

# Fernanda Metzger-Macedo

(445) 888-5038 | fer.de.macedo@gmail.com | [linkedin.com/in/ferdemacedo/](https://www.linkedin.com/in/ferdemacedo/) | Boston, MA

## SUMMARY

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Senior Software Engineer with experience building scalable backend systems, RESTful APIs, distributed data pipelines, and cloud-native microservices. Specialized in Python frameworks including Flask, Django REST Framework, and FastAPI.

## SKILLS

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- Languages: Python, JavaScript, Java, C++
- Backend and APIs: FastAPI, Django, Django REST Framework, Flask, SQLAlchemy, REST APIs, Pytest
- Distributed Systems and Data: Celery, Kafka, RabbitMQ, Redis, PostgreSQL, ETL Pipelines
- Cloud and Infrastructure: AWS, Docker, Kubernetes, ArgoCD, GitHub Actions, GitOps
- Observability and Reliability: Prometheus, Grafana, Graylog, performance profiling, distributed debugging
- Engineering Practices: System Design, Microservices, Design Patterns, CI/CD, RFC Authoring, Unit/Integration Testing, Clean Architecture
- Tools: Agentic Coding Tools (Claude Code, Codex)

## EXPERIENCE

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### Center for Astrophysics | Harvard & Smithsonian - NASA ADS

July 2023 - Present

Senior Backend Software Engineer

Cambridge, MA

- Designed and implemented an asynchronous Celery-based metadata pipeline supporting 30M+ scientific documents and powering sitemap generation that drives roughly one-third of ADS and SciX inbound traffic.
- Redesigned a high-throughput PDF generation workflow, reducing latency from 60 seconds to 200 milliseconds and eliminating timeouts under production load.
- Built and maintained REST API endpoints for ADS Libraries using Flask and FastAPI, including permission-checked operations, versioning, lifecycle management, and OpenAPI specifications across multiple services
- Led Kubernetes and GitOps migration efforts by authoring deployment, autoscaling, ingress, and service manifests across development, QA, and production environments for multiple microservices and data pipelines

### Nubank

Nov 2021 - May 2022

Backend Software Engineer

Remote, Brazil

- Improved CI/CD reliability by migrating engineering pipelines from Jenkins to Tekton and automating large-scale repository migrations involving 900+ repositories from Bitbucket to GitHub.
- Built integrations between GitHub and Jira to automate compliance and audit workflows, reducing operational overhead for engineering teams.
- Standardized deployment and pipeline configurations across repositories, improving delivery consistency and reducing maintenance complexity

### Avenue Code

Feb 2021 - Oct 2021

Backend Software Engineer

Remote, Brazil

- Built and maintained Dockerized Python microservices for a global order and inventory management platform integrating 50+ online marketplaces, enabling high-volume order processing and improving fulfillment latency
- Contributed to migrating a monolithic order and inventory management platform into distributed microservices using Django, FastAPI, and PostgreSQL
- Implemented asynchronous messaging workflows using RabbitMQ to support distributed transaction processing and high-throughput order pipelines
- Developed resilient third-party marketplace integrations with retry handling, idempotency protections, and automated recovery mechanisms
- Improved engineering quality through automated testing, CI/CD adoption, peer review workflows, and test coverage exceeding 80%

## EDUCATION

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**Universidade Federal do Rio Grande do Norte**  
Bachelor of Science in Science and Technology  
**Cornell University**  
Computer Science, One-Year Study Abroad Program

Natal, Brazil

New York, United States