

Julien Breton, Ph.D.

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in jln-brtn

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PhD in Artificial Intelligence, I bridge cutting-edge research with real-world applications. Now seeking new challenges to innovate and inspire as **AI Tech Lead** or **AI Researcher**.

Employment History

- Jan. 2026 **Artificial Intelligence Audit**, Selenis.
Alongside the consulting firm Selenis, I provided high-level expertise to an industrial client aiming to accelerate its digital transformation. My work focuses on **shaping AI roadmaps** that align technical feasibility with business ROI. I act as a **strategic advisor to executive leadership (C-level) and technical leads**, helping them navigate the complex ecosystem of **generative AI, LLMs, and Computer Vision**.
- 2021 – 2025 **Research Engineer**, Berger-Levrault – Toulouse, France.
As a research engineer for 4 years, I led experimental research initiatives and supported the architectural design of a strategic **AI platform**. The platform was designed as a high-level abstraction layer, enabling business teams to seamlessly integrate advanced AI capabilities without added technical overhead. Working on **LLMs, RAG, and agentic workflows**, I helped teams move from experimental PoCs to production-ready solutions. I acted as a technical bridge, translating business needs into scalable AI architectures while contributing expertise in Python, data processing, and performance evaluation.
- I Contributed to the technical implementation of an end-to-end, modular AI platform from conception to production, designed to streamline the deployment of AI capabilities. Designed the full-scale pipeline, spanning data acquisition (ELT) and model training to inference and business logic integration. I led a specialized evaluation of vector databases, benchmarking load capacity, search algorithms, and indexing performance to optimize Retrieval-Augmented Generation (RAG) architectures.
 - As a lead developer and architect for a high value-added Proof of Concept (POC): an intelligent writing assistant for town hall secretaries. The solution was designed to automatically verify the legal compliance of meeting minutes against Légifrance data. To do this, I designed an agentic workflow, pioneering in the use of the Model Context Protocol (MCP) to fluidly connect LLMs to external legal databases. This project served as a critical demonstrator, validating the complex reasoning capabilities of LLMs in specialized domains.
 - In a high-stakes legal context, I led the technical development of sophisticated AI solutions by designing advanced algorithms and custom NLP models to interpret and extract legal rules from Légifrance documents.
- 2021 – now **Teacher**, Toulouse University | IPSA | 3il
As a senior AI mentor and domain expert, I design and deliver advanced training programs in Artificial Intelligence and Machine Learning for students preparing for high-stakes industries (Defense, Avionics, Space).
- 2024 **PhD Exchange Researcher**, National Institute of Informatics – Tokyo, Japan.
I contributed to advanced research projects in NLP in collaboration with Japanese and international researchers. I designed and **implemented LLM-based models**, **co-authored a scientific paper** on NLP applications in legal systems, and presented research findings in internal seminars. This experience strengthened my cross-cultural collaboration and communication skills in an international environment.

Employment History (continued)

- 2021  **Software Development Engineer**, Sopra Steria – Toulouse, France.
Experience as a **software development engineer** in industrial maintenance (CMMS), a domain that shares critical operational constraints with **Retail and Supply Chain**: asset optimization, high system availability, and logistics continuity. I focused on building robust integrations between complex enterprise ecosystems (**ERP and specialized software**), ensuring synchronization and reliable use of critical data flows to maintain operational continuity at scale.
- 2019 – 2020  **Android Engineer**, Sopra Steria – Toulouse, France.
I designed and developed advanced features for La Poste’s mobile application, using ReactNativeX to efficiently manage data streams. I integrated the app with Maximo for mobile asset management, optimized performance, and collaborated closely with the E.A.M. Factory mobile team and stakeholders to align technical solutions with business goals.
- 2018  **Java Developer**, Sopra Steria – Toulouse, France.
I developed new features for Maximo Asset Management to meet client needs, designed and implemented automated functional tests to improve coverage and validation speed, and streamlined workflows by building custom tooling.
-  **Web Developer**, Météo France – Toulouse, France.
Design and engineering of high-performance web applications dedicated to the **visualization of massive meteorological datasets**. My role was to transform complex scientific data into intuitive, real-time dashboards for professional forecasters. This required a strong focus on **frontend performance** and the implementation of **modern reactive architectures** to ensure smooth user experiences in critical environments.

Education

- 2021 – 2025  **Ph.D. in Computer Science (NLP & AI)**, Institute of Research in Computer Science of Toulouse (IRIT) – Toulouse, France
- 2020 – 2021  **International Semester in Artificial Intelligence**, UTS Sofia – Bulgaria
- 2018 – 2021  **Computer Science Engineering Degree**, 3il – Rodez, France
- 2016 – 2018  **University Diploma in Computer Science**, Toulouse University – Toulouse, France

Research Publications

Journal Articles

- 1 J. Breton et al., “Leveraging llms for legal terms extraction with limited annotated data,” *Artificial Intelligence and Law*, pp. 1–27, 2025.

Conference Proceedings

- 1 J. Breton, M. B. Billami, M. Chevalier, and C. Trojahn, “Empowering camembert legal entity extraction with llm bootstrapping,” in *International Conference on Knowledge Engineering and Knowledge Management*, Springer Nature Switzerland Cham, 2024, pp. 86–101.
- 2 J. Breton, M. B. Billami, M. Chevalier, and C. Trojahn, “Leveraging semantic model and llm for bootstrapping a legal entity extraction: An industrial use case,” in *Knowledge Graphs in the Age of Language Models and Neuro-Symbolic AI*, IOS Press, 2024, pp. 20–36.
- 3 N. Bendahman, J. Breton, L. Nicolaieff, M. B. Billami, C. Bortolaso, and Y. Miloudi, “Bl. research at semeval-2022 task 1: Deep networks for reverse dictionary using embeddings and lstm autoencoders,” in *Proceedings of the 16th International Workshop on Semantic Evaluation (SemEval-2022)*, 2022, pp. 94–100.

- 4 J. Breton, M. B. Billami, M. Chevalier, and C. Trojahn, “Semantic model for the legal maintenance: The case of semantic annotation of france legislative and regulatory texts,” in *Workshop on Methodologies for Translating Legal Norms into Formal Representations (LN2FR 2022) in conjunction with JURIX 2022*, 2022.

Skills

Languages	Strong reading, writing and speaking competencies for English and French. Notions of Japanese.
Coding	Java, Javascript, Python, Rust ...
Databases	MySQL, PostgreSQL, MongoDB, Neo4j.
Frameworks & Libraries	PyTorch, Transformers, HuggingFace, NuxtJS, AdonisJS.
Misc.	Academic research, teaching, training, consultation.

Miscellaneous Experience

Awards and Achievements

- 2025  **Mentor**, NASA Space Challenge.
- 2024  **Spotlight Paper**, International Conference EKAW24.

Certification

- 2020  **Authentication Server Practitioner**. OneSpan Academy.