Daniel Fonseca

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Profile

Experienced software architect with a passion for developing scalable, high-performance applications and a strong dedication to the open-source community. With over a decade of experience working with leading Brazilian unicorns such as QuintoAndar and Neon Bank, where I engineered applications capable of handling thousands of requests per minute.

My professional journey has been diverse, encompassing founding startups and leading engineering teams to deliver innovative solutions. Noteworthy contributions include projects like NestJS, Chia, and Kubeless, where I collaborated with global developers. Currently serving as the Lead Software Architect at Trilon, spearheading a team in the development of a multi-tenant e-commerce platform for a top industrial parts distributor. Our goal is to revolutionize online order processing and supplier management while ensuring the platform's scalability and adaptability for future requirements.

Thriving in dynamic environments that blend technology and creativity, I excel in solving complex challenges with elegant and efficient solutions. Whether it involves architecting systems, mentoring teams, or contributing to open-source initiatives, I bring a relentless pursuit of excellence and a drive to innovate beyond boundaries.

Primary Stack

NestJS Typescript NodeJS Leadership Python

Leadership DevOps Infrastructure as Code

Work Experience

03/2022 – PRESENT UNITED STATES

Lead Software Architect
Trilon

- Orchestrated the development of a multi-tenant e-commerce platform for a leading industrial parts distributor in the U.S., crafting a unified codebase and backend infrastructure to support multiple e-commerce sites.
- Managed a team of 20 engineers, overseeing technical design and fostering team growth to deliver scalable, maintainable, and forward-looking solutions.

Work Experience

- Pioneered and managed a machine learning project to automate customer purchase request processing, creating a web application and Excel add-in capable of handling up to 100,000 rows of data.
- Successfully migrated Plato, a Silicon Valley startup's legacy codebase to NestJS, implementing a microservices architecture following in-depth research and analysis.
- Enhanced ClickUp's legacy codebase by implementing best practices with Nx and NestJS, and authored Architecture Decision Records (ADRs) to facilitate technical discussions.

10/2020 – 03/2022 BRAZIL

Chief Technology Officer (CTO)
Bud

- Spearheaded and coached a high-performing product team comprised of developers, designers, and product managers, instilling a product-centric mindset that propelled startup growth and success.
- Played a pivotal role in securing pre-seed and seed funding, facilitating platform scaling and customer acquisition efforts.
- Supervised the development of intricate features such as notifications, real-time analytics, social networking, and multi-tenancy database management, elevating the platform's user experience.
- Conceptualized and launched the company's OKR platform MVP within a month utilizing NextJS, NestJS, Typescript, and React, actively contributing to strategic discussions regarding product direction.
- Expanded the product team and guided the MVP's development, implementing crucial features over two quarters that resulted in heightened customer adoption and company expansion.

04/2019 – 10/2020 BRAZIL

Senior Software Engineer
QuintoAndar

- Spearheaded the design and implementation of an on-premise Kubernetes-based serverless infrastructure, enhancing operability and developer experience company-wide.
- Led the automation of serverless function deployments on Kubernetes using Kubeless, achieving recognition as a top contributor to the open-source project.
- Managed and optimized company infrastructure, implemented monitoring solutions with

Work Experience

Prometheus and Grafana, and automated real-time alerts via Statuspage for improved decision-making processes.
- Functioned as the senior backend engineer in the Top of Funnel squad, focusing on consumer acquisition by developing microservices in Typescript and Python to optimize user experience from website visits to property bookings.
- Enhanced customer engagement by refactoring the notification system to handle up to one million daily alerts and implementing smart notification features.
- Developed a machine learning-powered smart pricing feature enabling dynamic property price adjustments based on market demand.
- Mentored junior team members, established company-wide architecture decision patterns, and secured victory in the company's first hackathon.

Education

01/2021 – PRESENT CAMPINAS, BRAZIL

Computer Science | Master's
UNICAMP

- Conducted research during Master's program at UNICAMP focusing on memory usage for seismic attribute operators before execution
- Developed TraceQ, a memory profiler that dynamically instruments Python codebases to generate accurate memory profiles
- Integrated TraceQ with scheduling tools to optimize chunk size for data processing, ensuring efficient work distribution and minimizing memory usage
- Implemented project in seismic initiative at Petrobras, fully integrated with their automatic feature detection system
- Enabled new models to determine the best cluster configuration on the fly, optimizing cost and performance without losing training data during profiling.

06/2017 – 07/2024 BOSTON, UNITED STATES

Machine Learning | Expert
MIT

- Completed an expert course at MIT focusing on the foundations of Machine Learning, tailored for big data and text processing
- Developed a comprehensive understanding of state-of-the-art artificial intelligence techniques and solid foundation in mathematical logic relevant to Machine Learning
- Studied and applied essential concepts including backpropagation, bag of words, word2vec, and seq2seq using TensorFlow
- Enhanced skills in Machine Learning and Deep Learning, with a focus on processing large datasets and text data
- Applied gained knowledge and experience to successfully contribute to data science and machine learning projects

Education

Publications

07/2023

High Performance Computing in Clouds
Springer

https://link.springer.com/book/10.1007/978-3-031-29769-4

- Authored a comprehensive guide on leveraging cloud computing for High-Performance Computing (HPC) applications, focusing on deployment, design, and optimization
- Developed best practices for maintaining and optimizing HPC in the cloud, with an emphasis on fault tolerance and resource efficiency
- Featured case studies from scientific sectors such as Bioinformatics and the Oil and Gas industry to highlight successful HPC cloud migrations
- Explored the use of cloud services for training deep learning models and provided practical strategies for executing HPC applications
- Addressed a gap in existing literature, positioning the manuscript as a valuable resource for IT professionals, students, and researchers interested in cloud-based HPC technologies.

Volunteering

01/2022 – PRESENT

Core Contributor
NestJS

- Collaborated directly with founders, maintainers, and core contributors of NestJS at Trilon, providing valuable contributions to the microservices packages
- Implemented new features and optimizations based on real-world client feedback, enhancing the framework's functionality
- Utilized insights from professional experiences to address developer needs and challenges in building scalable server-side applications
- Contributed to the evolution of NestJS to benefit the broader developer community, ensuring continued innovation and growth
- Actively participated in the open-source community, giving back and driving innovation in everyday tools and technologies.