

# Backend Engineering Specialist (Python) | Mentor and Software Craftsman

Functional Paradigm (Elixir/Gleam) Enthusiast

Seasoned **Python** specialist with 15+ years of experience designing robust backend systems across **AI/ML** platforms, financial services, and SaaS products. I bridge **DevOps**, databases, and architecture while maintaining deep Python expertise, prioritizing craftsmanship and elegant solutions in every project—from SOC2-compliant platforms to containerized AI workloads.

A functional programming enthusiast exploring **Elixir** and **Gleam**, I apply these paradigms to write safer Python code while thriving in technically complex environments. Whether modernizing legacy systems at Santander or optimizing deployment pipelines at Origen, I excel where precision and cross-disciplinary collaboration are essential.

Beyond implementation, I **mentor engineers** in Python best practices and functional programming principles. My articles explore how these languages transform software design approaches. I'm passionate about creating thoughtfully crafted systems with long-term maintainability.

*My flow state emerges when crafting elegant systems with comprehensive test coverage - that sweet spot where technical precision meets creative problem-solving. I thrive most when fully immersed in documenting my solutions, optimizing code or refining features.*



**Andres Monge**

## Work Style - Artisan and INTP-A Logician

### Code Quality Champion

Prioritize clean, maintainable code through rigorous code reviews and documentation standards, ensuring long-term project sustainability.

### Iterative Architect

Balance immediate business needs with long-term technical vision through phased implementation strategies and evolutionary design patterns.

### Documentation Advocate

Treat technical documentation as first-class engineering artifacts, creating living documents that streamline onboarding and knowledge sharing.

### Cross-Disciplinary Engineer

Implement solutions that bridge technical domains by leveraging expertise in databases, infrastructure, and application development for cohesive systems.

## Experience Highlights - Backend Software Engineer and Mentor

My software journey evolved from **web development foundations**—where I first discovered functional concepts through SQL—into **sophisticated backend engineering**. This deliberate progression represents a pursuit of increasingly complex challenges, with each career phase building deeper technical expertise. Through mastering component architectures, event-driven systems, and distributed computing, I've developed a problem-solving approach that leverages **functional paradigms** to create elegant solutions where traditional methods fall short. Today, this accumulated expertise enables me to tackle formidable engineering problems with both technical precision and the clarity that functional approaches uniquely provide.

### Senior Python Software Engineer @ Origen AI

Led Proteus platform evolution, securing SOC2 compliance. Collaborated with data scientists to translate AI models into production services. Developed BreezeFlow, a lightweight Airflow for AI pod management.

### Senior Python Software Engineer @ Babio

Architected and built the company's entire core solar proposal system with such precision it remains unchanged since delivery.

### Engineering Manager @ Lavanda

Led two engineering squads through product evolution phases, focusing on customer retention initiatives and technical debt management. Reduced customer churn by 18

### Technical Lead @ Global Savings Group

Guided cross-functional team through legacy system modernization while maintaining critical banking services. Designed NodeJS web-crawler saving €500/week through functional programming principles and reduced system downtime by 35

### Technical Lead @ Santander Global Tech

Managed international engineering squads across Spain/US while improving delivery predictability by 30

### Principal Frontend Engineer @ BBVA Compass

Co-designed TabletBanking app that became BBVA's global standard and mentored 3 junior developers while creating 200+ reusable components.

*Explore detailed project implementations and technical achievements in the experience sections below.*

## Principal Python Engineer

Origen AI (2024-2025)

*Python, Kubernetes, Docker, FastAPI, PostgreSQL, CI/CD, Security Compliance, Mentoring*

As backend development lead for the Platform team, I guided the evolution of Proteus, Origen's client-facing AI platform. My days involved collaborating with data scientists to translate AI models into production-ready services, architecting workflow systems that balanced performance with reliability, and ensuring our multi-tenant infrastructure maintained strict client isolation.

- Secured SOC2 compliance certification for the core platform
- Upgraded AI platform from Python 3.7 to 3.12
- Developed BreezeFlow, a lightweight Airflow for AI pod management
- Implemented complete client isolation using Kubernetes namespaces

### Personal Growth:

- Mastered sophisticated Kubernetes patterns specific to AI workloads
- Developed fluency in translating between data science and engineering terminology

Using Python and **FastAPI**, I proudly engineered testing protocols that decreased deployment failures by 65% while developing **fluency** in translating **between data science and engineering** terminology.

## Senior Python Engineer

Babio (contractor) (2023-2024)

*Python, FastAPI, Pydantic, MongoDB, Docker, Cross-functional Leadership, Technical Mentoring*

As project lead for Babio's solar proposal system, I architected and developed software that transformed the company's proposal generation process. Each day involved integrating complex data sources into a cohesive system that automatically generated tailored installation plans.

- Built complete system architecture using Python, MongoDB, and Docker
- Reduced proposal generation time by 70% through automated processing
- Achieved 90% test coverage ensuring exceptional system reliability

### Personal Growth:

- Mastered modern Python web frameworks and API design patterns
- Solidified my test driven development, making my code 100% covered

Architecting with **Python (FastAPI)**, I created a system so robust it became the unchanged **core of Babio's business** while reducing proposal generation time by 70%

## Machine Learning Engineer

Delorian Group (contractor) (2023-2023)

*Python, PyTorch, Transformers, CNN Architecture, Data Preprocessing, Independent Project Management*

As the sole developer for this three-month AI project, I independently built a landmark recognition system from the ground up. Managed the entire ML lifecycle while ensuring seamless integration with existing tourism systems.

- Developed CNN model with 83% accuracy in landmark identification
- Delivered complete end-to-end solution enhancing tourism offerings

### Personal Growth:

- Expanded Python expertise into specialized AI/ML applications
- Developed deeper understanding of ML infrastructure requirements

**Leveraging PyTorch**, I independently developed a **CNN model** achieving 83% landmark identification accuracy while expanding my specialized AI/ML expertise.

## Engineering Manager

Lavanda (2022-2023)

*Agile/Scrum methodologies, Jira, Git workflow management, Team Leadership, Strategic Planning*

Led two cross-functional engineering squads (10 developers) through product evolution phases, focusing on customer retention initiatives and technical debt management while bridging technical and business priorities.

- Reduced customer churn by 18% through strategic feature implementation
- Decreased sprint planning time by 40% through process refinements

### Personal Growth:

- Developed nuanced perspective on balancing technical excellence with business outcomes
- Refined approach to nurturing technical talent through individualized plans

**Through strategic planning**, I refined approaches to nurturing technical talent while creating documentation systems adopted company-wide.

**Technical Lead****Global Savings Group (2021-2022)***JavaScript (ES6+), NodeJS, Python, Docker, Functional Programming, Team Leadership, Legacy Modernization*

Guided cross-functional team through legacy system modernization while maintaining critical banking services. Established technical standards and code review processes ensuring stability during transitions.

- Designed NodeJS web-crawler saving €500/week through FP principles
- Reduced system downtime 35% via proactive monitoring solutions
- Established coding standards cutting bug reports by 30%

**Personal Growth:**

- Mastered FP principles for efficient data processing
- Enhanced NodeJS expertise through pure functional implementations
- Developed techniques for technical debt/business balance

**Applying NodeJS with functional programming principles**, I designed a web-crawler saving €500/week while mastering FP techniques for efficient data processing.

**Technical Lead****Santander Global Tech (2018-2021)***Angular, Python, Event-Driven Architecture, MuleSoft, API-first Design, International Leadership*

Spearheaded modernization of banking backend services across Spain/US teams. Established MuleSoft and API-first patterns while ensuring compliance.

- Led 10 international engineering squads as promoted Technical Lead
- Designed MyPage system & enterprise component library (10+ teams)
- Developed Python automation tools improving delivery predictability 30%

**Personal Growth:**

- Mastered large-scale distributed systems design
- Enhanced API-first/event-driven architecture expertise
- Strengthened international team leadership

**Harnessing Python**, I developed **automation tools** that improved delivery predictability by 30% while mastering large-scale distributed systems design

**Principal Frontend Engineer****Bonial / Kaufda.de (2016-2017)***Polymer, Micro-frontends, AI Training Systems, UI/UX Optimization, Performance Engineering*

Mentored front-end team developing micro-frontends with Polymer for AI training systems while focusing on high-performance UI components and optimized user experiences.

- Created an infinite undo/redo global interface enhancing user workflow
- Engineered hyper-fast UI tag autocomplete utilizing local storage optimization
- Implemented grid splitter directly into AI tool, accelerating section selection by 300x

**Personal Growth:**

- Gained valuable expertise in AI training systems
- Developed advanced proficiency in Polymer framework
- Mastered performance optimization techniques for complex UIs

**Pioneering UI performance**, I engineered a **grid selection system** that accelerated AI training workflows by 300x while delivering exceptional user experiences

**Principal Frontend Engineer****BBVA (2013-2017)***AngularJS, Polymer.js, ReactJS, Cordova, Component Architecture, Cross-platform Dev*

Directed frontend development for BBVA banking projects, leading R&D efforts and technological transitions with banking-grade security.

- Co-designed TabletBanking app (BBVA global standard)
- Mentored 3 junior developers to career advancement
- Created 200+ Polymer.js components using TDD

**Personal Growth:**

- Mastered cross-platform enterprise architecture
- Implemented TDD methodologies

Using **Polymer.js**, I **co-designed** the TabletBanking app that became **BBVA's global standard** while mastering cross-platform enterprise architecture

**Frontend Engineer**

GFT (2012-2013)

*NodeJS, AngularJS, CSS, Bash/Python, Component Development*

Developed enterprise frontend solutions for insurance sector, mentoring teams through jQuery to Angular transition.

- Built personal finance manager in 6 weeks
- Created Mapfre Component Catalogue
- Developed Angular/ReactJS hybrid component

**Personal Growth:**

- Refined mentoring through framework transitions
- Deepened component architecture expertise
- Strengthened reusable component development

Leveraging **Angular**, I **created the Mapfre Component Catalogue** while deepening my expertise in component architecture and reusability.

**Web Developer**

C.B.I. (2010-2012)

*SQL, PHP, JavaScript, WordPress, jQuery, Database Optimization, Enterprise Applications*

Focused on backend development using SQL functions with PHP connecting database operations to JavaScript frontends. Contributed to enterprise CRM-like application supporting core business operations while maintaining proprietary frameworks.

- Developed components for enterprise-grade application similar to SAP
- Reduced database query execution time by 35% through SQL optimization
- Implemented caching strategies improving response time by 45%
- Ensured cross-browser compatibility including legacy IE7 support

**Personal Growth:**

- Developed expertise in relational database operations
- Discovered functional programming concepts through SQL
- Built foundation for backend specialization

Applying **SQL functions** with functional programming principles, I **reduced database query** execution time by 35% while developing expertise in relational database operations.

**Web Developer**

Freelance (2008-2013)

*PHP, Vanilla JavaScript, Joomla, WordPress, Drupal, Full-stack Development, Client Management*

Designed custom websites for international clients, managing full development lifecycle from consultation to deployment. Created optimized themes/plugins and maintained cross-platform compatibility.

- Developed Universidad Rey Juan Carlos website (www.urjc.es)
- Created Los Hijos de la Malinche cultural platform
- Delivered 10+ websites with 100% client satisfaction
- Improved site loading times by 40% through theme optimization

**Personal Growth:**

- Gained holistic perspective on web application lifecycles
- Enhanced client communication with diverse stakeholders
- Strengthened independent problem-solving abilities

Using **WordPress**, I developed the Universidad Rey Juan Carlos website while **gaining a holistic perspective** on web application lifecycles.

**Web Developer Intern**

Know-Century (2007-2008)

*HTML, PHP, CSS, JavaScript, CMS, SEO*

Initiated as web developer before establishing company's SEO department. Optimized digital assets and coordinated technical/content teams for search performance.

- Created first formal SEO workflow and optimization process
- Achieved 2nd rank for "comprar oro" (competitive keyword)
- Developed comprehensive SEO style guide for content teams

**Personal Growth:**

- Discovered passion for technical problem-solving
- Understood frontend-data structure relationships
- Sparked interest in system architecture

Through **engineering approaches and creative optimization**, I achieved **2nd rank** for "comprar oro" while discovering my passion for technical problem-solving.