Alexander Jacobs

Software Development Engineer

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<available on request>

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CORE COMPETENCIES

TECHNICAL

Software Development

Data Science
(NLP, LLMs/Prompt Engineering)

API Design & Optimization

Infrastructure as Code
(Terraform, CloudFormation)

INTERPERSONAL

Creativity

Collaboration

Mentorship

Adaptability

TECHNICAL SKILLS

Python
(FastAPI, Django, LangChain,
Pandas, Sklearn, Pytest)

AWS
(Fargate, EC2, Lambda, SQS, DDB,
S3, Step Functions, CloudWatch)

Databases
(MySQL, PostgreSQL, MongoDB,
Redis)

Docker

React

Java
(Spring)

R
(Tidyverse/dplyr, ggplot, Shiny)

Profile

Well-rounded Software Development Engineer with deep expertise spanning IT, engineering, and data science. Adept at building end-to-end solutions, from data ingestion and processing pipelines to intuitive user interfaces. Skilled in Python, AWS, containerization via Docker, CI/CD tooling, and full-stack development using technologies like Django, FastAPI, and React. Equally comfortable in infrastructure management, API design, and UI development. Known for problem-solving prowess and a commitment to driving innovation in collaborative environments.

Experience

Catalytic Data Science | 2018 - Present
Software Development Engineer

Innovation and User Experience
• Architected and led development of a data interaction framework leveraging LLMs, translating natural language into query language and using retrieval augmented generation (RAG).
• Engineered a conversational interface allowing users to query and interact with data using natural language.

Infrastructure and Scalability
• Engineered fault-resilient multi-omics analytic pipeline infrastructure, using Docker, step functions, lambdas, and a proprietary orchestrator.
• Deployed cloud infrastructure for ephemeral R-shiny and Flask instances, accelerating data insights and enhancing UX.
• Improved pipeline reliability by designing automated systems to automatically resize EBS volumes using AWS CloudWatch and Lambda, virtually eliminating disk-space-related pipeline failures.

Development and Optimization
• Orchestrated containerization of genomic tools and Python API layers, optimizing delivery to feature 60+ analytics modules and 90+ integrated pipelines.
• Optimized legacy codebases for superior performance and maintainability, reducing development and debug time.

API and Integration
• Established Django API facilitating OAuth2-enabled third-party integration of storage and chat solutions
• Developed FastAPI applications for report generation, user feedback, and many more actions integrated directly into conversational AI platforms
• Created internal utilities for API interaction, streamlining workflows for both technical and non-technical staff.

PUBLICATIONS

Word2Vec Inversion and
Traditional Text Classifiers
for Phenotyping Lupus

BMC Medical Informatics and
Decision Making,
BioMed Central, 2017

Experience

Software Development Engineer (cont.)

Testing and CI/CD
• Built comprehensive test suites for analytics, APIs, and significantly bolstered internal CI/CD capabilities.
• Employed performance metrics to fine-tune API responsiveness and scalability, minimizing latency.
• Enhanced CI/CD workflows with custom built deployment tools, packaging services and their cloud resources together, enabling consistent and rapid deployment cycles across development, testing, and production environments.

Team Development
• Mentored junior developers in codebase and best practices, expediting high-quality analytics and pipeline delivery.
• Developed internal documentation standards, reducing onboarding time and increasing code maintainability.

LS3P Associates | 2016 - 2018
Data Scientist I

• Launched data science as a firm-wide discipline, pushing data-driven design paradigms into the studio.
• Engineered a data solution tailored for architectural project management, revolutionizing the firm's approach to storing and leveraging project data for enhanced decision-making efficacy.
• Developed internal-use RESTful APIs to enable querying and exploration of firm data.
• Cleaned and analyzed 5000+ support tickets for subject and sentiment, and developed a more performative support system.
• Supported operations, infrastructure, and server management firm wide (8 offices)