



Resume
Frederic Boileau
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Education

- McGill Bsc. Mathematics major
2012–2018
- Polytechnique BEng Electrical Engineering (2 years, not completed, GPA: 3.4/4)
2015–2017

Work Experience

- ADOPT/IBS: Senior Product Engineer
May 2021 (current occupation)

This company develops a software solution to generate optimal schedules for aircraft operating companies. I was a member of the "core" team which is responsible for the development of the nucleus of algorithms (column generation based) which drive the main product. A migration towards more modern web technologies was in effect when I joined. As such we also needed to implement REST apis and start worrying about network related challenges (e.g. authentication/authorization, latency) as well as some associated with distributed systems since the architecture relied on deploying containers in a k8s environment (coherence of state, collection of logs, impossibility of relying on persistent local state etc.)

At first I mostly worked on helping the rest api implementation (python flask) and adding functionality in the data management engine (scheme r5rs). A year later, after some administrative reshuffling, I ended up being in charge of the backend.

My tasks consisted of:

- Deployment and configuration of keycloak + postgresql for user management.
- Design and implementation of a distributed message-queue network using rabbitmq to handle generation of reports and statistics asynchronously as well as SSE notifications
- Creation of an extremely simple policy mechanism relying on policies encoded in json matched with http methods, requested urls and their parameters
- Deployment and configuration of a log aggregation pipeline: syslog-ng in containers targeting a loki database with a grafana frontend
- Take charge of frontend codebase (it was in administrative limbo and tickets were not being processed) in order to test and present improvements to management.
- Supervision of two interns assigned to frontend tasks

I never had the time to work on the operations research concerns I was hired for originally.

Technologies index: helm|k8s|podman|postgresql|rabbitmq|keycloak|aiohttp|pytest|perl|bash|scheme-r5rs|react|redux|typescript|liquibase

- GIRO: C++ developer for transport scheduling module team
2017 (7 months)
 - Develop new features for transport visualization
 - Update codebase to new standards (e.g. C++14 and STL)
 - Implement database migration tool (essentially symmetric serializers and deserializers)
 - Maintain legacy C++98
- Ubisoft: data science intern for the User Research Lab
2016 (5 months)
 - Write SQL (HiveQL) queries to present quantitative data to developer team
 - Produce dashboards for the developer teams and management teams
 - Address efficiency issues in big data environment
 - Maintain the ETL pipeline (airflow), which includes monitoring the temporary tables in the associated directed acyclic graph and debugging failed queries.
- Research Institute McGill University Health Center: research assistant
2015 (1.5 year, part-time)
 - Implement statistical analysis tools relevant to given data in R
 - Implement tool for automated periodic reporting of key metrics
 - Evaluate and recommend modifications concerning the data logging interface for clinicians and its impact on data analysis quality
- Santropol Roulant: bike coop program manager
2014 (4 months internship)
 - Migrate ad-hoc sales system to point of sale system (POS) and computerized inventory management
 - Organize workshops in bike repair
 - Repair and maintain coop's bike fleet
 - Schedule and manage monthly meetings of the volunteer team

Tools/skills

- Industry experience in the following languages: python, C++, C, scheme (R5RS), bash, perl
- Advanced Linux and FreeBSD user. Currently reading "The design and implementation of the FreeBSD operating system".
- Strong knowledge of mathematical foundations of numerical optimization
- Clarity, conciseness and correctness minded, conditioned through a strong pure mathematics education
- Mother tongue level in French and English, intermediate Portuguese reading.

Misc/interests

- Writer of short stories and poetry in both English and French
- Interest in theory of literature (stylistics, hermeneutics, prosody)