

Yassine Berrhazi

Engineering Student (ENSEIRB–MATMECA) & Mathematics BSc | Artificial Intelligence, Signal and Image Processing

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EDUCATION

ENSEIRB–MATMECA, Bordeaux INP

2024 – 2027

Master's-level engineering degree in Electronics (Digital Systems track).

Courses focused on scientific programming, signal processing, image analysis, and artificial intelligence. Strong emphasis on modeling, numerical simulation, and algorithm design. *Languages & Tools:* C, Python, MATLAB, Git.

Bachelor in Mathematics — University of Angers (distance learning)

2025 – 2026

Courses: Probability, Complex Analysis, Differential Equations, Topology, Differential Calculus. Focus on mathematical modeling and analytical tools applied to data science and signal engineering.

French Preparatory Classes for Engineering Schools (PCSI–PSI)

2022 – 2024

Ranked 11th/961 in the national competitive exam. Rigorous scientific training developing logic, reasoning, and autonomy.

TECHNICAL PROJECTS

- **Digital Signal Processing** — Analysis and manipulation of sinusoidal and modulated signals using MATLAB: simulation of periodic signals, FFT computation, FIR/IIR filtering, and quantization noise study. Developed complete scripts for signal visualization and spectral analysis. *Tools:* MATLAB, frequency-domain analysis.
- **Monte Carlo Simulation of π** — Implementation of a stochastic algorithm to estimate the value of π using random point sampling. Comparison between theoretical and simulated convergence; visualization of error decrease versus sample size. *Tools:* Python, NumPy, Matplotlib.
- **Image and Data Compression (Huffman Coding)** — Implementation of a lossless compression algorithm: tree generation, binary encoding and decoding of grayscale images. Evaluated compression ratio and optimized tree traversal for reconstruction. *Language:* C, binary data handling, tree structures.
- **Connect Four Game with AI (Minimax Algorithm)** — Designed a complete Connect Four game with an AI opponent using the Minimax decision algorithm. *Language:* C, algorithmic logic, data structures.
- **Battleship Game (Personal Project)** — Terminal-based game using player/ship structures, hit detection, and automatic win recognition. *Language:* C, structured programming.

EXPERIENCE

Robotics and Vision Intern — ENSEIRB–MATMECA

June 2025

- Python development for control and calibration of robotic arms (UR5, xArm6).
- Used embedded camera for basic object recognition and automated manipulation.
- Teamwork on designing an educational robotics training module.

Private Tutor (Maths/Physics)

2024 – Present

- Individual support for high school and preparatory students.

ASSOCIATIVE ENGAGEMENT

Communication Lead — NLOG'EIRB (Competitive Programming Club)

2025 –

- Organized algorithmic programming sessions (C++, C, Python).
- Promoted club events and ICPC-style competitions among engineering students.

Logistics Co-Manager — INGÉNIB Career Fair

2025 –

- Coordinated a student–industry fair bringing together over 80 companies and 1,500 students.
- Managed logistics, schedules, and corporate partnerships.