# Jean-Patrick Francoïa

For an up-to-date version, check my personal page: https://jpfrancoia.github.io

# Professional experience

2023-Today Lead software engineer, Virgin Media O2, London, U.K

Leading a team, building a diagnostics platform

- Platform and impact: Architect and operate nationwide network fault diagnostics platform on GCP (Cloud Run, Pub/Sub, Cloud SQL). Improves detection, triage and remediation of issues; delivers £20M annual savings
- Reliability and observability: Drove adoption of SLOs, actionable alerting and GitOps; produced OpenTelemetry instrumentation guidelines that improved incident detection and response across ca. 30 engineers in 5 teams
- Cross-functional collaboration: Partner with Product, Frontend, Network Operations and Data teams to shape roadmap, refine requirements and drive adoption of the diagnostics platform across the
- Team leadership: Manage and grow 5 engineers (mentoring, performance, objectives setting, hiring, training and workshops) while lifting standards in code quality, testing and observability
- Al exploration: development of a MCP server to enhance diagnostics through Al agents

2022-2023 Senior Site Reliability Engineer (SRE), Babylon Health, London, U.K.

1 yr 3 mos Reliability, observability and incident response

- o Incident response and on-call: 24/7 PagerDuty rotation. Led mitigation across EKS, RDS and microservices (capacity overload, faulty releases, partner/patient issues) restoring services and protecting SLOs
- Observability platform: Standardised OpenTelemetry instrumentation. Built Honeycomb dashboards and precise Terraform-managed alerts that reduced noise, sped diagnosis and enabled proactive detection

2021–2022 Software engineer, Babylon Health, London, U.K.

1 yr MLOps and model governance for healthcare AI

- Production data pipeline: Built compliant (HIPAA/GDPR) pipelines to anonymize and deliver regulated medical data, enhancing training and evaluation of production-grade AI models
- Model validation environment: development of a lightweight docker-compose replica of inference stack to shift validation into Azure DevOps pipeline; 7× cost reduction and simpler maintenance
- Model release workflow: Go/Postgres audit and validation app for clinicians and data scientists; enforced gating, traceability and safe promotion of models to production

2018-2021 Data/Backend engineer, Okra Technologies, Netherlands

2 yr 7 mos Healthcare analytics data platform and ML services

- O Data pipelines: Delivered Python/Airflow feature engineering and training pipelines from scratch (Docker-based), enabling reproducible ML experimentation
- O Data lake: Designed and implemented AWS Glue catalog + S3 + Athena lake; development of libraries to give data scientists self-serve query access
- ML serving APIs: Built and operated Flask/Postgres B2B prediction services with CI/CD and tests for pharmaceutical customers

2017–2018 Postdoctoral researcher, University of Glasgow, Scotland

3D printing applied to chemistry

- O Development of a CAD software to simplify the design of 3D printed reactors (see paper below)
- Development of 3D printing techniques for unconventional materials (see paper below)

2013-2016 Teaching assistant (Ph. D student), Université de Montpellier, France

Laboratories in organic and general chemistry for undergraduate students (ca. 200 hours)

# Certification / Technical stack

- GCP Professional Cloud Architect certification: obtained December 2024. Excellent knowledge of GCP services: Cloud Run, Pub/Sub, BigQuery, Cloud SQL
- Kubernetes and Cloud Native Associate certification: obtained February 2023. Excellent knowledge of Docker, Kubernetes, Terraform, Postgres (I also self-host)
- AWS Certified Cloud Practitioner: obtained January 2022. Excellent knowledge of AWS Cloud services: EC2, S3, RDS, Glue, Lambda, etc
- Deep knowledge of Python and its ecosystem: FastAPI, Pydantic, pandas, numpy, scipy, matplotlib, scikit-learn, pytest, mypy, PyQt (GUI), etc
- Excellent knowledge of Go. Extensive experience with backend development (REST APIs, protobufs, gRPC, etc)
- Al: daily usage of Al assistants (neovim + codecompanion). Comfortable writing MCPs and fine-tuning/running models locally (e.g.: ModernBERT, quantized Mistral)
- Good front-end development skills (web and native): React/Typescript and Flutter/Dart
- Contributor to open-source projects: scikit-learn, aws-sdk-pandas, Apache Airflow, Cura, etc

# Education

### 2013-2016 Ph. D. in chemistry, Université de Montpellier, France

Supramolecular chemistry, software engineering, machine learning, biosensors

- Machine learning (PCA, LDA) coupled with chemical sensor arrays (see paper below)
- Machine learning (SVM) and software development to facilitate literature survey (see paper below)
- O Development of nonlinear modeling softwares for the extraction of physical constants

#### 2012-2013 Master in chemistry, with honours, Lund University, Sweden

## Published literature

Full publication list available at https://jpfrancoia.github.io/publications

- Digitization of multistep organic synthesis in reactionware for on-demand pharmaceuticals Science, 2018 - open access, citations: 229
- Automatic Generation of 3D-Printed Reactionware for Chemical Synthesis Digitization using ChemSCAD ACS Cent. Sci., 2020 open access, citations: 51
- ChemBrows: An Open-Source Application Software To Keep Up to Date with the Current Literature J. Chem. Educ, 2016 open access, citation: 2
- A KISS (Keep It Simple, Sensor) Array for Glycosaminoglycans *Chem. Commun.*, 2015 citations : 17

## Hobbies

#### D.I.Y (Do It Yourself)

- Self-hosting: I use MicroK8s to run my own Kubernetes cluster at home. I self-host applications like Home Assistant and Tiny Tiny RSS. See here for an example
- 3D printing: owner of several 3D printers

#### Martial arts

Brazilian jiu-jitsu, Judo, Muay-thaï, Kyokushinkai karate, Krav-maga

#### Languages

Perfectly fluent in English, native in French, learning Spanish (B1)