

Pierre-Guillaume Sprimont

Senior Software Engineer • Astrophysicist • SSA / SST Expert

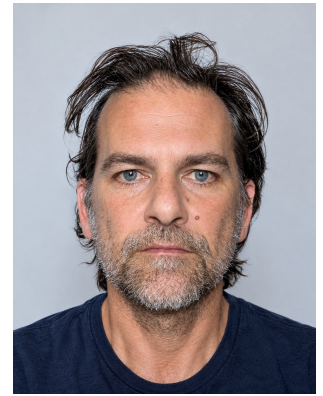
📍 Pietreni 191, Costești, Vâlcea, Romania

☎ +40 770 753 163 🚗 Driving licence (category B)

✉ pierre.sprimont@nunki.org 🌐 <https://dev.nunki.org>

🏠 Born: March 9, 1978 🇧🇪 Belgian citizenship

🔗 <https://git.nunki.org>



👤 Professional Profile

Engineer and scientist with more than 20 years at the intersection of observational astrophysics, scientific data processing and software engineering. From telescope image acquisition to detection, faint-object analysis and archiving, I have run the full scientific software lifecycle – and applied the same rigour to space surveillance and, most recently, to **on-device AI systems**.

Former Senior Technical Lead at GMV in the ESA / EU SST ecosystem, and principal developer of the **GENDARED** data-reduction framework – deployed operationally across the European space-surveillance ecosystem: the German Armed Forces' Space Situational Awareness Centre (Weltraumlagezentrum, Uedem), and the EU SST-linked national operations centres of Greece (GRNOC) and Romania (ROSSA). Founder of **Nunki Labs**, an independent engineering practice where I build **Engram** (a fully on-device AI platform for Android) and **ExecAI** (a sovereign, memory-driven AI agent framework). Available for freelance and consulting missions worldwide.

🔧 Selected AI Projects

2026 **Engram – Local AI Platform for Android**

Architect & Developer • Nunki Labs

Multi-APK Android platform running a **LiteRT-LM** engine entirely on the phone: token-aware agent with tools, long-term semantic memory (photos with EXIF metadata, tags, temporal search), personas, and mini-apps (Vision, Voice, Summarizer, Memory) sharing one local HTTP API. Preventive KV-cache management, silent overflow recovery, and an optional OpenAI-compatible cloud mode (DeepSeek, Groq, Ollama...). Kotlin / Jetpack Compose, C++/JNI, 100% on-device by default. <https://git.nunki.org/nunki/engram>

2026 **ExecAI – Sovereign, Memory-Driven AI Agent**

Architect & Developer • Nunki Labs

Modular agentic framework (Python, MIT) with four backends – Ollama, llama.cpp, DashScope/Qwen, DeepSeek – and a hybrid RAG long-term memory (ChromaDB + BM25 + temporal decay) that distills durable facts from every session. Hardened file tools, context-overflow protection, persistent sessions, and a full test-bench. Runs 100% offline on modest hardware. <https://git.nunki.org/nunki/execai>

2018 – 2019 **Edge AI & Industrial Vision**

C++ / Computer Vision Engineer • Belgium

TensorFlow models for real-time people and object detection on Paris metro access-control gates (CAN Bus integration). Industrial quality-control pipelines with Halcon and OpenCV, coupled with B&R motor control systems.

⚙️ Key Skills

Languages & FW

C++ (Expert), Python, Java, JavaScript/Node.js, Fortran, Kotlin, HTML5/CSS

AI / ML

LLM integration, agentic systems, LiteRT / on-device inference, TensorFlow, PyTorch, CUDA, TensorRT, RAG architectures

Computer Vision

OpenCV, OpenGL / WebGL, Qt, Halcon, YoLo

Space & SSA/STM

GENDARED, COSST, Space Situational Awareness, Space Traffic Management, space debris detection, astrometry, photometry, telescope interfaces

Data / Backend

Algorithm design, numerical analysis, SQL, MongoDB, TCP/IP, multi-threading, WebSocket, WebRTC

Systems

GNU/Linux administration, network administration, Windows, Android, microcontrollers, CAN Bus, motor control (B&R)

Professional Experience

- 09.2026 – Present **Founder / Consulting Engineer**
Nunki Labs • Pietreni, Romania
Independent engineering practice. Consulting missions in computer vision, scientific data pipelines, high-performance C++ and AI systems; development of the Engram and ExecAI platforms.
- 05.2020 – 09.2026 **Software System Engineer / Technical Lead**
GMV Innovating Solutions S.R.L • Bucharest, Romania
- **GENDARED (Generic Data Reduction Framework)**: Principal developer since May 2020. Design and implementation of data reduction, detection and tracking algorithms for orbital objects from optical telescope imagery. Prototyped under the ESA Romanian Industry Incentive Scheme.
 - **WRLagez1 (EU SST)**: Delivery of the Gendared solution to OHB Digital and the German military SST Centre. Software Technical Lead.
 - **GRNOC**: Software delivery, installation, configuration and maintenance support for GENDARED. Software Technical Lead.
 - **RONOCOPS**: Data processing services for optical telescope data within the COSST consortium. Software Technical Lead.
 - **ROSSA**: Data and service analysis for the evolution of COSST under a UEFISCDI–SOL grant. Software Technical Lead.
 - **DEVISE**: ESA study on faint-object analysis using optical telescope data and Gendared. Software Technical Lead.
- 2019 **C++ Software Engineer**
Automatic-Systems • Wavre, Belgium
Development of control software for automatic doors and public transportation access gates. CAN Bus programming. Integration of TensorFlow AI models for real-time people and object detection.
- 2018 – 2019 **C++ Computer Vision Developer**
Rovi-Tech • Presles, Belgium
Computer vision solutions for industrial quality-control automation (Halcon, OpenCV). Motor control with B&R systems. Integration of visual inspection pipelines and AI algorithms.
- 2012 – 2015 **C++ Developer / Research Fellow**
INAF / IASF Bologna • Bologna, Italy
Software for robotic telescope interfaces, astronomical camera drivers and an astrophysical image database. P2P data sharing and HTML5 / WebGL visualisation interfaces (GLORIA project). Stack: C++, JavaScript, HTML, SQL, MongoDB.
- 2014 **Web Developer / Data Scientist**
IAA-CSIC • Granada, Spain
Development of GRBspec: a MySQL database for Gamma-Ray Burst spectroscopic follow-up and a Web 2.0 interface in JavaScript and PHP.
- 2014 – 2015 **Software Developer**
CNR Bologna, Biblioteca d'Area • Bologna, Italy
Development and maintenance of the NILDE software (Network for InterLibrary Document Exchange). HTML, PHP, JavaScript, SQL.
- 2003 – 2011 **PhD Fellow / Scientific Attaché in Astrophysics**
Université de Liège • Liège, Belgium
Within the XMM-LSS collaboration, fully designed and developed an automatic data-reduction pipeline (pure C++) for spectroscopic images from VLT/FORS2, VLT/VIMOS, the ESO NTT at La Silla and other telescopes — image calibration, spectrum extraction and automatic galaxy redshift measurement. Participation in the ILMT project. Work within Prof. Jean Surdej's team.

Education

- 2005 **DEA (Postgraduate Diploma) in Astrophysics**
Université de Liège • Belgium
Thesis: C++ spectroscopy software for optical observations of the large-scale structure. Supervision: Prof. Jean Surdej.
- 1996 – 2002 **Licence in Physical Sciences (Master's equivalent)**
Université de Liège • Belgium
Master's thesis "Aspects topologiques en cosmologie" — topological aspects in cosmology (supervision: Prof. Yves De Rop): mathematical classification of three-dimensional topological spaces with zero curvature.

1990 – 1996

Secondary Education Certificate (Scientific track)

Athénée Royal Vauban • Charleroi, Belgium

Scientific specialisation.

Selected Publications

- P.-G. Sprimont, O.-A. Voicu, B. Bija, O. Alonso Lasheras, V. G. Olteanu, A.-M. Piso. “gendared: The Generic Data Reduction Framework for Space Surveillance and its Applications.” *8th European Conference on Space Debris*, ESA Space Debris Office, Darmstadt, Germany, 2021.
- C. Adami, A. Mazure, M. Pierre, et al. (incl. **P.-G. Sprimont**). “The XMM-LSS survey: optical assessment and properties of different X-ray selected cluster classes.” *Astronomy & Astrophysics*, vol. 526, A18, 2011.
- D. Ricci, J. Poels, A. Elyiv, et al. (incl. **P.-G. Sprimont**). “Flux and color variations of the quadruply imaged quasar HE 0435–1223.” *Astronomy & Astrophysics*, vol. 528, 2011.
- Y. De Rop and **P.-G. Sprimont**. “La géométrie de Lobachevski.” *Revue des Questions Scientifiques*, vol. 178, no. 1, pp. 113–138, 2011.
- O. Garcet, P. Gandhi, E. Gosset, et al. (incl. **P.-G. Sprimont**). “The XMM large scale structure survey: optical vs. X-ray classifications of active galactic nuclei.” *Astronomy & Astrophysics*, vol. 474, 2007.

The **GENDARED** framework is also cited in *Acta Astronautica* (Feuge-Miller et al., 2022) and *Aerospace / MDPI* (Dumitrescu et al., 2022).

Teaching & Outreach

2016 – 2017

High School Teacher

Lycée Français Anna de Noailles • Bucharest, Romania

Earth and Life Sciences (SVT), Technology and Physics.

2002 – Present

Astronomy Outreach Animator

Public events • Belgium, Italy, Romania

Organisation of public sky-watching events and astronomy outreach activities.

2025 – Present

Founder

Nunki Observatory • Pietreni, Romania

Educational and research astronomy facility near the Buila-Vânturarița National Park: public observation nights, astrophysics camps and mobile observations at regional events. <https://observatory.nunki.org>

Languages

French	Native	
English	C1/C2	Proficient user
Romanian	C1/C2	Proficient user
Italian	B1/B2	Independent user
Dutch	B1/B2	Independent user
Russian	A1	Currently learning

Additional

Hands-on skills Carpentry, masonry, electrical work, installations

Rural life Goat farming, horse riding, care of farm animals

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