AOUANOUK Slimane

+33(0)783542026 — aouanoukslim@gmail.com — Portfolio

Available for a Summer 2026 internship in engineering, research, or applied technology, with an interest in data-driven and computational approaches to physical systems.

Graduate Engineering student with a strong foundation in **physics-based modeling**, **numerical simulation**, **CAD design**, and **experimental analysis** applied to **mechanical systems**. Experienced in **CFD**, **Python-based data analysis**, and **system-level engineering**, with hands-on experience developing **AI-driven pipelines** and **physics-informed engineering systems**. Ranked in the **top 13%** of my cohort.

EDUCATION — Combined GPA : 3.92 / 4.00

Arts et Métiers Institute of Technology (ENSAM) — Paris, France **Sept 2024 – Jul 2026**

Combined BS × MS Engineering Degree *— Arts et Métiers is a member of* ***ParisTech****, a consortium of prestigious French institutions recognized for* ***academic excellence****, outstanding faculty, and* ***world-class research laboratories****.*

- **Ranked top 13% of cohort** (**160 / 1203** students)
- **Relevant Coursework:** Mechanical Design and Structural Analysis, Solid Mechanics, Robotics and Mechatronics, Computer-Aided Design (CAD), Design for Manufacturing and Assembly (DFM/DFA), Engineering Materials, Experimental Mechanics and Validation Testing, Fluid Mechanics, Heat Transfer, Numerical Optimization

SELECTED PROJECTS

AI-Driven Smart Workshop Project – Arts et Métiers **2025**

• Built an **end-to-end local data & AI pipeline** to query **technical workshop data** in **natural language**; **structured heterogeneous CSV data** and migrated it to a **relational SQLite database**; **validated and explored data** using **Python** and **pandas**; **designed SQL views** to simplify **complex joins** and improve **robustness**; **implemented a secure Text-to-SQL system** powered by a **locally deployed LLM (Ollama)** with **strict query constraints**; **developed a Streamlit interface** enabling **real-time usage** and **human-readable responses**

Aircraft Brake System Design Project – Arts et Métiers **2025**

• Designed a **complete mechanical braking system** for a **light aircraft wheel** composed of **10+ components** using **Fusion 360**; built a **physics-based functional architecture** ensuring **torque transmission** across **5+ mechanical interfaces**; **quantitatively modeled load paths** and **mechanical constraints**; performed **engineering validations** including **bearing preload analysis**, **bolt slip criteria**, **shaft stress verification**, and **brake disc thermal dissipation**; ensured **system consistency** through **analytical checks** and **safety margins**

Miniature Formula One Car Design – Arts et Métiers **2025**

• Designed a miniature F1 car optimized for a 20 m straight-line race; developed the full CAD model in **Fusion 360** with 3–4 design iterations; conducted **CFD simulations** in **STAR-CCM+** at 50 m/s to analyze pressure and drag; used simulation results to guide aerodynamic optimization; produced a 3D-printed prototype and prepared CNC machining while ensuring compliance with 10+ technical regulations

Supervised Personal Research Project: Impact of Hitting Techniques on Ball Speed – Lycée Raspail 2021–2023

Designed a custom pendulum-based impact test rig to generate repeatable time-series data; conducted controlled experiments with video-based motion capture; extracted velocity and contact-time signals using **Python**; processed and analyzed temporal data to characterize impact dynamics; identified a velocity amplification ratio of approximately 1.2

WORK EXPERIENCE

Construction Site Worker Intern – Société de Rénovation Parisienne (SRP) **Summer 2025**

• Supported large-scale construction operations on a major renovation project involving **3,000+ tons of excavated soil**, Conducted **on-site measurements, markings, and consistency checks** under real-world tolerances during a **9–10 month underground phase**, Coordinated with subcontractors and adapted plans to field constraints, gaining hands-on exposure to **field data**, safety requirements, and execution–theory gaps

LEADERSHIP AND VOLUNTEERING

Volunteer Tutor – Middle and High School Students **2022 – Present**

• Provided academic support in mathematics, physics, and engineering sciences, focusing on problem-solving and structured reasoning

SKILLS AND INTERESTS

Data & Programming: Python (data analysis, numerical computation), SQLite, MATLAB, Arduino, LaTeX
Modeling & Simulation: Computational Fluid Dynamics (STAR-CCM+), Finite Element Analysis (Abaqus), Mechanical CAD (Fusion 360, 3DEXPERIENCE)
Experimental Tools: Video-based motion analysis, sensor-based measurements
Languages: French (native), English (fluent; TOEFL iBT: 88/120), Italian (basic), Spanish (basic)
Interests: Data-driven engineering, applied AI, technology ecosystems (Apple), basketball, soccer, strength training