

# Olivier Mangin, PhD

Robotics scientist and machine learning specialist

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## SUMMARY

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**I build intelligent robots that interact with humans** and adapt to unforeseen situations. A thorough scientist and a creative problem solver, I am passionate about advancing robots' aptitude as our work partners and social peers. My solid scientific background with a specialization in **machine learning** supported me along my **7+ years of robotics research**, exploring questions from early **language** acquisition to how communication improves **collaborative manufacturing** between humans and robots. I am a **resourceful engineer** with extensive experience on programming custom-made robots as well as commercial platforms. I have **3+ years experience in managing** multiple projects and supervising multiple people while meeting deadlines. I particularly enjoy team-work to which I bring vision and method to embrace ambitious challenges.

## PROFESSIONAL EXPERIENCE

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- 2015–Present **Postdoctoral associate** – Social robotics laboratory, Yale University  
Advanced manufacturing and human robot collaboration.
- 2014 **Postdoctoral associate** – Flowers team, INRIA  
Natural language, multimodal learning, sensori-motor development.
- 2010–2014 **Ph.D. student in Robotics** – Flowers team, INRIA  
Machine learning applied to developmental robotics, under the supervision of Professor Pierre-Yves Oudeyer.
- 2010 **Research fellow** – Institut des systèmes intelligents et de robotique, UPMC (Paris VI)  
Reinforcement learning for motor control.
- 2009 **Research fellow** – Flowers team, INRIA Bordeaux Sud-Ouest  
Bag-of-words method to discover and learn sound invariants from speech.

## EDUCATION

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- 2010–2014 **Ph.D. in Robotics** – INRIA & Université de Bordeaux  
*The emergence of multimodal concepts: from perceptual motion primitives to grounded acoustic words*
- 2009–2010 **M.Sc. in Applied mathematics** – École normale supérieure de Cachan  
Master *Mathematics, vision, learning* (MVA), specialized in machine learning.
- 2006–2010 **Ingénieur polytechnicien (B.Sc. and M.Sc. equivalent)** – École polytechnique, Palaiseau  
Specialized in computer science in France's leading school of engineering and science.

## TECHNICAL AND SCIENTIFIC SKILLS

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- Research Human robot collaboration, language acquisition, learning from demonstration, behavior understanding
- Machine learning General machine learning, (inverse) reinforcement learning, matrix factorization, partially observable Markov decision processes
- Programming **Python** (and scientific tools), **C**, **C++**, **Java**, **Matlab**, **Ruby**, **Haskell**  
**LaTeX**, **Git**, unit testing, continuous integration, web technologies—**D3.js**, **Jekyll**, **Django**, **Ruby on Rails**
- Robots Robot operating system (**ROS**), 2+ years experience on the **Baxter** research robot, 3 years using Dynamixel servo actuators
- Systems Advanced **Unix** mastering (**15+** years of daily **Linux** use, system administration including web servers)

## SOCIAL AND MANAGEMENT SKILLS

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Languages	Native <b>French</b> , full professional proficiency in <b>English</b> , intermediate <b>German</b>
Management	Mentoring of students and interns in research context (2014–2017), leading several student associations and organization of many events and travels including 10–1000 people (2007–2009), team management in small projects and during military exercises as an officer in the French paratroopers (2006)
Communication	Proven track record of scientific publications, presented my work in several world-class conferences, including to audiences outside of my field and the general public
Teaching	Teacher and teaching assistant in mathematics, computer sciences, and robotics at Yale University, Université de Bordeaux (France), and Pôle universitaire français (Ho Chi Minh City, Vietnam)
Temper	Good ability to work under pressure; experience in mentally and physically demanding activities: 4+ years of caving, team member in sailing races, commando and military parachute training; strong team spirit

## ACHIEVEMENTS

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- 2014 Best thesis poster award – Bordeaux doctoral school of mathematics and computer science
- 2011 Exhibition *Mathematics, a beautiful elsewhere*, Fondation Cartier (Paris)  
Active member of the conception, development, and maintenance team of the Ergo-Robots platform that was presented during the two months art exhibition.
- 2008 ACM ICPC regional contest

## SELECTED PUBLICATIONS

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- [1] O. Mangin, A. Roncone, and B. Scassellati. *How to be Helpful? Implementing Supportive Behaviors for Human-Robot Collaboration*. 2017. eprint: arXiv:1710.11194.
- [2] A. Roncone, O. Mangin, and B. Scassellati. “Transparent Role Assignment and Task Allocation in Human Robot Collaboration”. In: *Robotics and Automation (ICRA), IEEE International Conference on* (2017), pp. 1014–1021.
- [3] O. Mangin et al. “MCA-NMF: Multimodal Concept Acquisition with Non-Negative Matrix Factorization”. In: *PLoS ONE* 10.10 (2015), e0140732.
- [4] O. Mangin and P.-Y. Oudeyer. “Feature learning for multi-task inverse reinforcement learning”. 2013.
- [5] O. Mangin and P.-Y. Oudeyer. “Learning Semantic Components from Subsymbolic Multimodal Perception”. In: *the Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics (ICDL-EpiRob)*. 3. 2013.
- [6] O. Mangin and P.-Y. Oudeyer. “Learning to recognize parallel combinations of human motion primitives with linguistic descriptions using non-negative matrix factorization”. In: *International Conference on Intelligent Robots and Systems (IROS)*. Vilamoura, Algarve (Portugal): IEEE/RSJ, 2012.
- [7] O. Mangin, D. Filliat, and P.-Y. Oudeyer. “A bag-of-features framework for incremental learning of speech invariants in unsegmented audio streams”. In: *Tenth International Conference on Epigenetic Robotics*. Ed. by B. Johansson, E. Sahin, and C. Balkenius. Öorenåas Slott, Sweden, 2010, pp. 73–80.

## OUTSIDE INTERESTS

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- Sport Various sailing competition in 2007–2012, sailing instructor experience (French A2C1 level)  
Climbing, caving, bike, hiking, running (*Paris Marathon 2008*)
- 2007–2009 Leading several student organizations (school traditions, ski and caving, cocktails, movie projections).