

PAOLO BUSSACCHINI

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in paolo-bussacchini

EXPERIENCE

Junior Java Developer, *Perigea - IT Consulting*

04/2022 - Present | Milan, Italy

- Worked as an IT consultant on various financial projects for one of Italy's largest banks.
- Developed a connection to an external library using Protocol Buffers to perform ad hoc tasks related to financial engineering (e.g.: IRS pricing, RWA computation). The results were exposed through REST APIs (Spring).
- Implemented various metrics related to bonds and derivatives, both for batch processing (Java) and on-demand summary metrics (SQL scripts). Made minor updates to the application's frontend (React).
- Developed a service that could read and manipulate a configuration document stored in a MongoDB collection. The document described properties of specific metrics and was used to decouple the frontend and backend logic from the database. By centralizing the configuration in the database, we were able to improve efficiency and reduce maintenance overhead.

Quantitative Research Student for Academic Project, *HSBC (with ESILV)*

09/2021 - 01/2022 | Paris, France

- Worked as part of a team of 5 in collaboration with an external partner on a project aimed at improving a currency carry trade strategy.
- Developed a function to backtest the strategy (Python) and analyzed the performance metrics (e.g.: Sharpe ratio, skewness, etc.) to assess its effectiveness.

EDUCATION

Master of Science in Mathematical Engineering, *University of Padua*

09/2020 - Present | Padua, Italy

- Joint program delivered between Italy and France - Expected Graduation: end of 2023
- **Core Courses:** Object-Oriented Programming, Numerical Analysis, Financial Engineering

Exchange Semester, *Pôle Universitaire Léonard de Vinci (ESILV)*

08/2021 - 01/2022 | Paris, France

- **Core Courses:** Algorithmic Trading, Model Calibration, Model Risk

Bachelor of Science in Statistics, *University of Milano-Bicocca*

09/2017 - 09/2020 | Milan, Italy

- **Final Grade:** 110/110 cum laude
- **Core Courses:** Probability Theory, Computer Science, Statistical Models, Databases
- **Final Dissertation:** "*Exploratory Analysis of Covid-19 Tweets using NLP Techniques*". Supervisor: prof. Aldo Solari

TECHNICAL SKILLS

- **Programming Languages:** Java, JavaScript, Python, SQL, R
- **Frameworks/Libraries:** Spring Boot, Hibernate, JUnit, Mockito, React
- **Developer Tools:** Git, GitHub, Oracle Database, Jira
- **Other:** Object-Oriented Programming, Functional Programming, Agile Methodology, CI/CD

PROJECTS

Exploratory Analysis of Covid-19 Tweets using NLP Techniques, *R* ↗

- Built from scratch a large dataset gathering data from multiple sources, both relying on Twitter APIs and online repositories. Performed data cleaning and feature selection.
- Applied different NLP methods (sentiment analysis, retweet analysis, topic modeling) and compared results with the epidemiological and political situation, founding astounding correlations especially with the latent Dirichlet allocation (LDA) model.

Optimal Trading Strategy in a Mean-Reverting Portfolio, *Python* ↗

- Discretized the continuous Ornstein-Uhlenbeck process and simulated a random path checking its mean-reverting property.
- Model calibration using a simple linear regression, trying to infer the model parameters given the simulated data.
- Formulated a trading strategy for a certain portfolio of financial assets which can be modeled by the OU process. Tried to predict the best entry and exit points of the trade by means of a numerical solution of the associated free boundary problems or variational inequalities.

ADDITIONAL INFORMATION

- **Languages:** Italian (Native), English (Fluent), French (Beginner)
- **Interests:** Reading, Tennis, Cinema