds and sessions are swept into one triaged work queue, then dispatched across multiple agentic coding systems (Claude Code and Codex) with durable dispatch and per-task worktree isolation. Node, TypeScript, Python, SQLite, MCP and Restate.
- **Evaluation:** a definition-of-done gate pairing an independent test rerun with an opposite-model code review, plus a different-lineage critic routed to the current leader on a live benchmark board, so evaluation survives model drift.
- **Usage control:** a quota governor paces spend against real usage telemetry under per-project budget envelopes, and per-task quality scoring against retunable weights keeps cost-per-outcome visible.
- **Human console** (hq.timingliu.org): leadership and COO briefs in a git-committed editor, beside live fleet state, intake and provider-usage views.

Moorfields Eye Hospital / Cambridge Centre for AI in Medicine · Deep Learning Engineer

2021 to 2024

Built multimodal models combining retinal imaging, genetics and health records. Work contributed to a retinal foundation model in *Nature* and studies in *JAMA Psychiatry* and *Ophthalmology Science*.

Wellcome Sanger Institute · Statistical Geneticist

2020 to 2022

Built statistical-genetics pipelines on HPC for cohorts of about 44,000 people, including genome-wide association and polygenic-risk analyses.

ENGINEERING LEADERSHIP & PRODUCT

Finomics · Co-Founder & Engineering Lead

2025 to Present

Co-founded a cloud platform for NHS rostering, pay and leave, replacing spreadsheet-based processes with compliant, optimised workflows for hospitals and clinicians.

- Lead engineering: set technical direction and review across React, TypeScript, Python and Postgres, with Terraform and GitHub Actions CI/CD.
- Developed the constraint-solving scheduling engine, translating NHS working-time requirements into product logic.
- Piloting at two hospitals, with estimated savings of about £7,500 per clinician a year.

MedTech Foundation · National Program Director

2020 to 2022

Ran a national medical-technology programme end to end: grew the network from 7 to 14 branches and past 5,000 members within the first year, and built its training programmes.

Sync · Founder & Full-Stack Engineer

2025 to Present

Built and operate a live product that reads group calendars, identifies genuine availability and books venues. Next.js 15, React 19, TypeScript, Prisma and Postgres, with release automation and safe database migrations.

RESEARCH PROGRAMMES

Led as first or joint-first author — study design, analysis pipeline and publication.

Type 1 diabetes misclassification in British Pakistani and Bangladeshi cohorts, via polygenic risk scores · *Scientific Reports*, 2025

Retinal biomarkers for systemic disease: an oculome-wide association study in 164,784 individuals · *IOVS*, 2023

Leukocyte telomere length and glaucoma traits in UK Biobank · *IOVS*, 2024

Retinal fractal dimension and schizophrenia · *IOVS*, 2022

Single-molecule sequencing for preimplantation genetic testing · *Clinical Chemistry*, 2023 · joint first author

FRAXA and FRAXE screening by triplet-primed PCR · *Journal of Molecular Diagnostics*, 2021

Second author on seven further studies, contributing the models and analysis pipelines behind them — deep-learning retinal segmentation, age prediction from fundus images, polygenic risk scoring and retinal-vascular disease associations — in *JFO Open Ophthalmology*, *Scottish Medical Journal* and *IOVS*.

APPLIED-AI PROJECTS

Home-search agent

Scores rental listings on commute and affordability, then drafts and sends agency enquiries. Learns my taste from thumbs, notes and my edits to its drafts, distilled into rules applied deterministically. Booked 11 viewings into one afternoon; it found the flat.

French-for-finance tutor

Reading, writing, vocabulary and spoken roleplay over SM-2 spaced repetition, with generated exercises, neural speech synthesis and Whisper recognition. Model calls route down a provider chain, so one tier's rate cap never stops a lesson.

Social media OS

A learning feed over arXiv, Hacker News, GitHub, Reddit, RSS and X that ranks on what I actually open, plus a publishing dispatcher for LinkedIn and X behind brand-fit and IP guards — with a durable click marker so a timed-out publish can never double-post.

Ward-round simulator

An LLM-driven trainer that generates patients, drives interruptions against a clock and marks free-text clinical reasoning against rubrics. Opens each session on the weakest material and exports a cumulative gap profile. Explicit about what the mark does not certify.

Grocery-first recipe app

Starts from what is in the pantry, not from a recipe: a scoring engine ranks dishes by essential-ingredient coverage over an ingredient hierarchy, computes the shopping list for the gap, and an LLM decides what to cook. Bilingual EN/CN. Drove a 200% increase in home-cooked meals over eating out.

NHS record-fragmentation map

Mapped the electronic-record vendor across 2,536 NHS hospital sites with per-site confidence and sources, then tested 12 adjacency clusters for whether neighbouring trusts actually share a patient record. Mostly they do not.

EARLIER ENGINEERING

National University of Singapore · Computational Biologist

Led preimplantation genetic-testing projects on Oxford Nanopore and Illumina; built an R aneuploidy-detection package with a Shiny app, and a duplex Fragile X assay. 2017 to 2023.

Mansfield Advisors · Technical Consultant

Data pipelines, text-mining workflows and models for healthcare and pharmaceutical due diligence across the UK, China, Germany and Spain. 2020 to Present.

ClinicianWiki · Founder & Full-Stack Developer

Founded and built a collaborative medical-knowledge platform end to end. Grew into a 10-person charity and led to an NHS Clinical Entrepreneur place.

Cambridge Clinical Trial Unit · Mobile Developer

Built mobile data-capture applications for three live COVID-19 trials during the first wave.

TECHNICAL SKILLS

AI: PyTorch, transformers, foundation models, LLM evaluation and orchestration, MCP, agentic systems, multimodal and causal modelling, GPU and HPC.

Product & infrastructure: TypeScript, React, Next.js, Python, SQL, Postgres, Prisma, REST, OAuth, Terraform, CI/CD and safe database migrations. Also R, C#, Shell, Flutter and NLP.

EDUCATION & RECOGNITION

University of Cambridge · MB BChir, Medicine (2025) · MA (Hons), Engineering in Information & Bioengineering (2022)

Awards: Cambridge Engineering Project Prize (top reinforcement-learning project); Engineers' Progress Prize; NHS Clinical Entrepreneur; MIT COVID-19 Challenge winner.

Research: 27 publications, 3 patents and 1,450+ citations, including clinical foundation models, genomics and applied AI.

Clinical: Resident Doctor, Chelsea & Westminster Hospital, since 2025 — acute medicine, emergency medicine and geriatrics. Frontline work grounds product decisions for clinical workflows.