

Pierre FABRE

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WORK

INRIA - WILLOW team

june 2025 - may 2026

Research Engineer in Robotics

Paris

- *Optimization-Based Control for Contact-Rich Robotics*
- Advisor : Justin Carpentier

WANDERCRAFT - Dynamic Walk team

april 2023 - may 2025

Control Engineer in Robotics

Paris

- *Wandercraft develops the first self-stabilized personal walking exoskeleton*
- Design controllers (MPC, PID, ...)
- Prototype in Python and implement in C++
- Test in physical simulation and on the real robot
- Analyze results and tune parameters
- Present results to the team and merge in the code base (Git)

SAFRAN

5 months - 2022

Control Engineer Intern

Paris

- Identification, modelling and simulation of the system to control
- Design and implementation from scratch of a linear MPC in Matlab
- Test in simulation and on a test bench
- Analyze of the influence of parameters and tune to meet specifications

LAAS-CNRS - MAC team

5 months - 2021

Control Theory Research Intern

Toulouse

- *Event-based control for non-linear systems affine in the control*
- Bibliography, Feedback Linearization, Lyapunov Stability, LMI solving
- Advisor : Sophie Tarbouriech

EDUCATION

ISAE-SUPAERO

2019 - 2023

Master in Aerospace Engineering

Toulouse

- **Control Theory** : Identification, Estimation, Control (Optimal, Robust, Non-Linear)
- **Robotics** class taught by Nicolas Mansard with hands-on using the Pinocchio library
- **Project** : Reinforcement-Learning on a biped robot with the Gepetto team.

Universidad Politécnica de Madrid

6 months - 2020

Exchange Semester

Madrid

- Machine Learning, Statistical Data Analysis, Data Visualization, Big Data.

Lycée Michel Montaigne

2017 - 2019

Classe Préparatoire aux grandes Ecoles

Bordeaux

- Linear Algebra, Mechanics

PROJECTS

Cart-Pole Swing-Up

2021 - today

- Define specifications and buy components (motor, sensors, electronics, ...)
- Mechanical design, 3D printing, assembly and wiring
- Code the firmware (Arduino) to interact with the robot
- Code the simulation in Python using the open-source library Pinocchio
- Code the NMPC in Python using Crocoddyl to achieve the swing up
- GitHub : github.com/Armandpl/furuta

Member of crew 240 in a 3 weeks Mars Analog mission

Utah Desert - 2022

- Mission Reports : mars.ac-isae-supaero.fr/crew-240/ \diamond Videos : m.a.r.ssupaero3072