# Emmanuel **Hermellin**

PH.D. - LECTURER AND RESEARCH ASSISTANT, UNIVERSITY OF MONTPELLIER

*The Montpellier Laboratory of Informatics, Robotics and Microelectronics (LIRMM)*

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| **Office address :** | LIRMM UMR 5506, 161 rue Ada | **Address :** | 337 rue Claude Berthollet, Appt 20B |
| | 34095 Montpellier Cedex 5 - France | | 34090 Montpellier - France |
| **Office e-mail :** | hermellin@lirmm.fr | **E-mail :** | ehermellin.um2@gmail.com |
| **Website :** | www.lirmm.fr/~hermellin/ | **Phone :** | (+33) 06 71 55 68 03 |
| **LinkedIn :** | emmanuel-hermellin | **Twitter :** | ehermellin |

## Research topics

My research works focus on using high performance computing in multi-agent systems. More precisely, these works address the need to find new simulation models (for multi-agent systems) more adapted to the many specificities of massively parallel architectures and its associated programming model.

**Keywords :**  - Artificial intelligence : Multi-Agent Systems (MAS), cognitive modeling;
- Computer architecture : Processors, multi-processors, graphics card;
- High Performance Computing (HPC) : Parallel architectures;
- Modeling and Simulation tools for complex and distributed systems.

## Position

**Lecturer and Research Assistant**  *October 2016 - August 2017*
LIRMM - UNIVERSITY OF MONTPELLIER  *Montpellier, France*

**Ph.D. Student with teaching responsability**  *October 2013 - September 2016*
LIRMM - UNIVERSITY OF MONTPELLIER  *Montpellier, France*

## Education

**Ph.D. in Informatics (computer science and artificial intelligence)**  *October 2013 - November 2016*
THE MONTPELLIER LABORATORY OF INFORMATICS, ROBOTICS AND MICROELECTRONICS (LIRMM)  *Montpellier, France*
Title        Modeling and implementing multi-agents based simulations on massively parallel architectures

**M.Sc in Physics and Computer Science**  *September 2010 - September 2012*
UNIVERSITY OF MONTPELLIER  *Montpellier, France*
Internship        **ONERA, The French aerospace lab**
        Realization of a graphic rendering solution (Raytracing, Pathtracing, Photon Mapping) using GPGPU (C, CUDA, Perl)
        **LUPM, Universe and Particle Laboratory**
        Picture and Astrophysical Spectra Reduction, software development (Java)

**B.Sc in fundamental and applied Physics**  *September 2008 - June 2009*
UNIVERSITY OF AVIGNON  *Avignon, France*

**Two years intensive program**  *September 2006 - June 2008*
UNIVERSITY OF AVIGNON  *Avignon, France*
Description        Two years intensive program preparing for the national competitive exam for entry to engineering schools

**French ''Baccalauréat'' (High-School Degree)**  *September 2003 - June 2006*
JEAN COCTEAU HIGH-SCHOOL  *Miramas, France*

## Teaching experience

**Teaching assistant**  FACULTY OF SCIENCE, COMPUTER SCIENCE DEPARTMENT - UNIVERSITY OF MONTPELLIER  *October 2013 - August 2017*
Thaught for the four-year undergraduate computer science and informatics courses (about 96 hours).  *Montpellier, France*
    Organized lectures, exams and held recitation classes in *Agent Oriented Programming*.

Thaught for the first and the second-year undergraduate computer science and informatics courses (about 196 hours).
    Organized lectures, exams and held recitation classes in *Programming Paradigms*, *Algorithmic* and *Computer Science Basics*.

**Teaching assistant**  POLYTECH ENGINEER SCHOOL - UNIVERSITY OF MONTPELLIER  *October 2013 - December 2016*
Thaught for the first-year undergraduate computer science and informatics courses (about 90 hours).  *Montpellier, France*
    Organized lectures, exams and held recitation classes in *Algorithmic and Programming Introduction*.

**Tutor**  ACADOMIA, A PRIVATE EDUCATION COMPANY  *January 2010 - June 2013*
Teaching in Mathematics, Physics and Computer Science for High-School and University students (about 250 hours).  *Montpellier, France*

## Administrative and associative experience

**Elected representative of Ph.D. students**    *May 2014 - December 2016*
Scientific and Academic Council - University of Montpellier    *Montpellier, France*
Objective : To represent the Ph.D. students of the doctoral school I2S in the scientific and academic councils of the University of Montpellier

**Organizer**    *September 2014 - June 2015*
SeminDoc (Scientific association) - LIRMM    *Montpellier, France*
Organization of seminaries dedicated to the Ph.D. students and popular-scientific lectures

**Animator and teacher**    *September 2013 - June 2015*
D'Clic (Photography Association) - University of Montpellier    *Montpellier, France*
Photography courses and workshops are offered to students and staff of the University

## Publications

### Article, international audience with editorial committee
**Computer Science Review (CSR)**
- A survey on Multi-Agent Based Simulations using General-Purpose computing on Graphics Processing Units, *Emmanuel Hermellin, Fabien Michel and Jacques Ferber*, submitted

### Article, national audience with editorial committee
**Revue d'Intelligence Artificielle (RIA)**
- Expérimentation du principe de délégation GPU pour la simulation multiagent : les boids de Reynolds comme cas d'étude, *Emmanuel Hermellin and Fabien Michel*, pages 109–132 (vol.30 num 1-2), Lavoisier 2016
- État de l'art sur les simulations multi-agents et le GPGPU, *Emmanuel Hermellin, Fabien Michel and Jacques Ferber*, pages 425–451 (vol.29 num 3-4), Lavoisier 2015

### International Conferences, international audience with editorial committee
**Conference on Autonomous Agents and Multiagent Systems (AAMAS, A\* ACM conference)**  *(Acceptance rate 20 %)*
- GPU Delegation : Toward a Generic Approach for Developping MABS using GPU Programming, *Emmanuel Hermellin and Fabien Michel*, Proceedings of the 15th International Conference on Autonomous Agents and Multiagent Systems, pages 1249–1258 ACM,  *Singapore 2016*

**Multi-Agent-Based Simulation (AAMAS - MABS)**  *(Acceptance rate 40 %)*
- Defining a Methodology Based on GPU Delegation for Developing MABS using GPGPU, *Emmanuel Hermellin and Fabien Michel*, Revised Selected Papers of Multi-Agent Based Simulation XVII : International Workshop, Springer LNCS to be published,  *Singapore 2016*
- GPU Environmental Delegation of Agent Perceptions : Application to Reynolds's Boids, *Emmanuel Hermellin and Fabien Michel*, Revised Selected Papers of Multi-Agent Based Simulation XVI : International Workshop, Springer LNCS pages 71–86 (vol.9568),  *Istanbul Turkey 2015*

### National Conferences, national audience with editorial committee
**Journées Francophones sur les Systèmes Multi-Agents (JFSMA)**  *(Acceptance rate 30 %)*
- Méthodologie pour la modélisation et l'implémentation de simulations multi-agents utilisant le GPGPU, *Emmanuel Hermellin and Fabien Michel*, pages 107–116, Cépaduès Éditions,  *Saint Martin du Vivier France 2016*
- Délégation GPU des perceptions agents : application aux Boids de Reynolds, *Emmanuel Hermellin and Fabien Michel*, pages 185–194, Cépaduès Éditions,  *Rennes France 2015*
- Systèmes multi-agents et GPGPU : état des lieux et directions pour l'avenir, *Emmanuel Hermellin, Fabien Michel and Jacques Ferber*, pages 97–106, Cépaduès Éditions,  *Loriol-sur-Drôme France 2014*

## Additional training and skills

**Computer Science**    Programming skills, Softwares, Environment, ...

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| **Object Oriented Programming** | C++, Java, Python |
| **Agent Oriented Programming** | Java, Logo |
| **High Performance Computing** | CUDA, Optix, MPI |
| **Graphic Programming** | Java, OpenGL |
| **OS / Scripting** | Windows, Linux / Bash, Perl, Python |
| **Collaborative Programming** | Git, SVN |
| **Others** | Database (SQL, Access), Scientific Computation Software (Matlab, Scilab, Octave) |

**Complementary skills**

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| **Office Software skills** | LaTeX, MS Office |
| **Web Programming** | HTML, CSS, CMS (Wordpress, ...) |
| **Language skills** | French (native), English (professional) |
| **Photography and Graphics skills** | Photoshop, Illustrator, DxO Optics Pro, After Effect, Premiere, 3DSmax, Vue |

**Hobbies**

Sciences, Photography, Travel *(Turkey, Italy, Spain, Netherland, Canada, Singapore)*, Reading, Piano, Sports