

EXPERIENCE

Software Engineer & Senior Software Engineer, Thought Machine (2020 - Present) London, UK

Core banking & payment processing systems for the world's largest banks and fast-growing fintechs

- **Built Mastercard processing systems:** Led design and development of both real-time and batch Mastercard transaction processing systems, passing Mastercard certification and going live with real-money cards in 1 year
- **Extended payment flow Python configuration language:** Updated proprietary build-your-own-payment-flow configuration language to parameterise a flow's behaviour at runtime, by statically parsing parameter types at build time and updating the language runtime to fetch parameter values on the payment-processing hot path
- **Acquired access control expertise:** Led development of authentication and role-based access control in new product, ramping up on auth protocols (OAuth 2, OIDC) to become a domain expert within the team
- **Mitigated security threats:** Created threat model for new deploy-your-own-web-app product, covering threats from storing user-provided TypeScript React code in cloud storage and executing the code in user's browser, identifying mitigations for each threat, and collaborating with Security to prioritise and resolve each one
- **Measured reliability metrics:** Built metrics aggregation pipeline to measure SLO compliance for each service and aggregate compliance at the team level, and created Grafana dashboards to visualise SLO compliance, to provide each team with more data when deciding between reliability improvements and new feature development
- **Improved team productivity:** Built integration testing framework using Go generics, which saved thousands of lines of repetitive test code for any new API resource that followed the company's standardised patterns
- **Contributed across the stack:** Wrote TypeScript React GUI for managing app installation and upgrades in deploy-your-own-web-app product, and adding user login via OIDC; wrote internal tooling that interacted with Kubernetes clusters to access managed databases and EC2 instances, and integrated new product into the company's software release pipeline for self-hosted clients
- **Defined and built alignment on product requirements:** Wrote Product Requirement Documents for a fully managed payment flow configuration language offering, and another for integrating all company products with a data warehouse, by interviewing internal stakeholders and building consensus between them

Co-creator & Software Engineer, Apex (2020) Remote (based in London, UK)

Open-source API Proxy for microservices that provides one place to log and control all service-to-service traffic

- **Designed architecture:** Chose Node.js proxy server, Redis configuration store and TimescaleDB logs database, targeting small teams migrating from a monolith to their first few microservices
- **Built proxy server:** Added middleware layers for routing, logging and retry logic
- **Containerised components:** Dockerised services and deployed with Docker Compose to AWS ECS
- **Co-authored technical case study** at <https://apex-api-proxy.github.io/>

Co-founder, Parent Genie (2017 - 2018) & Humanry (2016 - 2017) Hong Kong

Q&A platform for parenting advice; B2B marketplace for executive coaches; Mobile micro-learning platform

- **Prototyped mobile apps:** Built and shipped apps to app stores in 2 weeks; tested products with 50+ users
- **User research:** Identified parents' need for quality advice, through 50+ interviews and 1 week-long observation session with parents, using Design Thinking and Job to Be Done principles
- **Sales:** Trialled apps with Uber, PayPal, and HK Jockey Club; secured meetings with 32 HR, L&D and sales leaders in multinationals including Goldman Sachs, JPMorgan, AXA, Uber, Prudential

EDUCATION

Trinity College, University of Cambridge (2011 - 2015) Cambridge, UK

BA Mathematics (3 years) & Management (1 year, at Cambridge Judge Business School)

- **Class I** in Mathematics (years 1 and 2); **Class II.1** in Mathematics (year 3) and Management (year 4)

[Launch School](#) - Software Engineering School (2018 - 2020) Remote

Multi-year full-stack Software Engineering curriculum focused on mastering web development fundamentals

SKILLS

Back end: Golang, Python, Node.js, Ruby, PostgreSQL, Kafka, Redis, Prometheus, Grafana, Bash, Please build system;
Front end: JavaScript/TypeScript, React, HTML, CSS; **Infrastructure:** Kubernetes, Terraform, AWS, GCP