

MICHAEL GARCIA

Software Engineer | Full-Stack Development & Data Infrastructure

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🌐 michaelg-create.github.io/portfolio

📍 Aix-les-Bains, France, willing to relocate near Geneva
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PROFILE

PhD Physicist with 15+ years cross-functional experience (research, teaching, banking). Proven ability to build production systems, automate workflows, and collaborate internationally. Strong problem-solver combining analytical rigor with modern software practices.

PROFESSIONAL EXPERIENCE

Data Engineer & Software Developer

Personal Projects

⌚ 2024 - Present 📍 Aix-les-Bains, France

Bank Branch Footfall Analytics – Production Pipeline

- End-to-end system: FastAPI → PySpark transformations → Parquet/DuckDB → Streamlit dashboard
- Airflow orchestration: Real-time DAG + backfill DAG for fault tolerance
- Business impact: Optimized staffing and resource allocation based on visitor flow patterns

Financial Sectoral Analysis – Cloud-Native AWS

- Multi-source ETL: 3 APIs (Alpha Vantage, Yahoo Finance, FRED) → S3 → Redshift
- Dataset: 500+ stocks across 11 sectors, daily updates
- Infrastructure: Terraform IaC, AWS MWAA (Managed Airflow), CloudWatch monitoring
- Data transformations: dbt Core with automated testing (90%+ coverage)
- Advanced metrics: Sharpe ratios, VaR calculations, sector correlation analysis

Physics & Chemistry Teacher

Ministry of Education

⌚ 2013 - Present 📍 Savoie, France

Software Development & Digital Transformation

- Developed SaaS application for classroom planning (used by 20+ teachers): Python/Streamlit → pure HTML/JavaScript for GDPR compliance (client-side data processing)
- Trained 10+ colleagues on digital tools (Google Drive, collaborative platforms)
- Organized 5+ interdisciplinary science projects and competitions
- Taught 2,000+ students over 12 years

Physics Researcher (PhD)

LIPhy – CNRS

⌚ 2009 - 2013 📍 Grenoble, France

Automated Data Processing & Scientific Computing

KEY COMPETENCIES

- International Collab.
- Problem Solving
- Team Management
- Results-Driven
- Adaptability

TECHNICAL SKILLS

Full-Stack Focus

- Frontend/Backend: React (Learning), Java & Spring (Learning), FastAPI, Flask
- Core Languages: Python (Advanced), SQL, JavaScript
- APIs: REST APIs
- Databases: PostgreSQL, Redshift, DuckDB

DevOps & Data Infrastructure

- Containers/IaC: Docker, Kubernetes, Terraform
- CI/CD: GitHub Actions, testing frameworks (unittest, pytest)
- Cloud: AWS (S3, Redshift, MWAA)
- Data Tools: PySpark, dbt (Automated testing), ETL/ELT

Software Engineering & Scientific Computing

- Practices: Git (Collaboration), Agile, Clean Code (SOLID), GDPR compliance
- Scientific: IDL (scientific computing), ImageJ macros, C (from scratch simulations)

LANGUAGES

French
English



100% English in PhD research collaboration

EDUCATION

Data Engineering Intensive Training

Data-Upskilling (400h program)

⌚ 2024 📍 Savoie, France

Hands-on training (2,000+ professionals trained): Modern software engineering practices (Git workflows, testing, CI/CD, clean code), data tools (Spark, Airflow, dbt), cloud deployment, SQL. Focus on production-ready skills.

- Built complete data pipeline for optical microscopy experiments (5-10 TB video datasets):
 - **Image processing automation:** ImageJ macros (JavaScript), reduced processing time by 50%
 - **Data extraction:** Custom routines (IDL) analyzing 500+ videos, extracting 50K+ trajectories
 - **Statistical computing:** Automated analysis and reporting
- Developed simulation models (IDL) for comparative validation against experimental results
- Parameter optimization: viscosity, volumetric concentration variations
- **International collaboration:** 6+ researchers across 5 countries (Georgia, India, Italy, Lithuania, Germany) – 100% English
- Presented at 3 international conferences (Germany, Switzerland, India); published peer-reviewed paper

Administrative Manager & Client Advisor

Banque de Savoie & Crédit Agricole des Savoies

⌚ 2007 – 2009 📍 Savoie, France

- Managed compliance, reporting, and team of 4-5 reception staff
- Coordinated operations across 3 branch offices
- Client portfolio management (300+ clients) and banking product sales

PROFESSIONAL DEVELOPMENT

Ongoing Technical Training

Personnal project

⌚ 2025 📍 Savoie, France

- Spring Boot & Java ecosystem (backend frameworks)
- React frontend development
- Self-directed learning to align with CERN software stack requirements

CAPES Physics-Chemistry & Teaching Diploma (DU MEEF)

Université Savoie Mont Blanc

⌚ 2015 – 2016 📍 Savoie, France

Professional certification for secondary education teaching

Ph.D. in Physics for Life Sciences

Université Grenoble Alpes

⌚ 2009 – 2013 📍 Grenoble, France

Optical microscopy, data analysis, scientific computing

M.Sc. Statistical Physics & Agrégation Preparation

École Normale Supérieure de Lyon

⌚ 2005 – 2007 📍 Lyon, France

Master thesis: 1D turbulence simulation (C from scratch) to validate intermittency divergence at small scales

B.Sc. & M.Sc. (1st year) in Physics

Université Savoie Mont Blanc

⌚ 2001 – 2005 📍 Savoie, France

DEUG Mathematics-Computer Science, Physics License, Master 1

AVAILABILITY

French citizen, eligible CERN Member States.
Available for relocation to Geneva. Flexible for operational requirements.