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Ph.D. in Robotic  
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Date of birth: Aout 28, 1983  
(30 year old)  
Nationality: Tunisia  
Marital status: Married  
Driving license car



*Objective:* Assistant Professor/Postdoctoral Research.

## Personal statement/Profile

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- Computer programming and mechanic systems.
- Reviewer of ICRA.
- Reviewer of Robotics and Autonomous Systems.
- Explore and develop new applied research topics and interests through active participation in leading research teams, units, laboratories, universities, and industries.

## Professional Experience

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- 2013**  
(1 years) POST-DOC POSITION [IFMA](#), Aubiere, French.  
A new concept is proposed to solve the problem of long objects transport in a natural environment without object length constraints. The robot is formed by the combination of two or more cooperative robots that will be capable to co-manipulate and transport objects of any shape. This composition of the system gives various advantages such as security of the payload and the robot, and adaptability of the robot to different sizes and weights of the transported object. A first application is to transport injured people on stretchers in all-terrain, particularly after natural disasters. The same robot can also transport long objects such as tree-trunks, bunches of metallic bars on building sites, long profiles, etc.  
▷ *Designing mobile robot.* ▷ *Vehicle modelling.* ▷ *Stability criterion.* ▷ *Cooperative robot.* ▷ *Optimization.* ▷ *CATIA.* ▷ *Matlab/Simulink.*
- 2012**  
(7 month) POST-DOC POSITION [IFSTTAR](#), Marne-la-Vallée, French.  
Driving simulators offer great advantages, such as reproducibility of situations and fine parameter tuning, for studying road users' behaviours and understanding how the traffic system works. The project develops a new approach to control the hand-wheel in the driving simulator in order to generate a haptics feedback for the different the road vibration like pavement texture and Pavement markings..  
▷ *Designing PID Controller.* ▷ *Vehicle Simulators and Simulations.* ▷ *Computer Science and Cognitive Science.* ▷ *Matlab/Simulink.*
- 2009**  
(3 years) PHD THESIS [UPMC](#), Paris, French.  
This thesis contributes to the development of control laws that ensure a robust path tracking besides a certain degree of stability (minimize the risk of rollover). In addition, the thesis proposes a new mechatronic device for active control of vehicle roll and increase the performance of mobility, and in particular its dynamic control during cornering. The control laws are developed based on physical models that take into account the vehicle dynamics and slippage phenomenon resulting from the wheel-terrain interaction.  
▷ *All terrain mobile robot.* ▷ *Active anti-roll system.* ▷ *Vehicle dynamics.*  
▷ *NCGPC controller.* ▷ *MPC controller.* ▷ *Path tracking.* ▷ *slipping.*

- 2008**  
(6 month) MASTER THESIS [INSA-LYON](#), Lyon, French.  
In this project, we were interested on the design of non linear observer to estimate the unmeasured concentration of some element in the bio reactor. The goal of this work is to estimate the unmeasured states to be able to design the state feedback controller. A high-gain observer based on a triangular structure was synthesized. This type of observer was chosen due to their ability to robustly estimate the unmeasured states..  
▷ *Observer*. ▷ *Modelling*. ▷ *Controller*.
- 2007**  
(6 month) FINAL PROJECT [INSA-LYON](#), Lyon, France.  
The available manpower for real-time observation is limited, and human observations are inherently subjective. To address some of these limitations, we integrate a vision system to validate the quality of the product in the end of different phases of the process. Cognex In-Sight camera was used in this project to improve the product quality in the production process at AIP Lyon.  
▷ *PL7 Pro*. ▷ *Cognex In-Sight camera*. ▷ *Grafcet*. ▷ *UML*. ▷ *Global Screen*.

## Academic Qualifications

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- 2012** [UPMC PIERRE ET MARIE CURIE UNIVERSITY OF PARIS V](#), Paris, France.  
PhD degree in Robotics.
- 2008** [NATIONAL INSTITUTE OF APPLIED SCIENCES](#), Lyon, France.  
Masters degree in Automatic control.
- 2007** [NATIONAL SCHOOL OF ENGINEERS OF SFAX](#), Sfax, Tunisie.  
Engineering degree in Electrical Engineering.

## Publications

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- 2014**  
(Mai) "Design and Coordination of Cooperative Mobile Robots: Ventral Long Payload Transport and Stable Obstacle Crossing," *will be Submit in Journal of Intelligent and Robotic Systems*.
- 2014**  
(Avril) "A dynamic based path tracking controller for a fast rover with independent steering and drive," *will be Submit in Journal - Elsevier Robotics and Autonomous Systems*.
- 2014**  
(September) "Modular Cooperative Mobile Robots for Ventral Long Payload Transport and Obstacle Crossing," *5th European Conference on Mechanism Science*, September 16th-20th, 2014, Guimaraes, Portugal.
- 2014**  
(March) "Design and control of an active anti-roll system for a fast rover," *Submitted in Journal - Elsevier Robotics and Autonomous Systems*.
- 2014**  
(March) submission of french patent "Unité robotique de transport de charges longues", Ref. No. 1451661..
- 2011**  
(September) "Design and control of an active anti-roll system for a fast rover," *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems IROS 2011*, California, San Francisco, September 2011.
- 2011**  
(September) "A dynamic based path tracking controller for a fast rover with independent steering and drive," *The Proceedings of the 14th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR2011)*, UPMC University, France, Paris, September 2011.
- 2011**  
(Mai) "Conception et commande d'un dispositif actif de controle de roulis pour un rover rapide," *The Proceedings of the 4th International Congress : Design and Modeling of Mechanical Systems CMSM'2011*, Tunisie, Sousse, Mai 2011.

## Computer skills

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- Programming languages: C/C++.
- Modelling: UML/SysML, Petri Nets, Grafcet.
- Tools: MATLAB/SIMULINK, ADAMS, CATIA.
- Industrial information system: ERP, MES Global Screen, Cognex.
- Operating systems: Windows 98/2000/NT/XP, Linux.

## Language and Computer Skills

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Arab: mother tongue.  
English: fluent (read, written and spoken).  
French: fluent (read, written and spoken).

## Interests and Activities

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- Computer programming and mechanic systems.
- Reviewer of ICRA.
- Reviewer of Robotics and Autonomous Systems.
- Football and Swimming.

## Referees

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