

# Tom Beaugé

Bertrange, Luxembourg — Lausanne, Switzerland  
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## Education

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**EPFL - École Polytechnique Fédérale de Lausanne (Switzerland)** Aug 2024 – Present  
*Bachelor in Computer Science*

**European School of Luxembourg II, Mamer (Luxembourg)** Sep 2017 – Jul 2024  
*European Baccalaureate (English Section)*

Specializations: Advanced Mathematics, Economics, Computer Science, Physics, History

**Distinction:** Final Grade 87.67%, awarded First Prize in Economics

## Work Experience

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**Intern, Cebi S.A., Luxembourg** Nov 2022

- Deployed heat and humidity sensors across the manufacturing plant to support the company's transition to Industry 4.0.
- Integrated sensor data into the company's Internet of Things (IoT) infrastructure, enhancing real-time monitoring capabilities.
- Applied programming and CAD software skills to optimize sensor placement and data transmission efficiency.
- Analyzed collected data to identify trends and insights, and presented technical findings, contributing to process optimization and operational efficiency.

**Intern, Natixis CIB (Trading Desk), Paris, France** Jun 2022 – Jul 2022

- Gained exposure to financial markets, specifically bond trading and swap strategies, by working on a desk specializing in swaps for supranational institutions.
- Actively engaged with professionals involved in trading bonds, selling Forex derivatives, and syndication activities.
- Priced bonds using market data and financial models to support trading decisions and optimize deal execution.

**Municipal Worker, Bertrange Commune, Luxembourg** Summers 2022, 2023

- Maintained public green spaces by removing litter, clearing overgrown areas, and ensuring a clean, safe environment.
- Supported logistical operations by assisting in the setup of major town events and festivals.

## Personal Projects

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**Option Pricing Models Exploration** Jan 2025 – Present

- Developed and implemented single-period and multi-period binomial tree models for option pricing using Java, focusing on no-arbitrage principles and risk-neutral valuation.
- Explored the Black-Scholes model, applying concepts from stochastic calculus and geometric Brownian motion to derive option prices in continuous-time frameworks.
- Analyzed model limitations, proposing extensions for American options, volatility structures, and dynamic hedging strategies.
- Utilized Python for data visualization, generating performance graphs to analyze computational efficiency.
- Authored a comprehensive technical report detailing the theoretical foundations, implementation, and performance analysis of the models.
- All code, documentation, and the report are available on my GitHub repository.

**Automated Customer Service Bot** Jan 2023

- Designed and developed an automated customer service bot in Python to manage and respond to emails in real-time.
- Integrated OpenAI's API for generating intelligent, context-aware responses based on customer queries.

- Utilized SMTP and IMAP protocols to handle email communication, including fetching unread emails and sending automated replies.

## Skills

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**Programming Languages:** Java, C, Python, Arduino, basic HTML/CSS/JavaScript, LaTeX

**Languages:** French (Native), English (Bilingual), Spanish (B2)

## Activities

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**Model European Parliament (MEP),** Luxembourg Feb 2023

- Served as a Portuguese delegate in the Foreign Affairs Committee, advocating for cybersecurity reforms in EU legislation.

**European Schools Sailing Cup,** Croatia May 2022, 2023

- Captained my school's team in the European Schools Sailing Cup in Croatia for two consecutive years, participating in a week-long regatta.

**Volunteer, Course Contre la Faim,** Luxembourg May 2021

- Organized awareness campaigns and supported event logistics for a fundraising race against hunger.