

# Ludovic De Matteis

## Robotics PhD Student

Last year PhD student at LAAS-CNRS (Gepetto Team), my research focuses on solving control problems for legged robots locomotion using Optimal Control theory, Learning and Zero-th order optimization.

Graduate of the ENS Paris Saclay MVA Master's program, I am interested in bridging the gap between advanced mathematics and real world implementations by studying robot control and real world interaction.

I am currently looking for a position as a Post-Doctoral student to further explore the intersection of control, learning and vision for real world applications.



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@LudovicDeMatteis

Find me on [Google Scholar](#)

Ludovic De Matteis

## Technical skills

### Programmation

Python C++ / C / C# Jax CasADi

Matlab PyTorch Java

### Simulation & CAD tools

Pinocchio MuJoCo Isaac Lab

Matlab Simulink Solidworks

OnShape Unity

### General Tools

Linux Git Vim / Neovim LaTeX

Typst Conda Nix UV bash

## Languages

French - Native

English - Proficient

## Certifications

- Cambridge English Advanced - C1
- Agrégation SII - Option II

## Hobbies

Ballroom Dance Calisthenics  
Fencing Reading  
Climbing Hiking

## Education

2023-now

LAAS-CNRS, Toulouse, France

### PhD in Robotics and Computer Science

Supervised by Dr. Nicolas Mansard on "Model Predictive Control for locomotion of robots with complex actuation"

2022-2023

Ecole Normale Supérieure Paris Saclay, Gif-sur-Yvette, France

### Master's Degree in Mathematics, Vision and Learning (Master MVA)

2019-2022

Ecole Normale Supérieure Paris Saclay, Gif-sur-Yvette, France

### Master's Degree in Engineering Science at ENS Paris Saclay

Major in Electrical Engineering  
Jury's Special Distinction

2021-2022

Ecole Normale Supérieure Paris Saclay, Gif-sur-Yvette, France

### Higher Education Teaching Certification Year

Ranked 1st in the National Competitive Exam (Agrégation SII - Option II)

2020-2021

Trinity College of Dublin & Akara Robotics, Dublin, Ireland

### Visiting Pre-doctoral Research Student

Optional year added to my curriculum at ENS Paris Saclay

Spring 2020

Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

### Exchange student at Ecole Polytechnique Fédérale de Lausanne

As part of the first year of my Master's Degree at ENS Paris Saclay

2018-2019

Ecole Normale Supérieure Paris Saclay, Gif-sur-Yvette, France

### Bachelor's Degree in Engineering Science at ENS Paris Saclay

Major in Electrical Engineering

## Diplomas

Ecole Normale Supérieure Paris Saclay - Jury's Special Distinction

Master's Degree MVA - Mathematics, Vision and Learning

Master's Degree E3A - Electronics, Electrotechnics and Automation

## Publications

### Optimal Control of Walkers with Parallel Actuation

L. De Matteis, V. Lutz, V. Batto, J. Carpentier, N. Mansard

2025




IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2025)

ArXiv




## References Classes

- ✓ Summer school on Robust Model Predictive Control
- ✓ Winter school on Optimal Control and Simulation
- ✓ Convex Optimization
- ✓ Proximal methods and Large scale optimization
- ✓ Optimal Transport
- ✓ Reinforcement Learning
- ✓ Learning Theory
- ✓ Probability Theory
- ✓ Deep Learning for Computer vision
- ✓ Image Processing and Computer vision
- ✓ Linear and non-linear Automation
- ✓ Signal Processing
- ✓ Numerical methods




### Extended URDF: Accounting for parallel mechanism in robot description

 L. De Matteis, V. Batto, N. Mansard  2025  
 International Conference on Robotics in Alpe-Adria Danube Region (RAAD 2024) [HAL](#)




### Control of humanoid robots with parallel mechanisms using kinematic actuation models

 V. Lutz, L. De Matteis, V. Batto, N. Mansard  2025  
 IEEE International Conference on Robotics and Automation (ICRA 2026) [ArXiv](#)




### TD-CD-MPPI: Temporal-Difference Constraint-Discounted Model Predictive Path Integral Control

 P.N. Crestaz, L. De Matteis, E. Chane-Sane, N. Mansard, A. Del Prete  2025  
 IEEE Robotics and Automation Letters (RA-L) [HAL](#)


### Constrained Reinforcement Learning for Unstable Point-Foot Bipedal Locomotion Applied to the Bolt Robot

 C. Roux, E. Chane-Sane, L. De Matteis, T. Flayols, J. Manhes, O. Stasse  2025  
 IEEE-RAS 24th International Conference on Humanoid Robots (Humanoids 2025) [ArXiv](#)




### Collision avoidance in model predictive control using velocity damper

 A. Haffemayer, A. Jordana, L. De Matteis, K. Wojciechowski, L. Righetti, F. Lamiroux, N. Mansard  2025  
 IEEE International Conference on Robotics and Automation (ICRA 2025) [HAL](#)


### Numerical model of the irradiance field surrounding a UV disinfection robot


 L. De Matteis, M.F. Cullinan, C. McGinn  2022  
 Biomedical Physics & Engineering Express [IOP Science](#)

### Personalized human-swarm interaction through hand motion

 M. Macchini, L. De Matteis, F. Schiano, D. Floreano  2021  
 IEEE Robotics and Automation Letters (RA-L) [ArXiv](#)


## Teaching


 2025-2026

 Toulouse School of Economics

### Optimization in Deep Learning - Master level

18 hours (Lectures and Practicals), temporary replacement of J. Bolte

 2023-2025

 IUT GEII of Toulouse

### Introduction to robotics / Advanced robotics - Bachelor level

84 hours (Lectures, Practicals, and Lab sessions), led by V. Bonnet and M. Mujica

 2023-2024

 ISAE SupAero

### Advanced automation - Master level

24 hours (Practicals and Lab sessions), led by C. Bérard