



ALEXANDRE PERROT

FULLSTACK SOFTWARE ENGINEER

INFO

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Bordeaux, FR
French (native), English C2

EDUCATION

2014-2017 **Ph.D in Computer Science**
LABRI · University of Bordeaux
Big Data Visualization

2011-2013 **Master's Degree in Software Engineering**
· University of Bordeaux
Advanced Software Engineering and Agile project management

2008-2011 **Bachelor's Degree in Computer Science**
· University of Bordeaux

SKILLS

Programming Languages

★★★★★ Python
★★★★★ C, C++
★★★★☆ Javascript, Typescript
★★★★☆ Java, Scala

Web

★★★★☆ HTML / CSS
★★★★☆ Vue.js
★★★★☆ WebGL

Data Engineering

★★★★★ Hadoop
★★★★★ Spark
★★★★☆ SQL
★★★★☆ ElasticSearch

Tools **Docker** **Git** **Jupyter** **Ansible**

WORK EXPERIENCES

feb 2019 -
Present







R&D Software Engineer

CATIE · Talence

Python **Typescript** **Vue.js** **Sklearn** **PyTorch** **ML** **Pandas** **Numpy** **Jupyter**

Project management, Data Engineering, ML, ops, backend and frontend software engineering for innovation projects in the Data & Algorithms business unit.

- Created a visual analytics tool to help with fault diagnosis and predictive maintenance using sensor data :
 - Data analysis and ML with **Pandas** and **scikit-learn**
 - Typescript** and **Vue.js** Webapp, with **D3.js** for viz.
 - Adopted by Customer Service team at the client company
- Created and maintained of a **python** toolbox allowing fast iteration and evaluation of RAG pipelines within the CATIE server infrastructure.
 - Used by Data Engineers and Data Scientists on the team.
 - Supports **ChromaDB**, **QDrant** and **Llama index** as indexes, **Ollama** for LLMs inference, **LangChain** and **Langfuse** for evaluation.
- Created and maintained of a **Python** toolchain for forest inventory and tree measurement from 3D LiDAR point clouds. Allows automatic tree location, identification and size measurement for faster forest inventory.
 - Implementation of 3D LiDAR data processing algorithms, ML for tree detection, segmentation, and measurement.
 - CLI interface with **argparse** and GUI with **Tkinter**
 - Used by dendrometry experts at the client company
- Created of a visual analytics tool to explore online bets history in order to detect dangerous players.
 - Big Data processing and analysis with **Pyspark**, **Pandas** and **sklearn**
 - Flask** and **ElasticSearch** for backend, **Javascript**, **Vue.js** and **D3.js** for frontend.
- Developped PodWords as a simple introduction to text embeddings and AI explainability.
- Catie Robotics : Developed a Speech-to-text *python* tool for real-time user interaction during RoboCup 2023.
- Server Administration : managing our on-premise server infrastructure, with automated *Docker* deployments using *Ansible* scripts.

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|--------------------------|--|---|
| sep. 2018 - jan. 2019 | Data Engineer <div> Spark Java GCP ElasticSearch BigTable </div> <ul style="list-style-type: none"> Responsible for developing data pipelines with Spark and Java. Improved scalability of data processing using <i>Google BigTable</i>. | COGNITEEV · Bordeaux  |
| june 2018 - sep. 2018 | Fullstack Software Engineer <div> Javascript HTML CSS Bootstrap Node.js </div> <ul style="list-style-type: none"> Development of an interactive web-app to explore French University Students mobility through Parcoursup affectations. Collaboration with French Ministry of Higher Education | LABRI · Bordeaux University  |
| feb. 2018 - apr. 2018 | Engine Programmer <div> C++ Bing Maps </div> <ul style="list-style-type: none"> Engine programmer on Microsoft Flight Simulator. Worked on Map Tiles network transfer optimisation. | ASOBO STUDIO · Bordeaux  |
| oct. 2017 - jan. 2018 | R&D Software Engineer <div> Java Python ElasticSearch </div> <ul style="list-style-type: none"> Worked on integrating Java data pipelines for job offers indexation into ElasticSearch. Implemented <i>OCR</i> text extraction for CV matching. | JOBIOBA · Pessac  |
| sep. 2014 - sep. 2017 | Ph.D. Student <div> C++ OpenGL WebGL Js Spark Java Scala Python </div> <p>Academic research on Big Data Visualization, under the supervision of <i>David AUBER</i></p> <ul style="list-style-type: none"> Developed novel algorithms for batch and streaming data indexation, using Spark and HBase : processing 2.7B gps points in under an hour. Developed a Javascript library for big data web visualisation : C++/OpenGL core compiled to Javascript/WASM/WebGL using <i>Emscripten</i>. Contributed to the Open Source compiler Emscripten. Presented at several International Conferences. Best Paper Award LDAH 2015 Teaching : Javascript, OpenGL/WebGL, Hadoop MapReduce, HBase, Spark, Neo4j | LABRI · Bordeaux University  |
| sep. 2013 - sep. 2014 | Reasearch Software Engineer <div> C++ Java Js OpenGL GraphDB Tinkerpop Hadoop </div> <ul style="list-style-type: none"> Developped scalable algorithms for Big Data processing. Deployed Hadoop and Spark cluster Developped a graph visualisation engine in Javascript for web browser, reusing the C++ Tulip core library Large graph data processing with tinkerpap and Titan graph database. | LABRI · Bordeaux University  |