Léo Bourbon

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Work Experience

02/2024 - 08/2024
Grenoble, **France**

Responsible for AI
Atmo Auvergne-Rhône-Alpes (Atmo AuRA)
Responsible for internal AI education, development, and consultancy.

- **Public Speaking, Management, Consulting** – Introduction and internal consulting on the topic of AI. Elaborated surveys, conducted presentations and workshops for over 40 staff members. Foundational work of the current stance of Atmo AuRA on AI.
- **Web Development, Impact Analysis** – Built a custom AI research assistant using *Nuxt* and *Typescript*. From conception to deployment, there was a focus on the lifecycle analysis of the tool. The results demonstrated that ethical, responsible and measured AI usage is possible.

09/2021 - 08/2024
Grenoble, **France**

Software Engineer
Atmo Auvergne-Rhône-Alpes (Atmo AuRA)
Dedicated IT engineer of the Research and Innovation team.

- **Web Development** – Delivered several web platforms for data visualization, tool use, and knowledge sharing. Made with *Nuxt, Vue.js and Typescript*, targeting both technical and general audiences.
- **Software Development, Electronics** – Development of scripts using *Python and C++*, for automation as well as a mobile data transmission module for existing air sensors.
- **Data Processing & Visualization** – Satellite data processing and visualization using *Python, Grafana and PowerBI*. Critical examination of the relevance of satellite data compared to existing sensor data.
- **Database Management** – Maintenance and optimization of *PostgreSQL* databases using *TimescaleDB*. Sped up typical query execution times by 4x (from 2000ms to 500ms), and Grafana data loading times by 2x (from 8 min to 4 min).
- **DevSecOps, Agile Methodology** – Leveraged *Agile* methods, as well as *Git, Docker and Kubernetes* in projects, where relevant.

07/2023 - 08/2023
Windisch, **Switzerland**

Software Engineer (Intern)
University of Applied Sciences & Arts Northwestern Switzerland FHNW

- **Research & Development** – Researched and benchmarked improvements to the current software stack. Refactored and streamlined the stack using *Bash and Docker*, taking it from POCs to production. The stack is now leaner, more resilient and easier to maintain.
- **Research & Development** – Conducted a comprehensive study on solutions for automating the configuration of IoT sensors monitoring agricultural fields, and their related applications. Ranking them by ease of use, maintainability, and cost led to the creation of a web platform using with *Python, Nuxt and Node-RED* that reduces the time spent by the technicians on common configuration tasks.

Education

09/2021 - 08/2024
Grenoble, **France**

Applied Mathematics & Computer Sciences | Engineering Degree
Grenoble INP - Ensimag, UGA : Graduate School of Engineering

- **Low-level Programming** – Gained a better understanding of low-level concepts by writing a basic x86 operating system from scratch, using *x86 assembly and C*.
- **AI & ML** – Application of Reinforcement Learning with *Python, StableBaselines3 and Godot* on a custom traffic light controller, to optimize throughput of cars at intersections. Designed the architecture and managed tasks in a team of 4.
- **Compilation & Parsing** – Development of a compiler for an object-oriented subset of Java called Deca, using *Java and ANTLR* for grammar definition and parsing. Created the initial basis on which the compiler was then developed as a team of 6.
- **Embedded Development, Electronics** – Creation of a smart cradle using *Raspberry Pi hardware and C* in a team of 5. Responsible for the design, sourcing of components and electrical wiring.
- **Cybersecurity** – Member of the cybersecurity association Securimag. Delivered talks and workshops university wide, on topics such as web vulnerabilities and open-source intelligence.

09/2019 - 08/2021
Annecy, **France**

Computer Science | Technical Degree (DUT)
IUT Annecy

- **Data Processing & Visualization** – Creation of a module for machine learning and data mining inside of *Grafana*, using *Node.js, Python, and Bash*. Built to simplify and automate common workflows of the LISTIC Laboratory of Annecy.

09/2016 - 08/2019
Rumilly, **France**

Engineering sciences | High School - ISN specialty
Lycée de l'Albanais

- **Electronics** – Creation of an autonomous suitcase that uses infrared beacons to track its owner and ultrasonic sensors to avoid obstacles. Responsible for programming the integrated controller, in a team of 4. The result was selected to take part in the regional engineering Olympiads.

Projects

[IA]ssistant de veille *Frugal AI | Nuxt | Typescript | LlamaIndex | Ollama | Docker*

GenAI assistant designed to create and manage multiple corpus of documents. Can retrieve data from websites as well as given documents using RAG (Retrieval Augmented Generation). Built with an emphasis on ethics and frugal AI. Based entirely on locally hosted solutions, including the LLM and databases, both relational and vector.

AI knowledge wiki *Nuxt | Typescript*

Internal knowledge base to support learning about AI. Content is dynamically retrieved and generated from Excel spreadsheets for quick updates. Designed to accompany presentations and workshops to provide accurate information and examples of real-world use cases of AI in the enterprise.

CAPTAIR Map *Vue.js | Typescript | Leaflet.js*

Web platform designed to facilitate the visualization of all air quality sensor data for the public in the Auvergne-Rhône-Alpes region. A replay function is included to quickly understand trends. It is used by partners of Atmo AuRA to check the results of specific projects such as Sillon'air with the Grand Annecy.

Languages

English: **C2** (**TOEIC: 980/990**) French: **Native**