Sasha (Augusto) Kielbowicz

Independent Consultant | Quantitative Software Architect

Buenos Aires, Argentina | augusto.kiel@gmail.com | saxa.xyz

GitHub | LinkedIn | Talks

Professional Summary

Elite quantitative software consultant specializing in financial systems architecture, scientific computing, and high-performance numerical software. Proven track record delivering mission-critical solutions for tier-1 financial institutions (JP Morgan, Axioma Risk/Qontigo, SimCorp) and large-scale technology platforms (Mercado Libre).

Core Expertise: Multi-asset pricing systems • Risk analytics architecture • Numerical optimization • DSL development • Python/C#/Julia • Scientific computing • Developer experience

Value Proposition: Unique combination of rigorous Physics background with production experience in quantitative finance, enabling delivery of solutions that are both theoretically sound and operationally robust.

Available for: Strategic consulting, hands-on development, system modernization, performance optimization, technical training.

Consulting Services

Quantitative Finance & Risk Systems

- Multi-asset class pricing and valuation framework design
- Risk analytics and portfolio management system architecture
- Legacy system modernization and migration
- Model calibration and numerical method implementation

- Performance optimization for computational finance workloads

Scientific Software Architecture

- High-performance numerical computing (Python, C#, Julia)
- Domain-Specific Language (DSL) design for financial modeling
- Analytical library extraction and componentization
- Developer tooling and experience optimization
- Azure cloud deployment and containerization

Training & Knowledge Transfer

- Corporate workshops on advanced topics (Category Theory, Numeric Computing, Quantitative Finance)
- Technical mentorship for quant and engineering teams
- Interactive educational materials using Jupyter notebooks
- Documentation and knowledge base development

Professional Experience

Independent Consultant | Quantitative Software & Scientific Computing

June 2025 - Present | Buenos Aires, Argentina

Providing specialized consulting services to financial institutions and technology companies in quantitative system architecture, scientific computing, and analytical software development.

Current Focus: Multi-asset pricing libraries, risk analytics systems, DSL development, performance optimization, team enablement.

SimCorp | Lead Software Engineer, Core Analytics

March 2024 - May 2025 | Buenos Aires, Argentina

Delivered strategic initiatives for institutional investment management platform serving global asset managers.

Key Projects: - **Quant UI Integration**: Integrated quantitative analytics UI with Axioma Risk UI, enhancing user interaction and analytical capabilities for institutional investors - **DSL Development**: Designed and developed POC for Domain-Specific Language enabling intuitive interaction with complex pricing models - **AI-Powered Documentation**: Created POC for interactive Q&A chatbot for product documentation using LLMs and Retrieval-Augmented Generation (RAG) - **Automatic Differentiation**: Redesigned core libraries to support AD and collaborated with third-party providers for AD tooling integration

Technologies: C#, Python, Jupyter, Azure, LLMs, ipywidgets

Qontigo (Axioma Risk) | Associate Principal, Core Analytics

September 2020 - March 2024 | Buenos Aires, Argentina

Led development of core quantitative analytical libraries for multi-asset risk management platform used by institutional investors globally.

Associate Principal (February 2023 - March 2024)

Leadership & Architecture: - Managed and mentored junior developers, providing technical guidance and career development - Architected and maintained core Quant Analytical libraries ensuring robustness and accuracy - Led cross-functional initiatives bridging Quants, DevOps, and Engineering teams

Major Deliverables: - **Curve Construction Library**: Designed and developed comprehensive library for rates, yields, discounts, and spreads with full market conventions support - **Interactive Quant UI**: Led development of web-based UI using ipywidgets and voila, enabling interactive usage of Quant libraries without installation requirements - **Azure Deployment**: Managed containerized application deployment to Azure with automated CI/CD pipelines

Associate (September 2020 - February 2023)

Research & Infrastructure: - **NeuralSDE Research**: Managed internship focused on NeuralSDE applications for European Option Pricing using Julia language - **Monorepo Architecture**: Designed and developed C# Monorepo infrastructure for Analytical Libraries,

extracting quant and numerical code from monolithic repository into reusable, testable components - **APL Development**: Core contributor to Axioma Pricing Library (APL), migrating complex financial components from legacy Phoenix system

Key Achievements: - Migrated DayCountConventions class with 100% accuracy despite extreme complexity—creating new classes, hierarchies, and comprehensive test coverage - Migrated BondMaths statistics requiring deep quantitative finance knowledge - Implemented symbolic simplification and plotting capabilities for APL expressions - Achieved 3x performance improvement in CurveFunctions through caching optimization - Built developer tooling that became standard across QPRA team

Performance Reviews: - 2023: “Exceptional Performance” - 2022: “Strong Performance” (achieved 85% of stretch goal on advanced C# development) - 2020: “Strong Performance” (learned C# and quantitative finance from scratch)

Technologies: C#, Python, Julia, Azure, Git, Visual Studio, GitHub Actions, Jupyter, ipywidgets

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J.P. Morgan | Technology Analyst, Rates CIB

July 2018 - August 2020 | Buenos Aires

Developed critical infrastructure for interest rate derivatives trading desk serving global markets.

Key Projects: - **Reporting Migration**: Developed infrastructure for migrating reporting services from Kapital (Smalltalk) to Athena (Python), enabling modernization of mission-critical systems - **Quant Support**: Provided critical technical support to Rates Quant team, enhancing analytical capabilities and operational performance - **Production Systems**: Built and maintained production-grade financial reporting systems with zero-downtime requirements

Technologies: Python, Smalltalk (Kapital), Athena framework, Linux

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Open Source Contributor | Scientific Software & Educational Tools

February 2016 - Present

Active contributor to open source ecosystem focused on scientific computing and education: - Interactive educational materials based on Jupyter notebooks - Data analysis and visualization tools for scientific research - Contributions to Python scientific computing ecosystem

GitHub: @akielbowicz | **Website**: saxa.xyz

Education

University of Buenos Aires | Licenciatura in Physics | 2011 - 2017 - *Thesis*: Statistical Analysis and Numerical Modeling of Single Particle Trajectories: Diffusion and Confinement Mechanisms - Focus: Stochastic processes, numerical modeling, computational physics

Universidad del CEMA | Advanced Risk and Portfolio Management (ARPM) | 2021 - Comprehensive program in quantitative finance and risk management

10 Pines | Software Engineering Certificate | 2018 - 2019 - Object-oriented design, software architecture, professional development practices

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Technical Skills

Programming Languages Production: Python, C#, Julia Research/ Exploration: F#, OCaml, Clojure, Smalltalk

Quantitative Finance Multi-asset pricing • Derivatives valuation • Risk analytics • Curve construction • Model calibration • Day count conventions • Bond mathematics • Portfolio management • Stochastic processes • Numerical methods

Scientific Computing Numerical optimization • Automatic differentiation • Stochastic differential equations • Performance profiling • Parallel computing • Cache optimization • Algorithmic complexity analysis

Software Architecture Microservices design • DSL development • API design • Monorepo infrastructure • Component extraction • Refactoring • Design patterns • SOLID principles

Cloud & DevOps Azure (deployment, containers) • Docker • GitHub Actions • CI/CD pipelines • TeamCity

Development Tools Git • Visual Studio • Jupyter notebooks • ipywidgets • Voila • Linux/Windows environments

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Publications

Kielbowicz, A., et al. (2023). “Shared Memory Semi-Implicit Solver for Hydrodynamical Instability Processes.” *Scientific Research Publishing*. Link

Kielbowicz, A., et al. (2017). “Photon Counting Module based on Avalanche Photo-Diodes.” *Anales AFA*. Link

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Speaking & Community Engagement

Conference Presentations: - **SciPy Latinoamérica 2022** (Argentina): Workshop presenter on quantitative computing - **Python & Julia Meetups** (Buenos Aires): Regular speaker on scientific computing topics - **ECI UBA** (2023): Represented Qontigo at School of Information Sciences, University of Buenos Aires

All talks available: talks.saxa.xyz

Community Involvement: - Active participant in Python and Julia scientific computing communities - Contributor to local tech meetups and conferences - Mentor for early-career developers in quantitative finance

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Languages

Spanish: Native **English**: Professional working proficiency

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Professional Highlights

✓ **Exceptional Performance** at Qontigo (2023) - Top rating for strategic contributions to APL library and team leadership

✓ **3x Performance Improvement** - Optimized convertible bond pricing through innovative caching strategies

✓ **Zero-Defect Migration** - Migrated complex DayCountConventions with 100% accuracy across thousands of test cases

✓ **Team Enablement** - Mentored interns who became full-time hires; created tools used across entire quantitative team

✓ **Cross-Team Impact** - Successfully bridged Dev, DevOps, and Quant teams to deliver integrated solutions

✓ **Innovation Leader** - Pioneered POCs for LLM-powered documentation and DSL-based model interaction

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Consulting Approach

Discovery: Deep dive into business requirements, technical constraints, and organizational goals

Strategy: Architecture design, technology evaluation, risk assessment, roadmap development

Delivery: Hands-on implementation, code reviews, performance optimization, quality assurance

Enablement: Knowledge transfer, documentation, training, team mentorship

Engagement Models: Project-based, retained consulting, fractional leadership, training programs

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References and detailed project portfolios available upon request

Open to consulting engagements globally (remote) and on-site in Buenos Aires