

# Théotime Balaguer

## Ph.D. bridging Robotics and Telecommunication

- +33 6 45 46 12 40
- theotime.balaguer@gmail.com
- theotimebalaguer.github.io
- https://github.com/TheotimeBalaguer
- 0009-0009-4179-770X



**Expertise:** Cooperative multi-robot systems, wireless ad-hoc networks, designing communication-based swarm control algorithms (e.g., flocking), building integrated network / robotics simulation tools

**Looking for:** A postdoctoral position to advance research on networked multi-robot systems

## Experience

- 2022 - 2025** **Ph.D. Student**  
INSA Lyon, ENS Lyon
  - Title: "Cooperative UAV Fleet based on Wireless Communication, a Flocking Perspective"
  - Extensive work on simulating Networked MRS
  - Aerial robot experiments (Wi-Fi based)
  - Deep study of flocking and auto-organized systems
  - Hands-on expertise on ad-hoc Wi-Fi, C++, ROS2, DDS, PX4 and UAV control
  - Talks at international research conferences
  - Multi-robots Summer School in Prague
  - Monitoring the State-of-the-art, scientific writing
  - Scientific mediation for general public
- 2021 - 2022** **Radio Support Engineer**  
FORSK
  - Customer support for 2G to 5G network planning with the Atoll software and Aster propagation model
  - Worldwide customer base support
  - Installation, configuration, licensing of a proprietary software
- 2021 (6 mo.)** **Network Architect (intern)**  
SPIE ICS
  - Networks and datacenter architectures (LAN, WAN, SDWAN, hyperconverged datacenters)
  - Cybersecurity for national strategic systems
  - Project management
- 2020 (4 mo.)** **Research intern**  
Agora team, INRIA
  - Development and usage of a LoRa test-bed for UAVs
  - Literature review on cooperative UAVs and networking
  - Introduction to smart-cities challenges and opportunities
- 2017 - 2020** **Executive Board Member**  
INSA Lyon Students Union
  - Budget monitoring, team supervision, strategy
  - Event organization: partnerships, contracts, logistics, fundraising

## Studies

- 2016 - 2021** **INSA Lyon**  
Telecommunication Engineer  
With honours

## Publications

- ▶ TB, OS, IGL, IF. "UAV Chain Network Creation in Cluttered Environments with Flocking Rules and Routing Data". In: **IEEE IROS 2025**
- ▶ TB, OS, IGL, IF. "DANCERS, A Physics and Network Co-Simulator for Communicating Multi-Robot Systems". In: **IEEE SIMPAR 2025**
- ▶ TA, TB, IGL, OS. "Experimental analysis of Wi-Fi-based remote control of UAVs with concurrent mission traffic". In: **IEEE DCROSS-LoT 2024**
- ▶ TB, OS, IGL, IF. "Etat de l'Art sur la Co-Simulation Robotique et Réseau des Systèmes Multi-Agents". In: **ROIA 2024 (french national journal)**
- ▶ TB, OS, IGL, IF. "Etat de l'Art sur la Co-Simulation Robotique et Réseau des Systèmes Multi-Agents". In: **JFSMA 2023 (french national conference)**

Authors: TB: Théotime Balaguer, OS: Olivier Simonin, IGL: Isabelle Guérin Lassous, IF: Isabelle Fantoni, TA: Thierry Arrabal

## Skills

### Robotics

- ROS 2
- Aerial Robotics
- Gazebo Simulator
- Flocking Theory
- PX4 Autopilot

### Telecommunication

- Mobile Ad-hoc Networks
- Wi-Fi Networks
- DDS
- ns-3 Simulator

### Development

- Linux OS
- Git
- C/C++
- CMake
- Python

### Languages

- French (native)
- English (fluent)
- Spanish (B1)

## Strengths

- Proactivity
- Sociability
- Enthusiasm
- Diligence

## Hobbies

- Dance: Hip-Hop, Contemporary
- Winter Sports
- Rock-Climbing
- Surf
- Music: Classical percussions