

Alan Geirnaert

Founder & Software Engineer

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Summary

Founder building research-led autonomy and AI software, with a background shipping full-stack platforms, AI search systems, and data-driven scientific tools. Experienced across US and European distributed teams. Focused on software where engineering meets science: autonomous systems, research infrastructure, data pipelines, and high-performance computing. Relocating to Scotland in 2026.

Featured Projects

Goldilocks - The Search for Earth 2.0, *goldilocks-search.vercel.app*

Scrollytelling data visualization - NASA Exoplanet Archive - Next.js, Three.js, Plotly, Python

- Won **Best Data Visualization** at the Codédex 2026 February Data Science Challenge.
- Analyzed 6,100+ exoplanets from the NASA Exoplanet Archive using a custom multi-criteria habitability scoring algorithm built in Python.
- Built an interactive 3D narrative experience using Next.js, Three.js (spinning planet globes), and Plotly, combining real science with accessible storytelling.

Papermind, *papermind.ch*

AI-powered scientific paper search engine - Next.js, MongoDB Vector Search, Groq SDK

- Architected a full RAG pipeline: ingestion, embedding, vector search, (MongoDB Atlas), query re-ranking, and source-linked answers through FastAPI, then switched to Next.js.
- Designed a research-focused UX emphasizing filtering, trust, and workflow reproducibility.
- Built authentication, caching layer, and a shared contract system between frontend and backend.

Experience

Feb 2026 – **Founder**, *Entropy*, Anthy-sur-Léman, France (relocating to Scotland)

- Present
- Founded and run a deep-tech company building autonomy and geospatial software, alongside technical community infrastructure.
 - Developing Entropy's core technical direction: autonomous systems and geospatial analysis for environmental monitoring, building on an autonomous drone concept prototyped with a team at NASA Space Apps Challenge 2025 (orbital debris, autonomous satellite servicing).
 - Organising EntropyHack Edinburgh (13-14 March 2027): a 48-hour hybrid hackathon, 75 builders on-site plus an open global online track, across three tracks (Security, Impact, Explore).
 - Secured AWS, Aikido Security and Red Bull as partners; AWS delivering an on-site workshop for participants.
 - Built and maintain the full event platform: Next.js, MongoDB, Better Auth, deployed on Vercel.

Dec 2024 – **Full-Stack Software Developer**, *App'Ines*, Remote, France

- Present
- Shipped a real-time messaging feature (WebSockets) serving several thousand active users in production.
 - Built and deployed an internal dashboard with Angular + Ionic (Capacitor): JWT auth, role-based guards, secure token refresh, and protected routing.
 - Designed REST APIs in Node.js/Express/MongoDB with typed DTOs, request validations, and shared contracts, significantly reducing runtime errors.
 - Refactored frontend into reusable accessible components with route-level code splitting, improving load performance and maintainability.

- Nov 2025 – Jan 2026 **Head of Technical Program Management**, *SSIP*, Hybrid, Lucerne - Switzerland
- Led development of the official SSIP web platform (public pages, internal coordination tools for events and analytics).
 - Key contributor to ActInSpace Switzerland 2026 (Lucerne), a CNES and ESA-backed hackathon, across technology, operations and program delivery.
 - Translated executive strategy into operational programs, platform roadmaps, and team workflows.
- Jul 2024 – Sep 2024 **Software Engineer**, *Headstarter AI*, Remote, USA
- Built AI features using RAG and embeddings for knowledge-aware responses in a fast-paced US remote engineering environment.
 - Developed data pipelines and evaluation scripts; profiled latency and improved prompt consistency across environments.

Education

- Dec 2024 – Dec 2026 **MSc. in Software Development**, *OpenClassrooms*
- Industry placement: App'Ines (full-stack, production) - Part-time remote program alongside industry work. Focus on full-stack engineering, cloud deployment, testing, and Agile development.
- Oct 2025 – Dec 2025 **Aspire Leaders Program**, *Aspire Institute/HarvardX*
- Selective global leadership program supported by HarvardX coursework. Certifications in project management and data analytics.

Skills

Core	TypeScript, Angular, Next.js, Node.js
Backend/APIs	Express, FastAPI, RESTful design, JWT auth
AI/Data	RAG pipelines, embeddings, vector search, Groq SDK, Scikit-learn
Geospatial	MapLibre, satellite imagery (Sentinel-1/2), GIS data pipelines, Plotly
Databases	MongoDB, PostgreSQL, Prisma
DevOps	Docker, GitHub Actions, Vercel, Linux CLI, CI/CD
Scientific	C++, Python, Barnes-Hut N-body simulation, OpenMP, 3D visualization
Testing	Jest, Vitest, Joi, Zod, Sentry
Languages	English (fluent), French (native)

Recognition & Interests

- Codédex February 2026 Challenge** - Best Data Visualization (Goldilocks)
- Codédex Learner Story 001** - Featured as the platform's first community inspiration story
- Speaker, NASA Space Apps Challenge 2025** - Two talks in Lucerne on hackathons and their link in space exploration
- Codédex Winter Hackathon 2024** - 1st Place (Back to the NASA)
- NASA Space Apps Challenge 2024** - Global Nominee in Zurich, Switzerland