

BENJAMIN BOCQUILLON

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Paris, France



PhD Engineer in AI, Optimisation & Complex Systems

Four years of industrial research experience at **CentraleSupélec** and **Safran Electronics & Defense**, developing **MATLAB and Python methods** combining neural Lyapunov functions and global optimisation to identify stability regions in nonlinear industrial system models with up to **nine state variables**. First author of **three peer-reviewed international conference papers**.

More recently, co-founded and scaled a company generating **€300k in revenue across 50+ clients**, developing strong experience in project ownership, client delivery and AI-enabled automation. Seeking to apply this scientific, engineering and entrepreneurial experience to challenging problems in **R&D, applied AI, algorithms and intelligent systems**.

RESEARCH & ENGINEERING EXPERIENCE

- **Industrial PhD Researcher** at **Safran Electronics & Defense** and **CentraleSupélec | Paris-Saclay, France | 2020–2024**
 - Developed optimisation-based methods to construct neural Lyapunov functions and identify stability regions in nonlinear dynamical systems.
 - Designed MATLAB and Python algorithms using genetic algorithms, particle swarm optimisation, genetic programming and Lyapunov Machines.
 - Validated the methods on Safran industrial system models with up to nine state variables, using reference stability assessments provided by Safran engineers.
 - Delivered a configurable MATLAB graphical interface enabling engineers to input system models, select algorithms, run analyses, visualise stability regions and export results without coding.
- **Control Theory Instructor** at **CentraleSupélec | Paris-Saclay, France | 2021–2023**
 - Taught control theory and MATLAB practical sessions to second-year engineering students.
- **Research Engineer** at **Oslo Metropolitan University | Oslo, Norway | 2018**
 - Programmed Thymio II robots in Python for a swarm robotics experiment combining random exploration and visual trail-following to reproduce pheromone-based coordination.

ENTREPRENEURIAL EXPERIENCE

- **Co-founder** at **Hoocq – Content & Social Ads Agency (Orange, American Express...) | Paris, France | Since 2023**
 - Co-founded and scaled an agency generating €300k in revenue across 50+ clients.
 - Led business development, client strategy, budgets and end-to-end project delivery through a network of approximately 100 freelancers.
 - Introduced AI-enabled workflow automation and generative AI tools across internal and client-facing projects.

TECHNICAL SKILLS

Scientific AI & Algorithms: Machine Learning · Global Optimisation · Genetic Algorithms · Particle Swarm Optimisation · Genetic Programming · Lyapunov Methods · Stability Analysis · Nonlinear Systems · Control Theory · Numerical Simulation
Programming & Tools: Python · MATLAB · Simulink · PyTorch
Systems: Dynamical Systems · Autonomous Systems · Drone Models · Intelligent Control · Aerospace Applications · Robotics
Additional AI: LLM APIs · RAG · AI Agents · Prompt Engineering · Workflow Automation
Languages: Native French · Fluent English, TOEIC 920 · Conversational Spanish

EDUCATION

- **PhD in Artificial Intelligence & Control Theory** | CentraleSupélec × Safran Electronics & Defense | 2024
- **Engineering Degree** | ISEP, Business Intelligence | 2018
- **Academic exchanges** | OsloMet, Norway | 2017 · University of Granada, Spain | 2019

Sports:

- Competitive tennis player, ranked 15/4 | 2026
- National football referee, FFF | 2012–2016 · Top-ranked Young Referee in Seine-et-Marne | 2014

PUBLICATIONS

Thesis: [Training Methods for Analyzing the Stability of a Complex System](#)

IECON 2022 – [Lyapunov Functions for Continuous-Time Stability Problems](#)

NCTA 2020 – [Neural Network Lyapunov Functions for Discrete and Continuous-Time Systems](#)

ICINCO 2020 – [Neural Network Lyapunov Functions with Domain of Attraction Maximization](#)