

Senior Python Full Stack Developer

Matthew Chow

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Senior Python Full Stack Engineer with **11+ years of experience** designing and building large-scale, high-performance platforms using **Python, Django, FastAPI, Node.js, and React/TypeScript**. Expert in **backend architecture, microservices, REST/GraphQL APIs, cloud-native infrastructure (AWS/Azure), and database optimization**.

Proven track record in **scaling complex systems, automating workflows, improving reliability and performance**, and leading the implementation of **LLM/GenAI-powered features** to enhance user engagement. Strong experience in **DevOps, CI/CD pipelines, containerization (Docker/Kubernetes), and secure enterprise systems**. Collaborative technical leader with a history of mentoring teams, driving architecture decisions, and delivering measurable business impact.

PROFESSIONAL EXPERIENCE

Breakout EDU

Senior Full Stack Engineer

Remote

Oct 2022 – Nov 2025

At BreakoutEDU, I help build and maintain the platform that powers interactive learning experiences for educators and students.

- **Solved large-scale performance and scaling challenges** for interactive learning systems using **Python (Django, FastAPI), React/TypeScript, and Node.js**, increasing platform capacity and concurrency handling by **40%**.
- **Architected and developed high-performance RESTful APIs, GraphQL services, and microservices**, reducing system latency by **35%** and improving request throughput during peak usage.
- **Built and optimized cloud-native infrastructure** using **AWS Lambda, ECS, S3, RDS, API Gateway, CloudFront**, achieving **99.9% uptime** and supporting global, low-latency delivery.
- **Led development of LLM & GenAI-powered features** using **OpenAI API, LangChain, LlamaIndex, embeddings, and RAG pipelines**, improving personalized learning experiences and user engagement by **25%**.
- **Strengthened platform security and compliance** with **OAuth2/JWT authentication, SSL/TLS encryption, IAM hardening, and SOC2-ready practices**, reducing security incidents by **90%**.
- **Streamlined DevOps workflows and CI/CD pipelines** using **GitHub Actions, Docker, Kubernetes, IaC (Terraform/CloudFormation)**, cutting deployment times by **30%** and improving release reliability.
- **Collaborated closely with product, design, backend, and data teams**, providing technical leadership across architecture, debugging, code reviews, and full-stack feature development.

Topgolf

Python Full Stack Engineer

Dallas, TX

Sep 2021 – Sep 2022

I worked as a lead developer on one of Topgolf's largest internal systems—the Sales Reservation Management PIE platform.

- Improved the **Sales Reservation Management PIE platform** by resolving critical backend bottlenecks, increasing booking performance by **45%**.
- Designed and optimized **serverless APIs and microservices** with **Python (FastAPI/Flask) and Node.js**, increasing request throughput and reducing infrastructure cost by **20%**.
- Enhanced data performance through **PostgreSQL/MySQL optimization and Redis caching**, improving reservation data access speeds by **60%**.
- Strengthened internal dashboards using **React/Redux**, improving frontend responsiveness and reducing load times across key workflows.
- Streamlined deployments with improved **CI/CD pipelines** (Docker, Kubernetes, GitHub Actions/Jenkins), cutting deployment friction by **35%** and improving release stability.

Experian

Senior Computer Programmer

Greater Sacramento, CA

Sep 2014 – Oct 2021

During my time at Experian, I focused on automation, system reliability, and improving internal workflows.

- Engineered end-to-end automation solutions using **Python (FastAPI, Django), Node.js, and Bash**, eliminating manual workflows and improving engineering productivity by **40%** while reducing operational errors by **50%**.
- **Built and optimized scalable backend architectures**, including **RESTful APIs, GraphQL services, microservices, and event-driven/serverless systems**, increasing throughput and system reliability by **35–45%**.
- **Developed full-stack internal applications using the MERN stack (MongoDB, Express, React, Node.js)** to modernize legacy tools, improving UI responsiveness and reducing workflow friction across multiple teams.
- **Implemented high-performance caching and distributed processing** with **Redis, Memcached, Kafka/RabbitMQ**, and advanced SQL optimization, improving API and data pipeline performance by **60%**.
- **Designed cloud-native infrastructure on AWS**, utilizing **Lambda, EC2, RDS, S3, API Gateway, CloudFront, IAM**, and Infrastructure-as-Code (Terraform/CloudFormation) to deliver secure and scalable systems.

- **Integrated real-time monitoring & observability** using **Prometheus, Grafana, ELK**, and AWS CloudWatch, decreasing production outages by **25%** and reducing mean-time-to-recovery (MTTR) by **30%**.
- **Improved frontend performance and stability** by implementing **React best practices, reusable component libraries, code-splitting, caching strategies, and optimized API integration**.
- **Delivered robust CI/CD pipelines** using GitHub Actions, Jenkins, and Docker/Kubernetes, enabling automated testing, artifact versioning, and zero-downtime deployments.
- **Strengthened platform security** by implementing **OAuth2/JWT authentication, secrets management (AWS SSM/Vault), secure API design, and role-based access controls**, ensuring compliance with enterprise requirements.
- **Built internal dashboards, admin panels, and DevOps tooling** for engineering, support, and product teams—improving operational visibility and accelerating decision-making by **20%**.
- **Acted as a senior engineering mentor**, leading architectural reviews, resolving complex production issues, improving code quality through reviews, and guiding junior developers across backend, frontend, and cloud projects.

TECHNICAL SKILLS

- **Programming Languages**
Python, JavaScript/TypeScript, Node.js, SQL, Bash
- **Backend & Architecture**
Django, FastAPI, Flask, RESTful APIs, GraphQL, gRPC, Microservices Architecture, Event-Driven Architecture, Serverless APIs, Distributed Systems, Message Queues (RabbitMQ, Kafka), OAuth2 / JWT Auth, Caching (Redis, Memcached)
- **Cloud & Infrastructure**
AWS (Lambda, EC2, ECS, S3, API Gateway, CloudFront), Azure Functions, Google Cloud Run, Docker, Kubernetes, Terraform, Serverless Framework, Nginx, Load Balancers, CDN Optimization
- **Databases**
PostgreSQL, MySQL, MongoDB, DynamoDB, Redis, Elasticsearch, SQL Optimization, Data Modeling & Normalization
- **LLM & GenAI Systems**
OpenAI API, LangChain, LlamaIndex, Prompt Engineering, RAG Pipelines, Multi-Agent Systems, Fine-Tuning, Embeddings, Vector Search, Model Evaluation & Benchmarking
- **ML Frameworks & Optimization**
PyTorch, TensorFlow, Scikit-Learn, ONNX Runtime, Model Quantization, GPU Acceleration, Pipelines (Airflow, Prefect), Feature Engineering
- **Vector Databases**
Pinecone, Weaviate, Milvus, FAISS, ChromaDB
- **Testing & QA**
Pytest, Unittest, Postman/Newman, Jest, Playwright, Integration & Load Testing, API Contract Testing
- **DevOps & CI/CD**
GitHub Actions, GitLab CI, Jenkins, Docker Compose, Helm, Logging & Monitoring (Prometheus, Grafana, ELK), Automated Deployments, Blue/Green & Canary Releases
- **Collaboration & Management Tools**
Jira, Confluence, Slack, Notion, Agile/Scrum, Code Reviews, Technical Documentation, Architecture Diagrams
- **Security & Compliance**
OWASP Top 10, Secure API Design, Identity & Access Management, Secrets Management (Vault/SSM), SSL/TLS, SOC2-ready architecture, Data Encryption (at-rest/in-transit)

EDUCATION

2008 – 2014

University of California, Davis

B.S. in Computer Engineering