

Francisco Arcila

Based in: Leipzig, Germany **Focus:** backend systems, data workflows, public-interest technology

Domains: animal advocacy, education, food systems, open knowledge

Technical summary

The short version before the longer path

My background combines **biology, bioinformatics, data infrastructure, backend development, and concept design**. I build digital tools that translate complex information into usable systems, especially for projects in animal advocacy, food systems, education, and open knowledge.

Python FastAPI SQL / MariaDB Docker Vue Flutter Firebase JupyterHub

Background

Studies, research foundation, and early direction

I studied Biology at [Universidad Nacional de Colombia](#) and completed my M.Sc. in Biology at [Johannes Gutenberg University Mainz](#). Earlier on, I also studied Architecture without completing the degree, but it strongly shaped how I think about systems, structure, and usability.

The common thread since then has been fairly consistent: working with complex information, building useful structures around it, and trying not to make technology more self-important than the people using it.

Career path

Research, infrastructure, teaching, and applied development

[BioNTech](#) · 2017–2019

Bioinformatics Research & Development

Worked on internal scripts, evaluation pipelines, reports, data preprocessing workflows, and tool comparisons in the context of MHC I epitope binding prediction and neoantigen research. My Master's thesis focused on benchmarking prediction tools and evaluating indels as a source of immunogenic neo-epitopes.

[DKFZ](#) · 2019–2021

Bioinformatician · B-cell Immunology

Contributed to sciReptor 2.0 and related FAIR-oriented infrastructure for storing and analyzing adaptive immune receptor repertoire single-cell data. I was also part of work on annotation standards for this type of data.

[Leuphana University](#) / [DATAxHub](#) · 2021–2023

Associate Researcher · Institute for Information Systems · teaching and platform work

Tested and deployed a Docker-based [JupyterHub](#) implementation before handoff to [GWDG](#) engineers, and contributed to decisions around dashboard design, authentication methods, and resource allocation for peak usage. I also taught introductory programming and data analysis with Python.

[Biocyclic Vegan Network](#) / [Faba Konzepte](#) · 2024

Federal Ecological Voluntary Service

Supported research, course preparation, newsletter administration, and developed a basic mapping tool for certified projects worldwide. This period also fed directly into the development context of [Schlachtindustrie Deutschland](#).

vgn.dev · 2024–today

Independent work

I now develop data platforms, apps, and digital tools for advocacy, education, food systems, and public knowledge projects. The work combines backend logic, data processing, interface thinking, and practical automation.

Selected projects

A few concrete examples

📄 Schlachtindustrie Deutschland

Open-data transparency platform

Backend development of a data-driven platform that maps slaughterhouse sites in Germany and makes structural harms visible: corporate networks, permits and capacities, inspection/compliance signals, environmental impacts, and documented controversies. My work spans end-to-end data acquisition (official datasets, FOI requests, curated sources), Python cleaning/normalization, structured database imports, and FastAPI delivery for a Vue-based interactive map and search experience.

Stack: Vue.js + Vite, Python (ETL with Jupyter/Pandas), FastAPI + SQLAlchemy, MariaDB/MySQL, Docker + docker-compose, and GitLab collaboration workflows (issues, merge requests, CI).

📄 Wild Forager

Flutter-based learning app

Led engineering of a data-heavy mobile platform that ingests and curates open biodiversity sources, including 📄 GBIF DwC-A, 📄 Wikimedia Commons metadata, 📄 OpenStreetMap and 📄 CARTO tile ecosystems, and source-labeled records such as 📄 iNaturalist and 📄 NABU naturgucker. Built Python, SQLite, and compressed export pipelines to deliver compact occurrence datasets to a Flutter application, and implemented data contracts, bundle and manifest versioning, provenance mapping, protected-area geofencing workflows, offline cache fallbacks, and policy-aware moderation flows.

📄 DATAxHub

JupyterHub-based educational platform

A 📄 JupyterHub implementation introduced in the mandatory course "DATAx: Data analysis with Python", supporting 1,300+ first-semester students across programs with browser-based coding/data analysis. Contributed to Docker-based testing/deployment preparation and platform decisions for authentication, dashboarding, and peak resource planning.

Blog article: 📄 [Introducing DATAxHub](#).

📄 IsThisAnExpert · 2020

Winning project, Goethe Climate Challenge hackathon

A Twitter bot concept and prototype for estimating the credibility of users posting about climate issues, combining scoring logic, expert-source aggregation, and a MySQL-backed backend.

Twitter Bots · 2021–2023

Public-interest automation experiments

Built and maintained bots for science and advocacy communication, including a MyBrainMyChoice bot amplifying evidence-based drug policy discourse and @VgnBot, a short-lived vegan-impact initiative. Projects ended when Twitter API access constraints made continued operation impractical.

Reference: 📄 [MyBrainMyChoice Twitter Bot](#).

📄 Scireptor AIRR exchange tool · 2020–2021

Single-cell immune-repertoire data interoperability

Co-developed import/export tooling for AIRR-compliant single-cell datasets in the iReceptor Plus context, aligned with MiAIRR extension work. Built support for Common Exchange Format imports into the scireptor backend and validated workflows against AIRR standard v1.3.

Working principles

How I approach technical work

I care about digital infrastructure that is **useful, careful, and maintainable**. Good structure, reproducible workflows, and clear interfaces solve more than technical ornament ever will.

I use AI where it genuinely helps with research, workflow support, structuring information, and practical automation. Design and artistic work remain grounded in collaboration with real people.

Teaching & research

Education, mentoring, and publications

My background also includes teaching and mentoring in introductory programming and data analysis with Python, along with earlier research contributions in bioinformatics, immune receptor data standards, and experimental biology.

📄 Lecturer · Leuphana University 📄 Mentor · TechLabs / 📄 CorrelAid 📄 Scireptor AIRR exchange repository

📄 MiAIRR / AIRR Community

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