

AEROSPACE ENGINEERING STUDENT

FINAL-YEAR SPECIALIZED IN MECHATRONICS

SÉBASTIEN BOUSSAGUET

AVAILABLE FROM 2 FEBRUARY 2026 IN AUSTRALIA  sboussaguet.ovh

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 Driving License

Aerospace Engineering student from France, specializing in **Mechatronics** and **Autonomous Systems**, with **hands-on experience** in **robotics**, **control systems**, and **embedded programming**. Currently seeking a **6-month internship** in **Australia**, preferably in **robotics**.

EDUCATION

INSTITUT POLYTECHNIQUE DES SCIENCES AVANCES, AERONAUTIC & SPACE SCHOOL <i>Master of Science, Aeronautical engineering</i> Major in Autonomous Aeronautical system	Paris, France Sep 2021 - Currently
DONGGUK UNIVERSITY, EXCHANGE SEMESTER <i>Specialization in Data Analysis and Business Negotiation</i>	Seoul, South Korea Aug 2024 - Dec 2024
Intitut Emmanuel d'Alzon <i>Vocational Diploma in Aeronautical Engineering (BTS, equivalent to an Associate Degree)</i> With honours	Nimes, France Sep 2019 - Jul 2021

EXPERIENCES

NEXTEAM OLEMPES MACHINING <i>Automation Technicien Intern</i> <ul style="list-style-type: none">Designed and analyzed electrical and pneumatic diagrams for industrial systemsDeveloped and debugged LADDER logic programs (PLC programming)Planned, implemented, and tested automated systemsPrepared and documented technical information and manuals	Olemps, France Jun 2025 - Sep 2025 3 months
ACTI GROUP - ALMERAS <i>Aeronautical Technical Documentation Intern</i> <ul style="list-style-type: none">Assisted in the design and implementation of automated industrial systemsProgrammed and tested PLCs using LADDER logicSupported maintenance and troubleshooting of electrical and pneumatic circuitsCreated and updated technical documentation and user manuals	Rodez, France Jun 2021 1 month
ACTI GROUP - ALMERAS <i>BTS Mechanical Engineering Intern</i> <ul style="list-style-type: none">Gained hands-on experience in machining processes and dimensional inspection of precision parts for the aeronautics and space sectors.Assisted in the verification of tolerances and quality control processes.Optimized workstation layout by reorganizing tools and equipment, improving workflow efficiency and reducing unnecessary movements.Contributed to the preparation of machining and inspection reports.	Rodez, France Jun 2020 1 month
SOLEÍ <i>Workshop Laborer</i> <ul style="list-style-type: none">Assisted in the manufacturing of windows, verandas, and entrance doors.Handled material movement and workshop logistics.	Rodez, France Jul 2023 1 month
MARIUS BONAL <i>Production Assistant</i> <ul style="list-style-type: none">Produced and labeled syrup for packaging.Ensured product quality and labeling accuracy.	Rodez, France Jul 2022 1 month

PROJECTS

LEO Space Video Intelligence (Hackathon)

Development of an end-to-end architecture for **real-time** video intelligence from a LEO satellite constellation, designed in only **24 hours** under strict **bandwidth**, latency, and **cybersecurity** constraints.

- Designed a 6-satellite constellation with **ground stations** and **onboard preprocessing** for prioritized downlink.
- Used GRAVES/HELIX orbit data to enhance **tracking** and **mission planning**.
- Defined key satellite needs (antenna, power, thermal) and delivered a unified **C2**-focused architecture.

We **won** the local round of the **Hackathon** in October 2025.

Autonomous robot of exploration

Development of an **autonomous exploration robot** for **unknown environments** using ROS2. We use the **frontier method** and the **A* algorithm** to optimize path planning.

- Adapted and extended existing codebase to implement custom algorithms and parameters.
- Tuned robot behavior and exploration strategy to improve efficiency in unknown environments.
- Collaborated with team members to integrate modules and test system performance.

Bi-RRT path planning

Development of a **bidirectional Rapidly-exploring Random Tree (Bi-RRT)** algorithm to **efficiently find a path** between two target points.

- Designed data structures and logic to support bidirectional search efficiently.
- Analyzed algorithm performance and identified bottlenecks for optimization.
- Documented methodology and results for reproducibility and team use.

Handwritten Digit Classification (MNIST)

Development of a **convolutional neural network (CNN)** to **classify handwritten digits**, including **data preprocessing**, **model training**, and **evaluation**.

- Learned and applied core concepts of machine learning and deep learning.
- Implemented classification techniques and performance metrics to assess model accuracy.
- Gained hands-on experience in data preprocessing, model evaluation, and algorithm tuning.

SKILLS

- **Aerospace Engineering:** Flight mechanics, Aircraft systems, Avionics, UAVs & Autonomous aerial systems
- **Mechatronics & Control:** Control systems, Autonomous robotics (A*, frontier, Bi-RRT)
- **Programming & Simulation:** Python, MATLAB
- **AI & Data:** Machine Learning, Deep Learning, Data preprocessing, Algorithm tuning
- **Engineering Practices:** Simulation, Debugging, Lab & workshop experience, Technical documentation

- **Problem-solving & analytical thinking**
- **Team collaboration & communication**
- **Rapid adaptation to new codebases**
- **Attention to detail & quality control**
- **Practical mindset & results orientation**

LANGUAGES

- **French** *Fluent*
- **English** *Advanced-level (TOIEC - 895 pts)*

HOBBIES

- **President** of the climbing association at IPSA - *IPSA GRIMPE* 2023 - 2024
- **Treasurer** of the climbing association at IPSA - *IPSA GRIMPE* 2022 - 2023
- **Climbing** (*6c+/7a, V5/V6*)
- **Ski**
- **Running** (*10K, half-marathon, marathon*)
- **Reading** (*Start with Why, 12 Rules for Life, The Mortal Instruments, Percy Jackson...*)