Simon Bar

Software Engineer in Operations Research

Lille, France
simooonbar@gmail.com
github.com/simooonb

Experience

January 2019 – today
R&D Software Engineer in Operational Research, *Colisweb*, Lille
- Implemented a metaheuristic (LNS) using functional programming in Scala to address the pick-up and delivery problem with complex constraints (time windows, breaks, ...), accommodating Colisweb's growth (from 10 to 1200-1600 routes/week) and improving cost margins
- Developed algorithm-related software features, enhancing operational efficiency across teams
- Stayed current with industry advancements by reading and studying research articles on the PDP and other optimization problems, identifying potential applications to enhance Colisweb's operations
- Collaborated with stakeholders to prioritize new R&D features aligned with business goals

Main skills: combinatorial optimization, metaheuristics, functional programming in Scala (cats ecosystem, doobie, http4s, tapir, circe...)
Additional skills: SQL, BigQuery, LookerStudio, Python

July 2018 – January 2019
R&D Software Engineer in Operational Research (internship), *Colisweb*, Lille
- Implemented a clusterization mixed integer programming model with lpsolve in Scala, in order to split a VRP into multiple subproblems
- Implemented a metaheuristic algorithm (local search and VNS) in Scala for the fleet size & mix problem
- Learned basics of functional programming

Main skills: mixed integer programming, combinatorial optimization, metaheuristics, Scala programming
Additional skills: functional programming

Education

August 2017 – June 2018
Master's degree in computer science, *UQAC (Université du Québec à Chicoutimi)*, Chicoutimi (Québec), Canada, Double degree UQAC + ISEN

September 2016 – June 2018
Master's degree in computer science and cybersecurity, *ISEN engineering school*, Lille, France, Double degree UQAC + ISEN

September 2013 – June 2016
Bachelor's degree in computer science (CIR - Cycle Informatique et Réseaux), *ISEN engineering school*, Lille

June 2013
High school A-level equivalent in sciences, mathematics, *Lycée Thérèse d'Avila*, Lille

Projects

November 2017 – December 2017
Chess Agent, *UQAC project*, Chicoutimi
Intelligent agent which plays chess.
- Application of artificial intelligence concepts seen in class
- Self documentation on the differents algorithms, data structures and optimisations used in order to develop a chess engine
- Implementation in C# (object-oriented programming)

October 2016 – April 2017
Mario Kart Analyzer, *ISEN project for Idéine*, Lille
Extract information from a Mario Kart 8 race, such as rankings, time, items, from the Wii U video flux.
- Learned how to use the OpenCV and TensorFlow libraries in Python
- First project for a company
- Used real-world tools to help the project's development and organisation

3 days in January 2016
RabbitRunner, *ISEN project*, Lille
Discovering the Unity engine by creating a video game in 3 days.
- Learnt to use Unity in C#
- Project with a very short time requirement - learnt to organize the team and myself efficiently
- Presentation in front of a jury composed of teachers and a external teacher working in the video game industry

Languages

French — Native
English — Bilingual — *First Certificate of Cambridge*