Thibault Halperin

French Engineering Student at Arts et Métiers Institute of Technology passionate about programming seeking a Master of Science in Industrial Engineering.

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EDUCATION | GPA 4.0/4.0

Arts et Métiers Institute of Technology (ENSAM) — Paris, France **Sept 2024 - Jul 2026**
Combined BS × MS Engineering Degree **GPA 4.0/4.0**
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 8% (95th/1203 Students).
- Mechanical/Electrical/Industrial Engineering: Design, Manufacturing, Fluid Dynamics, Thermodynamics, Material Science, Supply Chain.

Lycée Jules Ferry — Versailles, France **Sept 2022 – Jul 2024**
Intensive preparatory class, Mathematics, Physics, Industrial Engineering **GPA 4.0/4.0**
A highly competitive two-year program in France, designed to prepare top students for entrance exams to elite engineering schools. Provides accelerated, university-level training that demands rigor, discipline, and advanced problem-solving skills.

- Elite track in Physics & Engineering Sciences.
- Advanced Mathematics, Physics, Mechanical Engineering.

SELECTED PROJECTS

Challenge Data ENS — Enedis: Filling Missing Electricity Consumption **Sep 2025 – Present**
Team of 6 — Time Series Imputation (Machine Learning)
Objective : Reconstruct missing values in 1,000 electricity load curves using synthetic data and evaluated with MAE.

- Processed large-scale Linky-like datasets (140–260 MB, 21k–38k curves) to identify and complete missing values.
- Built and tested models beyond linear interpolation, including seasonal decomposition, Kalman smoothing, and matrix completion.
- Improved benchmark MAE while gaining experience in time-series ML, data engineering, and robust evaluation methods.

Manufacturing Project — Shoulder Prosthesis Design and Optimization **Sep 2025 – Present**
Individual Project — Research Project
Objective : Offer optimal designs for glenoid components in shoulder prostheses.

- Focusing on implant loosening mechanisms, identified as the main cause of long-term failure.
- Analyzing implant stability and contact mechanics at the bone–implant interface to identify key failure mechanisms.
- Ongoing work to determine the best combination of geometry, motifs, and materials to maximize long-term implant durability.

Manufacturing Project — Mechanical Design of an Articulated Car Jack **Jan 2025 - Jul 2025**
Individual Project — Collaborative project with an industrial SME partner
Objective : Design, model, and pre-dimension a mechanical lifting jack.

- Conducted parametric geometric and static modeling to establish critical design relationships and dimensioning rules.
- Applied the Ashby method and strength of materials principles to select materials and pre-dimension structural components.
- Validated the design with finite element simulations (Abaqus) and finalized the CAD architecture of the system.

Programming Project — Factory Simulation Game **Sep 2024 - Feb 2025**
Team of 2 — Python Development
Objective : Develop a Python-based simulation game inspired by World Factory, to train industrial decision-making and data analysis.

- Built an interactive user interface with Streamlit, enabling real-time visualization of game scenarios.
- Designed the software architecture using object-oriented programming (classes, inheritance, encapsulation).
- Implemented data collection and statistical analysis modules to evaluate production strategies under different configurations.

Frisbee Flight Performance Analysis **Jul 2023 - Jul 2024**
Individual Project — One-Year Research Project
Objective : Build an instrumented frisbee and a mechanical launcher to measure, model, and evaluate disc-golf throw dynamics with controlled and repeatable conditions.

- Formulated and validated a physics-based model of frisbee flight (rigid-body mechanics + aerodynamic lift/drag) to predict trajectory and performance; used empirical data to calibrate and refine the model iteratively.
- Embedded an IMU sensor suite (accelerometer, gyroscope, magnetometer) into the frisbee; developed signal-processing algorithms to extract key metrics (angular velocity, launch speed, tilt angle) and feed into analytic models.
- Built a motorized launcher (wooden frame + bicycle tire + drill motor) enabling repeatable high-speed frisbee launches for experimental benchmarking of launch conditions.

PROFESSIONAL EXPERIENCE

Thales AVS MIS - Avionics and Systems, Microwave and Imaging Sub-Systems **Jun 2025 – Aug 2025**
Production Operator Intern — Space Tube Manufacturing

- Performed precision handling and packaging of ceramic support components used in traveling-wave tubes for space and defense applications, ensuring compliance with strict cleanliness and mechanical-stability requirements.
- Gained hands-on exposure to a high-reliability production workflow, including vacuum deposition, thermal treatments, ionized-air cleaning, and multi-stage quality control within a complex industrial system.
- Improved consumable-flow management by deploying a Kanban visual control system across three laboratories, reducing stockouts and streamlining daily operations.

ArcelorMittal **Oct 2024 – Jun 2025**
Project Development Partnership — Industrial Data & Optimization

- Developed interactive dashboards to analyze and visualize large-scale production datasets, improving interpretability for engineering teams.
- Applied optimization and data-analysis techniques to support decision-making in production workflows and performance monitoring.
- Assessed opportunities to integrate AI-based prediction and automation tools to enhance process reliability and real-time monitoring.

BNP Paribas **Apr 2019**
Data Science Intern

- Observed how data scientists translate business problems into analytical solutions, gaining early exposure to the lifecycle of data-driven decision-making.
- Discovered foundational concepts in data analysis, statistical methods, and machine-learning tools used in real industrial workflows.

LEADERSHIP AND VOLUNTEERING

Association des élèves des Arts et Métiers **May 2025 – Present**
Student Tutoring Coordinator in Metz
Association des élèves des Arts et Métiers is France's largest student association with 3500 members.

- Organizing tutoring sessions and exam review lessons for first-year students.
- Coordinating volunteer tutors, and managed a shared repository of academic resources (+5000 documents).

GaSole **Sep 2024 – Present**
Volunteer for the association

- Joining weekly outreach initiatives, providing food and essential items to the homeless while offering moral support and strengthening community ties.
- Participated in community clean-up and renovation projects (waste collection, repainting, tree planting) in an underprivileged housing estate to improve public spaces and residents' quality of life.

Le Bon Conseil **Sep 2020 – Jul 2021**
Youth Group Volunteer Supervisor

- Supervised and ensured the safety and well-being of groups of children, fostering a structured and supportive environment during activities.
- Collaborated with fellow supervisors to coordinate programs, improve activity planning, and enhance the overall experience for participants.

AWARDS AND ACHIEVEMENTS

Award for Outstanding Academic Achievement — Top 8% of Arts et Métiers first year students **2025**
Athletics (Long Jump & 1500m) — 7 years at a Regional competitive level **2023**
High school diploma with honors **2022**

SKILLS AND INTERESTS

- Languages: **French (Native), English (TOEFL iBT: 102/120), Spanish (Intermediate)**
- Programming: Python, LaTeX, SQL, HTML&Java (Website)
- Software: 3DExperience, Catia V5, SolidWorks, Abaqus, Simcenter STAR-CCM+
- Sports and Leisure: **Atheltics** (7 years with **competitions**), **Swimming** (7 years), **Tennis** (6 years), **Golf**
- Linguistics: Passionate about cultural studies. Studied English for 15 years, Spanish (10 years), Latin (3 years), ancient Greek (1 year)
- Readings: Eclectic in classical literature and philosophy. The works that have impacted me the most: Caligula (Albert Camus), L'Enfant (Jules Vallès), Kafka on the Shore (Haruki Murakami), Address Unknown (Kressmann Taylor)