Rick BOURGET

Rick.bourget@gmail.com

Data Scientist / Machine learning Engineer

Data Scientist specialized in Bayesian data analysis
with experience in geospatial data analysis (GIS) and time series.

PROFESSIONAL EXPERIENCES

Jun 2020 – Today **Data Scientist**
MP DATA

Training: Cloud & data engineering technologies training on Hadoop, Spark, Kafka & AWS

- Implementation of a local Hadoop cluster with a Spark module.
- Setup of a Kafka server and a zookeeper for real-time data analysis on geographical bicycle positions
- Setup of a data pipeline with python scripts executed sequentially with AirFlow.

Jan 2019 – Jun 2020 **Data Scientist**
HCube Conseil

Project 3: Sensor failure detection for Falcon & Rafale aircraft sensors – Dassault Aviation

- Creation of a Proof-of-concept on pre-sale, technical redaction of a solution proposal to the call for tender.
- Data analysis with statistical and signal processing tools, implementation and definition of signals characteristics through numerical analysis.
- Implementation of a pattern recognition tool based on temporal characteristics and its conversion in literal sentence.
- Design of the project pipeline and learning models, validation of model's results with flight test engineers and analysts.
- Implementation of a probabilistic anomaly detection model and parameters calibration through Markov Chain Monte Carlo methods (MCMC)
- Manual time series labelling of failure time zones and models' classification performance benchmark through F1-Score and ROC/AUC metrics.

Project 2 : Medical radios classification – HCube Conseil (Internal project)

- Neural Network implementation with PyTorch
- Model training and fine tuning of the architecture with Transfer Learning.
- Model benchmark and performances assessment towards research papers.
- Integration of the model with a Flask backend and combination of React.js & Node.js for frontend interface.

Project 1: Implementation of a geospatial data analysis solution – Cabinet Tombarel

- Implementation of a Python plugin in an open source GIS (QGIS 3)
- Automation of geospatial data analysis on vectorial and raster layers and setup of a database with PostgreSQL/PostGIS.
- Geospatial data analysis with GeoPandas

Aug 2018 – Oct 2018 **Data Scientist Freelance (Punctual Mission)**

Project: Implementation of a market study for a Swiss startup:

- Sentiment analysis and scoring based on products review through Natural Language Processing techniques (NLP). Unigram-bigram tokenisation and TF-IDF vectorization.
- Implementation of a scoring method based on product average score and the designed sentiment score based on reviews.
- Statistical study of conversion rate trend according to historical sales data on e-commerce websites.

Feb 2018 – Oct 2018 **Risk Development Engineer (fixed-term contract)**
Risk Management Laboratory– ESTP Paris

Project: Implementation of a trading algorithm for smart investment in Python.

- Data cleaning, wrangling and analysis with Numpy and Pandas
- Performances evaluation and programming of interfaces with Plotly.
- Implementation of Monte-Carlo simulations for parameters optimization and calculation of risk indicators (VaR, Expected Shortfall).
- Performance assessment after strategic criteria weights choices.

Mar 2017 – Feb 2018 **Quantitative inspector at General Inspection & Audit Department**
Natixis

- Works on Fixed Income – Rates desks: Analysis of Volkers desks, review of risk mandates, review of trading portfolio books and risk parameters.
- Regulation audit according to Bâle standards and FRTB on VaR and Expected Shortfall.

PERSONAL PROJECTS

Dec 2016 – Feb 2017 **Prize winner of the Habitat 4.0 contest – Group project at ESTP Paris – Vinci Construction**

Project: Integration of the concept of mutability for new buildings construction.

- Review of the state-of-the-art in the domain and research of energetic technical solution to respect specifications of the RT2020 standards
- Prototype implementation, setting up and redaction of a file case followed by an oral defence to Vinci professionals.
- Project cost estimation, modeling of potential risks and estimation of the construction's potential environmental impact risk, and building construction feasibility analysis.

LANGUAGES

- **English:** Fluent
- **Japanese:** Notions

COMPUTER SKILLS

Languages:
Python, R, Java, SQL, Swift, Javascript (Node.js, React.js)
BDD/ETL/NoSQL :
MySQL, PostgreSQL, Django, Hadoop, Spark, AirFlow
Frameworks:
TensorFlow 2 (Keras), PyTorch, TFP, PyMC3
Web/Databases:
Flask, MySQL, Kafka PostgreSQL, Django
Software/Cloud :
QGIS 3, AWS(EC2,S3), GCP

HOBBIES

- Running (10km l'équipe, half-marathon 2014 & 2015, marathon 2015)
- Litterature (Hemingway, Saint-Exupéry, Zÿcke, Jack London…)
- Kaggle competitions
- Blog articles writing: www.rickbourget.com

EDUCATION

2014-2018 **ESTP Paris**
Engineering school (Master"s degree)
2010-2013 **CPGE Scientifique**
Raspail High School - Paris

CERTIFICATIONS

- **Machine Learning** – Andrew Ng – Stanford University
- **Deep learning Specialization –** Andrew Ng – Deep learning.ai
  - Neural Networks and Deep Learning
  - Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
  - Structuring Machine Learning Projects
  - Convolutional Neural Networks
  - Sequence Models
- **Java Programming –** NFA031 - CNAM Paris
- **SQL for Data Science –** University of California