

# Julian Pionke

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## Summary

Full Stack Engineer with 8+ years of experience developing AI-driven healthcare, research, and commerce platforms using **Python (FastAPI, Flask)** and **JavaScript (React, Next.js)** across enterprise systems. Experienced in building scalable microservices, secure authentication flows, and cloud-native architectures on **GCP, AWS**, and containerized **Kubernetes** environments. Specialized in optimizing AI pipelines and data-centric applications integrating **TensorFlow, Vertex AI**, and SaaS components with modern DevOps automation and regulatory compliance.

## Professional Experience

### Senior Software Engineer

August 2024 – Present

Deloitte

- Played key role in architecturing **CareLink AI**, a cloud-based healthcare platform integrating **Python FastAPI, React, and Google Cloud Platform** for predictive patient analytics.
- Optimized AI-driven health monitoring pipeline using **TensorFlow, MedPaLM-2, and Vertex AI**, enhancing diagnostic analysis speed by **35%** across clinical datasets.
- Developed **FHIR/HL7 API** connectors enabling hospitals to securely exchange health records through **FastAPI microservices and OAuth 2.0** authorization.
- Enhanced real-time clinician dashboards using **Next.js, Tailwind UI, and Chart.js**, providing predictive visual insights from large-scale patient data.
- Configured secure file handling with **Cloud Storage and Firestore**, ensuring compliance with **GDPR** and **HIPAA** requirements across all environments.
- Streamlined deployment workflows through **Cloud Build, Docker, and Kubernetes**, supporting reliable scaling during public beta launches.
- Refactored backend modules for modular microservice communication, leveraging **Pub/Sub and Cloud Tasks** for async processing of large EHR data streams.
- Improved patient care timeline features by integrating **Apple HealthKit and Fitbit API**, extending multi-device data synchronization capabilities across mobile and web.

### Senior Software Engineer

May 2021–August 2024

Google

- Architected core components of **NotebookLM**, a SaaS research assistant built with **Python, Node.js, and React**, delivering AI-powered grounded document summarization.
- Developed retrieval-augmented generation (RAG) pipelines leveraging **Gemini LLM** and **PaLM** APIs to generate citation-linked insights from uploaded materials.
- Integrated secure document ingestion using **Google Cloud Storage, Cloud Functions, and BigQuery**, improving processing throughput by **40%**.
- Worked closely with product and research teams to design intuitive chat experiences powered by **Next.js and Material UI**.
- Enhanced internal API gateways with **FastAPI** and **gRPC**, enabling scalable service-to-service communication across global deployments.
- Configured observability and alerting through **Cloud Monitoring** and **Error Reporting**, ensuring low-latency, high-reliability responses for millions of users.
- Refactored legacy Node.js components into microservices orchestrated via **Kubernetes (GKE)** and **Docker**, improving code isolation and deployment speed.
- Analyzed user feedback pipelines through **Pub/Sub and Dataflow**, automating model-driven feature ranking and response optimization.
- Executed A/B testing frameworks using **Cloud Run and Firestore**, validating LLM model improvements across multilingual datasets.
- Improved authentication and SSO support using **OAuth 2.0, Firebase Auth, and Identity Platform** for secure

enterprise access.

- Documented technical architecture and ML data governance models for enterprise and compliance audits, enabling future scalability of NotebookLM's SaaS framework.

## Software Engineer

Deviniti

July 2019–March 2021

- Contributed in developing backend APIs for **ShopEase**, an AWS-based e-commerce platform using **Node.js**, **Express**, and **MongoDB**.
- Built dynamic storefronts with **React**, **Next.js**, and **Redux**, improving catalog rendering times by **28%** through optimized state management.
- Integrated secure payment systems using **Stripe API**, **PayPal SDK**, and **AWS Lambda** for serverless transaction handling.
- Configured CI/CD pipelines with **AWS CodePipeline**, **CodeBuild**, and **S3 CloudFront** for automated deployments and asset delivery.
- Enhanced analytics dashboards using **Chart.js** and **Recharts**, providing store owners with visual insights into revenue and sales trends.
- Resolved API latency issues by refactoring query logic and applying **MongoDB indexes**, improving data retrieval speed in real-time reports.
- Customized admin dashboard features enabling business users to configure promotions and inventory alerts directly from the web interface.
- Assisted senior engineers in transitioning monolithic modules into RESTful microservices for modular scalability and easier maintenance.

## Junior Software Engineer

July 2017–August 2019

Ramp Network

- Participated in developing non-custodial payment infrastructure connecting fiat and crypto using **React.js**, **Python Flask**, and **PostgreSQL**.
- Automated onboarding workflows for partner wallets via **REST APIs** and **OAuth 2.0**, reducing manual integration time by **25%**.
- Assisted in configuring blockchain payment flows across **AWS EC2**, **Lambda**, and **S3**, improving scalability during high-volume transactions.
- Refactored front-end components in **React.js** to improve modularity and state management for multi-currency payment forms.
- Worked closely with compliance teams to implement **Open Banking APIs** and AML/KYC verification in backend services.
- Maintained early product documentation for SDK integrations, ensuring developer partners could embed fiat-to-crypto on-ramps easily.
- Analyzed transaction flow metrics via **CloudWatch** and **Grafana**, identifying throughput bottlenecks and optimizing API rate limits for stable payment operations.

## Technical Skills

- **Backend:** Python (FastAPI, Flask), Node.js (Express), TensorFlow, gRPC, GraphQL, REST APIs, Celery, Pub/Sub, Kubernetes Jobs
- **Frontend:** React, Next.js, Redux, Tailwind UI, Material UI, Chart.js, Recharts, TypeScript, Flutter
- **Microservices & APIs:** FastAPI, Express, gRPC, GraphQL, FHIR/HL7, OAuth 2.0, OpenID Connect, WebSockets, API Gateway, Cloud Tasks
- **Cloud & DevOps:** GCP (Vertex AI, Cloud Run, Pub/Sub, Firestore, BigQuery, Cloud Functions), AWS (EC2, S3, Lambda, CloudFront, CodePipeline), Docker, Kubernetes
- **Databases:** PostgreSQL, MongoDB, Cloud SQL, Firestore, Redis, BigQuery
- **Messaging & Streaming:** Pub/Sub, Kafka, RabbitMQ, Cloud Tasks, Celery
- **Testing & Quality:** Pytest, Jest, React Testing Library, Postman, Cypress, SonarQube
- **Security & Compliance:** GDPR, HIPAA, IAM, JWT, Encryption, Key Management Service (KMS), Audit Logging
- **Tools & Platforms:** Git, GitHub Actions, Bitbucket, VS Code, JIRA, Notion, Figma
- **Infrastructure & Monitoring:** Cloud Build, Prometheus, Grafana, Cloud Monitoring, Error Reporting, Logging,

Terraform

- **Project Methodologies:** Agile, Scrum, CI/CD, Code Review, TDD
- **E-commerce & Payments:** Stripe API, PayPal SDK, Open Banking API, PCI-DSS
- **Healthcare Standards:** FHIR, HL7, HIPAA, GDPR, Vertex AI Medical APIs

## Education

**Master of Computer Science,**  
Trinity College Dublin (TCD), Dublin, Ireland

2015-2017

**Bachelor of Computer Science,**  
Trinity College Dublin (TCD), Dublin, Ireland

2011-2015