

# Loan BERNAT

ENGINEER IN ROBOTICS AND INTERACTIVE SYSTEMS  
PHD STUDENT IN ROBOTICS




*With a strong background in research and development, I am currently pursuing an industrial PhD in collaboration with Siléane and LAAS-CNRS, focusing on using foundational language and vision models in robotics.*

## Professional Experiences

### PhD Student in Robotics

 Siléane - Saint-Etienne, France

 LAAS-CNRS - Toulouse, France

sept 2024 - today

- Creation of an autonomous method to generate trajectory using vision and language for industrial manipulator robots.


### Research Engineer Intern

 Siléane - Saint-Etienne, France

fev 2024 - août 2024

- Development and integration of my own solution for data augmentation to train a classification network using generative models : Diffusion models and Large Reconstruction models.
- Conducted an in-depth study of the scientific state of the art in generative models.

### Chercheur stagiaire

 Human Centered Robotics Lab - Wolfenbüttel, Allemagne

avril 2023 - août 2023

[Video](#)

[Report](#)

- Development of a no-code interface to allow Master students to command a Sawyer Robot.
- Creation of a bartender application for the Sawyer using my interface and driven by vision.

## Education

### Master's Degree in Robotics and Interactive Systems Engineering

 UPSSITECH - Toulouse, France

2024

### High School Diploma in Engineering Sciences

 St Joseph LaSalle - Toulouse, France

2018

## Skills

### Technical

C++

Python

Torch

GIT

Docker

Foundation models (LLM, VLM..)

Image generation

Image processing

Deep and reinforcement learning

Robot control

ROS

### Interpersonal

Communication

Oral Presentation

Project and Team management

Learning and Synthesis skills

Inquisitive

Creative

Proactive

Autonomous

### Software



## Languages

French *Native*

English *TOEIC 915/990 - Professional*

## Scientific project

### Evaluation of the Use of a Surround View System for Autonomous Navigation

 Continental Engineering Service - Toulouse, France


sept 2023 - fev 2024

Article

*Study into the possibility of a robot navigating in a factory using vision alone to move a crate.*

- Product Owner of the project : Communication with clients and management of a team of 17 engineers.
- Supervision and technical support for HMI and VISION teams.

### Conception of a high-fidelity simulation environment and 3D modelisation of a crawler robot

 Agreenculture - Toulouse, France

sept 2022 - mars 2023

Study

*Enable Agreenculture to simulate its tracked agricultural robot in fields by accurately modeling the interaction between the tracks and the ground with the highest possible fidelity.*

- Responsible for the creation and implementation of a 3D model of the robot using Blender and Unreal Engine 5, including the modeling of physical constraints.
- Co-author of a state-of-the-art review on the interaction between soil and tracks.

## Publications

<Not yet>

## Interest

**Handball** *Since 2014. Highest level reached : N1 (3rd division) at Fenix Toulouse Handball*

**Game development** *Implementation of new AI system for non-player character*

## Community Engagements

**Handball** *Coaching of young goalkeeper at Fenix Toulouse Handball*

**President of student association** *1 year experience. Management of 40 volunteers*

**Event organisation** *Sportive tournament, Gala Evening and Diploma Ceremony 2024*