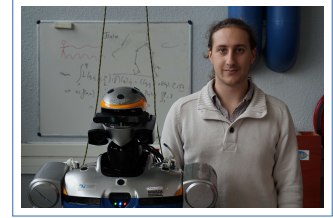# Maximilien Naveau

Research engineer in humanoid robotics

Toulouse
Driving license – French citizen

Work Experience

2021-2025   **Research Engineer**, *PAL-FRANCE*, Toulouse/Caen, France
* Remote-working in Caen, France
* Integrator coordinator of the European project **AGIMUS**.
* Software development for robotic applications.

2020-2021   **Research Engineer**, *LAAS-CNRS*, Toulouse, France
* Scientific coordinator of the European project **Memmo**.

2016-2020   **Post-Doc**, *MPI-IS*, Tübingen, Allemagne
* Implementation of a control architecture based on the dynamic-graph (developed at LAAS-CNRS). The architecture includes real-time software (low level) up to ROS integration.
* Development of locomotion algorithms for humanoid and quadruped robots.
* Integration of the software on the humanoid robot *Athena* and the quadruped robot *Solo*.
* Setup of continuous integration for the core codes of the laboratory's control architecture.
* Open-sourcing of these codes (https://github.com/machines-in-motion/).

2013-2016   **PhD in Robotics**, *LAAS-CNRS*, Toulouse, France
* Research in collaboration with partners on inter-disciplinary topics in the frame of the **European project KoroiBot**.
* Use of **linear** and **nonlinear optimization** for motion generation of humanoid robots.
* Application of **human inspired** optimization costs and human inspired trajectory generation on human robots.
* Integration of **embedded real time** applications on the **HRP-2** humanoid robot.
* Design and implementation of novel algorithms for **walking** and **multicontact locomotion** of humanoid robot
* Main developer of jrl-walkgen
  `https://github.com/jrl-umi3218/jrl-walkgen.git` (branch devel)

Mars 2013 until September 2013   **Training**, *CEA Saclay*, Gif-sur-Yvette, France
* Obstacle avoidance of a robotic arm using stereo-vision,
* integration of the AVISO system on the robot ASSIST.

October 2012 until February 2013   **Student project**, *Supméca Toulon*, France
* Mechanical design, fabrication and instrumentation of an autonomous sail boat,
* team work (19 students) for 5 months,

September 2012 until January 2013   **Training**, *University of Birmingham*, United-Kingdom
* Implementation of an admittance control on a 6 degree of freedom Kuka robotic arm,
* 5 months of autonomous work, in the frame of the GeRT (Generalizing Robot Manipulation Tasks) project

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Education

2013 – 2016   **PhD in Robotics**, *in LAAS-CNRS*, Université Paul-Sabatier, Toulouse III, supervised by Olivier Stasse. *"Advanced human inspired walking strategies for humanoid robots"*. Defense the 28th of September 2016

2010 – 2013   **2 master degrees**, *Engineer Diploma (Supméca Toulon) AND* Master in vision and command *(University of Toulon)*, France
Specialty : robotics and mechatronic systems

2008 – 2010	**Preparatory classes to enter the French Engineering Schools + Baccalauréat (A-level)**, *in Caen, France*
	Specialty : Mathematics, Physics, Engineer science
Language	**English**, *fluent : read, written, spoken*, TOEIC 865/990 2012
	Publications in international journals, training for 6 months in Birmingham UK
	Other languages, *notion of Chinese and Italian*
Informatics	**Software**, *cmake, git, OpenCV, Matlab(Simulink), LabView, CATIA(V5R20), Adams*
	Language, *C/C++,python,bash, nix*

Scientific animation

Mai 2015	**Congress**, *Doctoral School EDSYS*, France
	* Organization of the annual doctoral school congress.
	* Management of the logistic of the congress for the 2 days.

Publications

PhD thesis :
* **Naveau**, "Advanced human inspired walking strategies for humanoid robots," Ph.D. dissertation, Université Paul Sabatier Toulouse III, 2016

Journal papers :
* Mukovskiy, Vassallo, **Naveau**, Stasse, "Adaptive synthesis of dynamically feasible full-body movements for the humanoid robot hrp-2 by flexible combination of learned dynamic movement primitives.," *Int. Jour. of Robotics and Autonomous Systems*, 2016
* Orthey, Ivan, **Naveau**, Yang, "Homotopic particle motion planning for humanoid robotics," submitted work to Int. Jour. of Transactions on Robotics, 2015
* **Naveau**, Kudruss, Stasse, Kirches, "A Reactive Walking Pattern Generator Based on Nonlinear Model Predictive Control," *Int. Jour. of Robotics and Automation Letter*, 2016
* Clever, Harant, Mombaur, **Naveau**, "Cocomopl: A novel approach for humanoid walking generation combining optimal control, movement primitives and learning and its transfer to the real robot hrp-2," *Int. Jour. of Robotics and Automation Letter*, 2017

Conference papers :
* Ramirez-Alpizar, **Naveau**, Benazeth, Stasse, "Motion generation for pulling a fire hose by a humanoid robot," in *Int. Conf. on Humanoid Robotics*, 2016
* Karlinski, **Naveau**, Mukovskiy, Stasse, "Robust human-inspired power law trajectories for humanoid hrp-2 robot," in *Int. Conf. on Biomedical Robotics and Biomechatronics*, 2016
* Carpentier, Tonneau, **Naveau**, Stasse, "A versatile and efficient pattern generator for generalized legged locomotion," in *Int. Conf. on Robotics and Automation*, 2016
* Kudruss, **Naveau**, Stasse, Mansard, "Optimal control for whole-body motion generation using center-of-mass dynamics for predefined multi-contact configurations," in *Int. Conf. on Humanoid Robotics*, 2015
* **Naveau**, Carpentier, Barthelemy, Stasse, "METAPOD Template META-programming applied to dynamics: CoP-CoM trajectories filtering," in *Int. Conf. on Humanoid Robotics*, 2014
* Stasse, Orthey, Morsillo, Geisert, "Airbus/future of aircraft factory HRP-2 as universal worker proof of concept," in *Int. Conf. on Humanoid Robotics*, 2014

Reviewer in :
* IJRR, IEEE T-RO, IEEE RA-L, ICRA, IROS, Humanoids.

Published papers can all be downloaded from this link : `http://projects.laas.fr/gepetto/index.php/Publications/ByAuthor?author=Maximilien_Naveau`

Interests

Music	**Instruments**, *Drum (10 years), Bass (1 year)*
	Creation of 2 bands, *"MARACLAAS" and "Open Doors"* , concerts in different places in 2012-2013 in Toulon (France) + music festival in June 2015 in Toulouse (France)