

Curriculum Vitæ

Fabio Morbidi

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Contact information

Université de Picardie Jules Verne
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Generalities

Gender: Male
Birthplace: Siena, Italy
Citizenship: Italian

Research interests

My research interests are in the broad areas of *automatic control* and *mobile robotics*. In particular, my recent research has focused on the following topics:

- Formation control of autonomous robots
- Cooperative control of multi-agent systems
- Distributed estimation and control of mobile sensor networks
- Unmanned aerial vehicles
- Vision-based localization and navigation of mobile robots
- Non-conventional cameras (omnidirectional, RGB-D, event-based)

1 Education

L1 Laurea degree (equivalent to B.S.) (October 2000 - October 2003):
Magna cum Laude in *Computer Engineering*, specialization in Automation and Systems for Industrial Automation, Department of Information Engineering, University of Siena, Italy.

Title of the thesis (defended on **October 20, 2003**): *Visual Servoing for Mobile Robots based on Multiple Views Geometry*.

Advisor: Prof. Domenico Prattichizzo.

L2 Laurea degree (equivalent to M.S.) (October 2003 - October 2005):
Magna cum Laude in *Computer Engineering*, specialization in Robotics and Automation, Department of Information Engineering, University of Siena, Italy.

Title of the thesis (defended on **September 26, 2005**): *Nonlinear Localizability and Panoramic Cameras: Applications to Robot Teams*.

Advisor: Prof. Domenico Prattichizzo.

Co-Advisor: Prof. Antonio Vicino.

Italian Professional Engineering Degree (January 2006):

Engineering Faculty, University of Florence, Italy.

Graduate studies (October 1, 2005 - October 1, 2008):

Ph.D. in *Automatic Control and Robotics* (cycle XXI), Department of Information Engineering, University of Siena, Italy.

Title of the Ph.D. thesis (defended on **March 27, 2009**):

Leader-Follower Formation Control and Visibility Maintenance of Nonholonomic Mobile Robots.

Advisor: Prof. Domenico Prattichizzo.

Thesis committee: Prof. K.M. Lynch (Northwestern University, USA), Prof. G. Antonelli (University of Cassino, Italy) and Prof. A. Garulli (University of Siena).

Research experience during the Ph.D.:

- **Visiting researcher (October 1, 2007 - March 31, 2008)**
Department of Mechanical Engineering and Center for Control Dynamical Systems and Computation (CCDC), University of California, Santa Barbara.
Advisor: *Prof. Francesco Bullo*.

Past research and academic employment:

- **Postdoctoral fellow (January 1, 2009 - October 15, 2009)**
Department of Information Engineering, University of Siena.
Advisor: *Prof. Domenico Prattichizzo*.
- **Postdoctoral fellow (October 16, 2009 - September 26, 2010)**
Department of Mechanical Engineering, Northwestern University, Evanston, IL, USA.

Supervisor: *Prof. Kevin M. Lynch.*
Co-supervisor: *Prof. Randy A. Freeman.*

- **Postdoctoral fellow (September 27, 2010 - August 24, 2011)**
Department of Computer Science and Engineering, University of Texas at Arlington (UTA), Arlington, TX, USA.
Supervisor: *Dr. Gian-Luca Mariottini.*
- **Universitätsassistent mit Doktorat (September 1, 2011 - October 31, 2012)**
Institute for Design and Control of Mechatronical Systems, Johannes Kepler University, Austria.
- **Postdoctoral fellow (November 1st, 2012 - August 31st, 2014)**
Équipe projet NeCS, INRIA Grenoble - Rhône-Alpes, Montbonnot Saint Martin, France.
Supervisor: *Dr. Carlos Canudas de Wit*

Current academic employment:

Since **September 1st, 2014**, I have been an Associate Professor (“Maître de Conférences”) 61ème section (“Génie informatique, automatique et traitement du signal”) with the Université de Picardie Jules Verne (UPJV), laboratoire MIS, équipe PR, at Amiens, France.

2 Research group

At the **University of Picardie Jules Verne**, MIS laboratory, I’m currently leading the following *research group*:

- Daniel Rodrigues da Costa, “*Evento: Caméras évènementielles omnidirectionnelles pour les robots à très haute dynamique*”, (50% of the **Ph.D.** is funded by the AID, Agence de l’Innovation de Défense - Ministère des Armées and 50% by the UPJV: October 2021 - October 2024). Co-supervision with P. Vasseur (50%).
- Guillaume Hardouin, “*A centralized and distributed multi-robot system for 3D surface reconstruction of unknown environments*”, (50% of the **Ph.D.** is funded by the Hauts-de-France region and 50% by ONERA DTIS, Palaiseau: September 2018 - March 2022). Co-supervision with J. Moras, 33% (ONERA) and Prof. E. Mouaddib, 33%. PhD thesis defended on March 22nd, 2022.
- Devesh Adlakha, “*Robust Globally Optimal Optimization in Computer Vision: Geometric Transformations Estimation with Semantic Cues and Vague Motion Knowledge*” with A. Hated (Télécom Physique Strasbourg, University of Strasbourg) and C. Demonceaux (Le2i laboratory, University of Bourgogne Franche-Comté). 50% of the **Ph.D.** is funded by the ANR PRC project SUMUM (January 2018 - March 2022).

- Jordan Caracotte, “*Reconstruction 3D par stéréophotométrie pour la vision omnidirectionnelle*” (**Ph.D.** funded by the French Ministry of Education: October 1st, 2016 - July 2021). Co-supervision with Prof. E. Mouadib (30%). PhD thesis defended on July 6th, 2022.

Past group members:

- Sarah Delmas, “*SpheriCol: Augmented reality for driving assistance of an electric wheelchair*” (**Research engineer** funded by the EU Interreg VA project ADAPT: October 15, 2019 - October 15, 2021).
- Housseem-Eddine Benseddik, “*Omnidirectional Vision for Orientation Estimation and Localization of a Semi-Autonomous Wheelchair*” (**PostDoc** funded by the Hauts-de-France regional council in support of the Interreg VA project ADAPT: January 1, 2018 - December 4, 2019). Co-supervision with G. Caron.

3 Student supervision

At the **University of Picardie Jules Verne**, I supervised the work of the following *Master students*:

- Internship in a company (“Contrat d’alternance”):
 - A.U. 2021-2022
 - * Hugo Kong Mee (Master 1, Department EEA, UPJV). Company: Maxime Chantriaux (Master 1, Department EEA, UPJV). Company: Autoneum France SASU, 60650 Ons-En-Bray, Tutor of the company: M. Frehaut.
 - * Thomas Droulez (Licence Pro AutoRobo, Promeo-UPJV). Company: MERSEN France Amiens SAS, Tutor of the company: Laurent Herbert.
 - A.U. 2020-2021
 - * Florian Luis (Master 2, Department EEA, UPJV). Company: ABB France, 95800 Cergy, France. Tutor of the company: Jean-Michel Pignal.
 - * Tanguy Skalie (Licence Pro AutoRobo, Promeo-UPJV). Company: Actemium, 80092 Amiens, France, Tutor of the company: Benoît Scellier.
 - A.U. 2019-2020
 - * Luc Laboureau (Master 2, Department EEA, UPJV). Company: Tetra Pak Processing SNC, 92707 Colombes, France. Contrat de professionnalisation: “*Analyse et standardisation des outils d’ingénierie*”
 - * Florian Luis (Master 1, Department EEA, UPJV). Company: ABB France, 95800 Cergy, France. Apprenticeship entitled: “*L’expertise technique dans le domaine de la robotique auprès des clients ABB*”. Tutor of the company: Jean-Michel Pignal.

- * Trystan Balmier (Licence Pro AutoRobo, Promeo-UPJV). Company: Stelia Aerospace, 80300 Albert, France. Tutor of the company: Gilles Evrard.
- A.U. 2018-2019
 - * Pierre Martineau (Master 2, Department EEA, UPJV). Company: Montupet, Usine de Laigneville, 60290 Laigneville, France. Contrat de professionnalisation. Tutor of the company: Dany Ramin Mangata.
 - * Vincent Dereyger (Master 2, Department EEA, UPJV). Company: ABB France, 95800 Cergy, France. Tutor of the company: Jean-Michel Pignal.
- A.U. 2017-2018
 - * Mickaël Jeanne Rose (Licence Pro AutoRobo, Promeo-UPJV). Company: Chanel Parfums Beauté, 60205, Compiègne, France. Contrat de Professionnalisation. Tutor of the company: François Target.
 - * Roman Da Silva (Master 2, Department EEA, UPJV). Company: Montupet, Usine de Laigneville, 60290 Laigneville, France. Contrat de professionnalisation: “*Implantation de nouveaux robots ABB et de nouvelles lignes de production*”. Tutor of the company: Kevin Fontaine.
 - * Pierre Martineau (Master 1, Department EEA, UPJV). Company: Montupet, Usine de Laigneville, 60290 Laigneville, France. Contrat de professionnalisation: “*Optimisation des temps de cycle des îlots robotisés, automatisme et suivi des projets en cours*”. Tutor of the company: Dany Ramin Mangata.
 - * Vincent Dereyger (Master 1, Department EEA, UPJV). Company: ABB France, 95800 Cergy, France. Apprenticeship entitled: “*Études mécaniques*”. Tutor of the company: Jean-Michel Pignal.
- A.U. 2016-2017
 - * Quentin Bentz (Master 2, Department EEA, UPJV). Company: ABB France, 95800 Cergy, France. Apprenticeship entitled: “*Support dans le pilotage de projet d’intégration robotique (vision, robot, automatisme) et gestion de projet*”. Tutor of the company: Jean-Michel Pignal.
 - * Roman Da Silva (Master 1, Department EEA, UPJV). Company: Montupet, Usine de Laigneville, 60290 Laigneville, France. Contrat de professionnalisation entitled: “*Implantation de nouveaux robots ABB et de nouvelles lignes de production*”. Tutor of the company: Kevin Fontaine.
- A.U. 2015-2016
 - * Quentin Bentz (Master 1, Department EEA, UPJV). Company: ABB France, 95800 Cergy, France. Apprenticeship entitled: “*Support dans le pilotage de projet d’intégration robotique (vision, robot, automatisme) et gestion de projet*”. Tutor of the company: Jean-Michel Pignal.

- * Josué Hatil (Master 1, Department EEA, UPJV). Company: PSA Peugeot Citroën, Vélizy-Villacoublay, France. Apprenticeship entitled: “*Homologation tests of the robots Universal Robot for their integration in a cooperative working environment at PSA Peugeot Citroën*”. Tutor of the company: Henri Moysan.
- A.U. 2014-2015
 - * Josué Hatil (Master 1, Department EEA, UPJV). Company: PSA Peugeot Citroën, Vélizy-Villacoublay, France. Apprenticeship entitled: “*Homologation tests of the robots Universal Robot for their integration in a cooperative working environment at PSA Peugeot Citroën*”. Tutor of the company: Henri Moysan. A.U. 2014-2015.
- Internship (“Stage”) at the MIS laboratory or in a company:
 - Anass El Moudni (Master 2/ingénieur, Université de Franche-Comté /ENSM): Stage entitled “*3D reconstruction based on stereo event vision for autonomous vehicles*”, February-August 2022 (co-supervised with R. Boutteau and S. Framm, LITIS laboratory, Univ. de Rouen). Stage funded by the ANR CERBERE project.
 - Rim Ben Hamida (Master 2, Department EEA, UPJV) Expleo France, February-August 2022.
 - Daniel Rodrigues da Costa (Master 2, Department EEA, UPJV): Project entitled “*EVENTO : Caméras évènementielles omnidirectionnelles pour les robots à très haute dynamique*”, February 8, 2021 - August 31, 2021. Co-supervision with P. Vasseur.
 - Juliette Grosset (stagiaire à Inria Rennes): Project entitled “*Caméra évènementielle pour l’aide à la conduite d’un fauteuil roulant électrique*”, March 9-13, 2020. Supervision at INRIA: Marie Babel and Valérie Gouranton.
 - Julien Albrand (Master 2, Department EEA, UPJV): Project entitled “*Estimation d’angle de cap d’un véhicule par vision*”, February 17 - August 31, 2020. Co-supervision with A. Rabhi and G. Caron.
 - Méven Jeanne-Rose (Master 2, Department EEA, UPJV): Project entitled “*Conception d’un système twin-fisheye stéréo pour l’aide à la conduite d’un fauteuil roulant électrique*”, February 17 - August 31, 2020. Co-supervision with S. Delmas.
 - Julien Albrand and Méven Jeanne-Rose (Master 1, Department EEA, UPJV): Project entitled “*SpheriCol: Augmented reality for driving assistance of an electric wheelchair*”, July 2019. Co-supervision (50%) with G. Caron.
 - Mohamed Zerrouki (Master 2, EEA Department, UPJV): Stage entitled “*Commande prédictive pour la stabilité du véhicule*” at the MIS laboratory, 16 April 2018 - 17 September 2018. Tutors of the MIS laboratory: A. Rabhi and A. El Hajjaji.
 - Ibrahima Gory (Master 1, EEA Department, UPJV): Stage entitled “*Tracking visage au défilé*” at Segula Matra Automotive, 78190 Trappes, 16 April 2018 - 28 September 2018. Tutor of the company: Daniel Lautram.

- Pierrick Cédolin (DUT informatique, IUT Amiens): 27 March 2017 - 2 June 2017 (8 weeks). Co-supervision (50%) with E. Bretagne.
 - Jean Hoffmann (Master 2, Department EEA, UPJV): Stage at Alphr Technology, 14 Amor Way, Letchworth Garden City, UK (www.alphrtechnology.co.uk), April-August 2017. Tutor of the company: Kalli Basra.
 - Jean Hoffmann (Master 1, EEA Department, UPJV): Stage entitled “*Reconnaissance d’Endive par Vision et Pick-and-Place par Robot Industriel*”, April 5, 2016 - August 15, 2016.
 - Abdallah Aguenou (Master 2, Department EEA, UPJV): Stage at Enersys Sarl, 62000 Arras (www.enersys.com), April-August 2016. Tutor of the company: Laurent Lucchini.
 - Roel Ramiro Cano Cisneros (Master 1, Universidad Autónoma de Tamaulipas, Reynosa, Mexico): Stage entitled “*Energy-optimal path planning for a quadrotor UAV*”. Tutor of the Universidad Autónoma de Tamaulipas: David Lara, May-August 2015.
 - Maroua Selmi (Master 2, EEA Department, UPJV): Stage entitled “*Phase correlation for omnidirectional visual odometry of a mobile robot*”, May-August 2015.
- Projects (the supervision activity amounts to 5 UC):
 - Dyhia Immoune and Romane Huet (Master 1, Department EEA, UPJV): Project entitled “*Planification probabiliste pour l’évitement d’obstacles: mise en œuvre de PRM et de RRT*”, October 2019-April 2020 (10 weeks).
 - Maxime Vambre and Timothé Deherre (Master 1, Department EEA, UPJV): Project entitled “*Lumibot: Robotic Light Painting*”, October 2019-April 2020 (10 weeks).
 - Julien Albrand and Meven Jeanne-Rose (Master 1, Department EEA, UPJV): Project entitled “*SpheriCol: Augmented reality for driving assistance of an electric wheelchair*”, October 2018-April 2019 (10 weeks). Co-supervision (50%) with G. Caron.
 - Hakim Kadi and Ouardia Bourhala (Master 1, Department EEA, UPJV): Project entitled “*Lumibot: Robotic Light Painting*”, October 2018-April 2019 (10 weeks). Co-supervision (50%) with G. Caron.
 - Soukaina Benchchaoui and Salima Elbrahmi (Master 1, Department EEA, UPJV): Project entitled “*Design and Implementation of a vision-based Jungle Speed robot player*”, October 2017-March 2018 (8 weeks).
 - Marwen Ben Hamada (Master 1, Department EEA, UPJV): Project entitled “*Cropbot: the Crop Circle Robot*”, October 2016-March 2017 (8 weeks). Co-supervision (50%) with G. Caron.
 - Laura Bailly and Damien Alary (Master 1, Department EEA, UPJV): Project entitled “*RoboFingers: Cooperative Transportation of Objects via Mobile Robots*”, October 2016-March 2017 (8 weeks).

- Jean Hoffmann and Raphaël Plouard (Master 2, Department EEA, UPJV): Project entitled “*Lumidrone: the Light Painting Drone*”, October 2016-March 2017 (8 weeks). Co-supervision (50%) with G. Caron.
 - Jean Hoffmann and Chater Kawtar (Master 1, Department EEA, UPJV): Project entitled “*Vision-based Global Localization System for Mobile Robots*”, October 2015-March 2016 (8 weeks).
 - Abdallah Aguenou (Master 2, Department EEA, UPJV): Project entitled “*IMU-assisted Odometry for the Localization of a Mobile Robot*”, October 2015-March 2016 (8 weeks).
- Projets de fin d’études:
 - Zouhair Alaoui, Université Cadi Ayyad, Marrakesh, Morocco: Project entitled “*Recalage dense de nuages de points 3D pour l’analyse comparative d’œuvres sculpturales*”, January 2016-March 2016. Co-supervision with Prof. Hassan Ayad.

During my stay at **INRIA, Grenoble Rhône-Alpes**, I co-supervised the work of a *Ph.D. student*, Luis León Ojeda, “Short-term multi-step ahead traffic forecasting” (November 2012 - July 2014).

During my stay at the **Johannes Kepler University**, Linz, Austria, I supervised the work of three *Master students*:

- Thomas Reiter, “*Construction of reference trajectories from practical specifications*” (September, 2012)
- Dominik Lang, “*Context-aware vehicle control for traffic and fuel consumption reduction*” (October, 2012)

and I co-supervised the research work of two *Ph.D. students*: Thomas Stanger and Thomas Passenbrunner.

During my stay at the **University of Siena**, Italy, I supervised the research work of two *Ph.D. students*:

- Stefano Scheggi, “*Motion estimation algorithms for catadioptric cameras*” (2007–2009)
- Francesco Chinello, “*Development of a Matlab toolbox for the control of KUKA robot manipulators*” (2007–2009)

of two *Master students* (the date in the parentheses below refers to the year and month when the thesis was defended, if not otherwise stated):

- Stefano Scheggi, “*Planar catadioptric stereo: single and multi-view geometry for calibration and localization*” (September, 2007)
- Luca Lucherini, “*Cyclic pursuit of multi-robot systems with connectivity constraints*” (January, 2009)

and of three *Bachelor students*:

- Elena Caini, “*A kinematic/force study of human hand in grasping configuration*” (April, 2006)
- Marco Benetti, “*A survey of robotics programming languages*” (October, 2007)
- Valerio Savini, “*Development and experimental validation of a toolbox for real-time control of a robot manipulator*” (June, 2009)

4 Research funding

4.1 Projects

- Université de Picardie Jules Verne (UPJV), MIS laboratory:
 - **HaDROs** [January 2022-January 2024] “Vision Omni-HDR pour la localisation et cartographie visuelles en environnement à large gamme de radiance”. Exploratory research project of the GdR 720 ISIS. Coordinator: CNRS-AIST JRL (Dr. Guillaume Caron). Three laboratories are involved in the project. Budget: 7 k€. *Role*: participant as UPJV partner.
 - **CERBERE** [January 2022-December 2025] “*Caméra événementielle pour la pERception d’oBjets Rapides autour du véhicule autonome*”, ANR PRCE, CE22 - Sociétés urbaines, territoires, constructions et mobilité. Coordinator: LITIS, Université de Rouen (Prof. Rémi Boutteau). Three laboratories and a company are involved in the project. Budget: 656 k€. *Role*: participant as UPJV partner.
 - **EVENTO** [October 2021-October 2024] “*Omnidirectional Event Cameras for Agile Robots*”: Research project co-financed by the AID (Agence de l’Innovation de Défense - Ministère des Armées) and by the UPJV. Budget: 120 k€. *Role*: coordinator.
 - **ScanBot** [October 2018-October 2021] “*Scanners RoBotisés pour la Numérisation Automatique du Patrimoine*”: Research project co-financed by the Région Hauts-de-France and by the ONERA DTIS (Palaiseau). Budget: 100 k€. *Role*: coordinator.
 - **FullScan** [January 2018-December 2019] “*Combining Complementary Sensors on a Mobile Robotic System to Fully and Autonomously Digitize Complex Heritage Buildings with Ultra High Definition*”, PHC (Partenariat Hubert Curien) Sakura project. Coordinators: G. Caron, UPJV (France) and T. Funatomi, NAIST (Japan). Budget: 15 k€. *Role*: participant as UPJV partner.
 - **SUMUM** [September 2017-March 2021] “*A Multiscale and Multimodal Strategy of Documentation of Tangible Cultural Heritage Objects: Acquisition, Processing, Study and Dissemination*”, ANR PRC, Challenge 7: Information and Communication Society. Coordinator: Le2I, Université de Bourgogne Franche-Comté (Prof. Alamin Mansouri). Four laboratories are involved in the project. Budget: 687 k€. *Role*: participant as UPJV partner.

- **ADAPT** [January 2017-June 2022] “*Assistive Devices for empowering disAbled People through robotic Technologies*”, EU Interreg VA France (Channel) England programme, 16 partners: 8 English and 8 French. Coordinator: ESIGELEC Rouen, France (Dr. Nicolas Ragot). European Region Development Fund budget: 5.9 M€. *Role*: participant and since September 2019, UPJV coordinator (UPJV is the leader of WP2).
- INRIA, Grenoble Rhône-Alpes, France:
 - Between November and December 2012, I participated in the writing of the EU STREP - FP7 ICT proposal entitled “*Systems-of-Systems control management of heterogeneous traffic networks*” (SoSmart). Partners of the project: INRIA Grenoble Rhône-Alpes (coordinator), EPFL, KTH, Karrus ITS.
 - I was involved in the national project MOCOPo “*Measuring and modelling traffic COngestion and POLLution*”. This three-year project started in January 2011 and it was funded by the French Ministry in charge of Transport (MEDDTL) through the PREDIT (Programme de Recherche et d’Innovation dans les Transports Terrestres).
 - I was involved in the HYCON2 NoE, WP5 “*Benchmarks: traffic showcase*”. This four-year project started in September 2010 and it was coordinated by the CNRS (Dr. F. Lamnabhi-Lagarrigue).
 - I wrote the proposal for AAP iC LSI (Appel à projet, fonds de l’Institut Carnot, Logiciel et Systèmes Intelligents) entitled “*Mobile Devices for Intelligent Road Traffic Prediction*”. The proposal was submitted on October 11, 2013 and it was accepted on November 29, 2013: the nine-month project started in January 2014.
- Johannes Kepler University (JKU), Linz, Austria:
 - I was involved for 9 months in the project entitled “*DVKUP: Demonstration und Validierung eines Kollisionsvermeidungssystems zur Unterstützung von Piloten*” (“*DVKUP: Demonstration and Validation of a Collision Avoidance System for the Support of Pilots*”) funded by FFG (Forschungsförderungsgesellschaft), the Austrian national institution for applied research. Partners of the project: AeroSpy Sense & Avoid Technology GmbH (coordinator), JKU, Austrian Institute of Technology (AIT), HB Flugtechnik GmbH, Austro Control (January 2012 - January 2014).
 - In Fall 2011, I participated in the writing of the project entitled “*A RObotic SErvice System (ROSES) for the Science Park at Johannes Kepler University*”. The time window of the project was 2013-2017 as part of a strategic ACCM (“Austrian Center of Competence in Mechatronics”) project (K2 Extension). Partners of the project (JKU): H. Bremer, L. del Re, A. Stelzer.
 - In Fall 2011, I participated in the preliminary drafting of the EU STREP - FP7 ICT proposal entitled “*Networked Mobility Emission Reduction and Traffic Management*”.

- University of Texas at Arlington (UTA), USA:
 - I participated in the writing of the medium project entitled “*Mobile Multi-Agent Human-Capturing System for Monitoring Human Motion*”, National Science Foundation (NSF), Cyber-Physical Systems (CPS) Program, March 2011. PI: G.L. Mariottini (CSE Dept., UTA). Co-Pis: C. Ray, M. Ricard (Dept. of Kinesiology, UTA), F. Kamangar, V. Athitsos (CSE Dept., UTA).
- Northwestern University (NU), USA:
 - I was involved in the NSF-funded project entitled: “*Automatic Compilation of Global Objectives into Local Controllers for Cooperative Mobile Agents*”. Partners of the project: K.M. Lynch (Dept. of Mechanical Engineering, NU), R.A. Freeman (Dept. of Electrical Engineering, NU), I.B. Schwartz, E. Forgoston (U.S. Naval Research Laboratory).

4.2 Mobility for research collaborations

- **AAP S2R** [February 2021] of the University of Picardie Jules Verne, Action 4.3 (“Aide aux mobilités sortantes des enseignants-chercheurs - recherche”): 375 € for funding a visit of the IPPT PAN (Polish Academy of Sciences), Warsaw, Poland.
- **AAP S2R** [February 2020] of the University of Picardie Jules Verne, Action 4.3 (“Aide aux mobilités sortantes des enseignants-chercheurs - recherche”): 800 € for funding the 1-week visit (February 2-7, 2020) of the IPPT PAN (Polish Academy of Sciences), Warsaw, Poland.
- **AAP S2R** [April 2018-June 2019] of the University of Picardie Jules Verne, Action 4.5 (“Aide aux mobilités sortantes des doctorants”): 1.3 k€ for funding the two-month visit of the PhD student J. Caracotte at NAIST (Nara Institute of Technology, Japan).

5 Publications

Books

- B1. P. Vasseur, F. Morbidi (editors), “*Omnidirectional Vision: From Theory to Applications*”, ISTE - Wiley, to appear in 2022, www.iste.co.uk

Refereed International Journals

- J22. F. Morbidi, L. Devigne, C.S. Teodorescu, B. Fraudet, É. Leblong, T. Carlson, M. Babel, G. Caron, S. Delmas, F. Pasteau, G. Vailland, V. Gouranton, S. Guégan, R. Le Breton, N. Ragot “*Assistive Robotic Technologies for Next-Generation Smart Wheelchairs*”, IEEE Robotics & Automation Magazine, accepted on May 12, 2022, to appear.
- J21. F. Morbidi, “*Functions of the Laplacian matrix with application to distributed formation control*”, IEEE Transactions on Control of Network Systems, accepted on August 29, 2021, to appear.

- J20. J. Caracotte, F. Morbidi, E. Mouaddib, “*Photometric stereo with central panoramic cameras*”, *Computer Vision and Image Understanding*, vol. 201, article 103080, December 2020.
- J19. H.-E. Benseddik, F. Morbidi, G. Caron, “*PanoraMIS: An Ultra-wide Field of View Image Dataset for Vision-based Robot-Motion Estimation*”, *The International Journal of Robotics Research*, vol. 39, n. 9, pp. 1037-1051, August 2020.
- J18. F. Morbidi, G. Caron, “*Phase Correlation for Dense Visual Compass from Omnidirectional Camera-Robot Images*”, *IEEE Robotics and Automation Letters*, vol. 2, n. 2, pp. 688-695, April 2017 (also accepted for presentation at the IEEE International Conference on Robotics and Automation, Singapore, May 29 - June 3, 2017).
- J17. A.N. Staranowicz, G.R. Brown, F. Morbidi, G.L. Mariottini, “*Practical and accurate calibration of RGB-D cameras using spheres*”, *Computer Vision and Image Understanding*, vol. 137, pp. 102-114, August 2015.
- J16. C. Canudas de Wit, F. Morbidi, L. León Ojeda, A.Y. Kibangou, I. Bellicot, P. Bellemain, “*Grenoble Traffic Lab: An experimental platform for advanced traffic monitoring and forecasting*”, *IEEE Control Systems Magazine*, vol. 35, n. 3, pp. 23-39, June 2015.
- J15. S. Scheggi, F. Morbidi, D. Prattichizzo, “*Human-robot formation control via visual and vibrotactile haptic feedback*”, *IEEE Transactions on Haptics*, vol. 7, n. 4, pp. 499-511, December 2014.
- J14. F. Morbidi, A.Y. Kibangou, “*A Distributed Solution to the Network Reconstruction Problem*”, *Systems & Control Letters*, vol. 70, pp. 85-91, August 2014.
- J13. F. Morbidi, “*The Deformed Consensus Protocol*”, *Automatica*, vol. 49, n. 10, pp. 3049-3055, October 2013.
- J12. F. Morbidi, G.L. Mariottini, “*Active Target Tracking and Cooperative Localization for Teams of Aerial Vehicles*”, *IEEE Transactions on Control Systems Technology*, vol. 21, n. 5, pp. 1694-1707, September 2013.
- J11. G.L. Mariottini, S. Scheggi, F. Morbidi, D. Prattichizzo, “*An Accurate and Robust Visual-Compass Algorithm for Robot-mounted Omnidirectional Cameras*”, *Robotics and Autonomous Systems*, vol. 60, n. 9, pp. 1179-1190, September 2012.
- J10. G.L. Mariottini, S. Scheggi, F. Morbidi, D. Prattichizzo, “*Planar mirrors for image-based robot localization and 3-D reconstruction*”, *Mechatronics, Special Issue on Visual Servoing*, vol. 22, n. 4, pp. 398-409, June 2012.
- J9. L. Consolini, F. Morbidi, D. Prattichizzo, M. Tosques, “*On a class of hierarchical formations of unicycles and their internal dynamics*”, *IEEE Transactions on Automatic Control*, vol. 57, n. 4, pp. 847-859, April 2012.
- J8. F. Morbidi, F. Bullo, D. Prattichizzo, “*Visibility maintenance via controlled invariance for leader-follower vehicle formations*”, *Automatica*, vol. 47, n. 5, pp. 1060-1067, May 2011.

- J7. F. Chinello, S. Scheggi, F. Morbidi, D. Prattichizzo, “*The KUKA Control Toolbox: motion control of KUKA robot manipulators with MATLAB*”, IEEE Robotics & Automation Magazine, vol. 18, n. 4, pp. 69-79, December 2011.
- J6. F. Morbidi, G.L. Mariottini, D. Prattichizzo, “*Observer design via Immersion and Invariance for vision-based leader-follower formation control*”, Automatica, vol. 46, n. 1, pp. 148-154, January 2010.
- J5. G.L. Mariottini, F. Morbidi, D. Prattichizzo, N. Vander Valk, N. Michael, G.J. Pappas, K. Daniilidis, “*Vision-based Localization for Leader-Follower Formation Control*”, IEEE Transactions on Robotics, vol. 25, n. 6, pp. 1431-1438, December 2009.
- J4. L. Consolini, F. Morbidi, D. Prattichizzo, M. Tosques, “*Stabilization of a hierarchical formation of unicycle robots with input constraints*”, IEEE Transactions on Robotics, vol. 25, n. 5, pp. 1176-1184, October 2009.
- J3. F. Morbidi, A. Garulli, D. Prattichizzo, C. Rizzo, S. Rossi, “*Application of Kalman filter to remove TMS-induced artifacts from EEG recordings*”, IEEE Transactions on Control Systems Technology, vol. 16, n. 6, pp. 1360-1366, November 2008.
- J2. L. Consolini, F. Morbidi, D. Prattichizzo, M. Tosques, “*Leader-Follower Formation Control of Nonholonomic Mobile Robots with Input Constraints*”, Automatica, vol. 44, n. 5, pp. 1343-1349, May 2008.
- J1. F. Morbidi, A. Garulli, D. Prattichizzo, C. Rizzo, P. Manganotti, S. Rossi, “*Off-line removal of TMS-induced artifacts on human electroencephalography by Kalman filter*”, Journal of Neuroscience Methods, vol. 162, pp. 293-302, May 2007.

Refereed Book Chapters

- BC4. A. Staranowicz, G.R. Brown, F. Morbidi, G.L. Mariottini, “*Easy-to-Use and Accurate Calibration of RGB-D Cameras from Spheres*”, in Proc. 6th Pacific-Rim Symposium on Image and Video Technology, R. Klette, M. Rivera, S. Satoh, Eds., Lecture Notes in Computer Science, Springer-Verlag, Volume 8333, pp. 265-278, 2014.
- BC3. G.L. Mariottini, S. Scheggi, F. Morbidi, D. Prattichizzo, “*Catadioptric Stereo with Planar Mirrors: Multiple-View Geometry and Camera Localization*”, in Visual Servoing via Advanced Numerical Methods, G. Chesi and K. Hashimoto, Eds., Lecture Notes in Computer Science, Springer-Verlag, pp. 3-22, 2010.
- BC2. G.L. Mariottini, S. Scheggi, F. Morbidi, D. Prattichizzo, “*A Robust Uncalibrated Visual Compass Algorithm from Paracatadioptric Line Images*”, in Proc. 1st Workshop on Omnidirectional Robot Vision, E. Menegatti and T. Pajdla, Eds., Lecture Notes in Computer Science, Springer-Verlag, pp. 242-255, November 2008.

- BC1. F. Morbidi, D. Prattichizzo, “*Sliding mode formation tracking control of a tractor and trailer-car system*”, in Proc. Robotics: Science and Systems III, W. Burgard, O. Brock and C. Stachniss Eds., MIT press, Cambridge MA, pp. 113-120, March 2008.

Refereed International Conferences

- C41. F. Morbidi, D. Pisarski, “*Practical and Accurate Generation of Energy-Optimal Trajectories for a Planar Quadrotor*”, in Proc. IEEE International Conference on Robotics and Automation, Xi’an, China, pp. 355-361, May 30 - June 5, 2021.
- C40. S. Delmas, F. Morbidi, G. Caron, J. Albrand, M. Jeanne-Rose, L. Devigne, M. Babel, “*SpheriCol: A Driving Assistance System for Power Wheelchairs Based on Spherical Vision and Range Measurements*”, in Proc. IEEE/SICE International Symposium on System Integration, Iwaki, Japan, pp. 505-510, January 11-14, 2021.
- C39. D. Adlakha, A. Habed, F. Morbidi, C. Demonceaux, M. de Mathelin, “*Stratified Autocalibration of Cameras with Euclidean Image Plane*”, in Proc. 31st British Machine Vision Conference, Manchester, UK, paper 26, September 7-11, 2020.
- C38. G. Hardouin, J. Moras, F. Morbidi, J. Marzat, E. Mouaddib, “*Next-Best-View planning for surface reconstruction of large-scale 3D environments with multiple UAVs*”, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems, Las Vegas, USA, pp. 1567-1574, October 25-29, 2020.
- C37. J. Caracotte, F. Morbidi, E. Mouaddib, “*Photometric Stereo with Twin-Fisheye Cameras*”, in Proc. 25th International Conference on Pattern Recognition, Milan, Italy, pp. 5270-5277, January 10-15, 2021.
- C36. G. Hardouin, F. Morbidi, J. Moras, J. Marzat, E. Mouaddib, “*Surface-driven Next-Best-View planning for exploration of large-scale 3D environments*”, in Proc. 21st IFAC World Congress, Berlin, Germany, pp. 15501-15507, 12-17 July 2020.
- C35. F. Morbidi, “*Subspace Projectors for State-Constrained Multi-Robot Consensus*”, in Proc. IEEE International Conference on Robotics and Automation, Paris, France, pp. 7705-7711, May 31 - June 4, 2020.
- C34. D. Adlakha, A. Habed, F. Morbidi, C. Demonceaux, M. de Mathelin, “*QUARCH: A New Quasi-Affine Reconstruction Stratum from Vague Relative Camera Orientation Knowledge*”, in Proc. 17th International Conference on Computer Vision, Seoul, Republic of Korea, pp. 1082-1090, October 29 - November 1, 2019.
- C33. F. Morbidi, E. Bretagne, “*A New Characterization of Mobility for Distance-Bearing Formations of Unicycle Robots*”, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems, Madrid, Spain, pp. 4833-4839, October 1-5, 2018.

- C32. F. Morbidi, D. Bicego, M. Ryll, A. Franchi, “*Energy-Efficient Trajectory Generation for a Hexarotor with Dual-Tilting Propellers*”, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems, Madrid, Spain, pp. 6226-6232, October 1-5, 2018.
- C31. G. Caron, F. Morbidi, “*Spherical Visual Gyroscope for Autonomous Robots using the Mixture of Photometric Potentials*”, in Proc. IEEE International Conference on Robotics and Automation, Brisbane, Australia, pp. 820-827, May 21-25, 2018.
- C30. F. Morbidi, R. Cano, D. Lara, “*Minimum-Energy Path Generation for a Quadrotor UAV*”, in Proc. IEEE International Conference on Robotics and Automation, Stockholm, Sweden, pp. 1492-1498, May 16-21, 2016.
- C29. F. Morbidi, L. León Ojeda, C. Canudas de Wit, I. Bellicot, “*Robust mode selection for highway traffic density estimation*”, in Proc. European Control Conference, invited session “Traffic Control and Estimation: New Trends and Opportunities”, Strasbourg, France, pp. 2576-2580, June 24-27, 2014.
- C28. F. Morbidi, “*The Second-order Parametric Consensus Protocol*”, in Proc. European Control Conference, Strasbourg, France, pp. 202-207, June 24-27, 2014.
- C27. S. Scheggi, M. Aggravi, F. Morbidi, D. Prattichizzo, “*Cooperative human-robot haptic navigation*”, in Proc. IEEE International Conference on Robotics and Automation, Hong Kong, China, pp. 2693-2698, May 31 - June 5, 2014.
- C26. S. Scheggi, F. Morbidi, D. Prattichizzo, “*Uncalibrated Visual Compass from Omnidirectional Line Images with Application to Attitude MAV Estimation*”, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems, Tokyo, Japan, pp. 1602-1607, November 3-7, 2013.
- C25. U. Gürçüoğlu, G.A. Puerto-Souza, F. Morbidi, G.L. Mariottini, “*Hierarchical Control of a Team of Quadrotors for Cooperative Active Target Tracking*”, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems, Tokyo, Japan, pp. 5730-5735, November 3-7, 2013.
- C24. F. Morbidi, P. Colaneri, T. Stanger, “*Decentralized optimal control of a vehicle platoon with guaranteed string stability*”, in Proc. European Control Conference, Zurich, Switzerland, pp. 3494-3499, July 17-19, 2013.
- C23. F. Morbidi, “*On the control of the algebraic connectivity and clustering of a network of mobile agents*”, in Proc. European Control Conference, Zurich, Switzerland, pp. 2801-2806, July 17-19, 2013.
- C22. F. Morbidi, “*On the Properties of the Deformed Consensus Protocol*”, in Proc. 51st IEEE Conference on Decision and Control, Maui, Hawaii, USA, pp. 812-817, December 10-13, 2012.
- C21. F. Morbidi, G.L. Mariottini, “*On Active Target Tracking and Cooperative Localization for Multiple Aerial Vehicles*”, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems, invited session on

- “Aerial Robotics”, San Francisco, CA, USA, pp. 2229-2234, September 25-30, 2011.
- C20. F. Morbidi, C. Ray, G.L. Mariottini, “*Cooperative active target tracking for heterogeneous robots with application to gait monitoring*”, in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems, San Francisco, CA, USA, pp. 3608-3613, September 25-30, 2011.
- C19. F. Morbidi, R.A. Freeman, K.M. Lynch, “*Estimation and Control of UAV Swarms for Distributed Monitoring Tasks*”, in Proc. American Control Conference, San Francisco, CA, USA, pp. 1069-1075, June 29-July 1, 2011.
- C18. L. Consolini, F. Morbidi, D. Prattichizzo, M. Tosques, “*On internal dynamics of formations of unicycle robots*”, in Proc. 49th IEEE Conference on Decision and Control, pp. 5462–5467, Atlanta, GA, USA, December 15-17, 2010.
- C17. F. Morbidi, A. Giannitrapani, D. Prattichizzo, “*Maintaining connectivity among multiple agents in cyclic pursuit: a geometric approach*”, in Proc. 49th IEEE Conference on Decision and Control, pp. 7461–7466, Atlanta, GA, USA, December 15-17, 2010.
- C16. G. Marro, F. Morbidi, L. Ntogramatzidis, D. Prattichizzo, “*Geometric Control Theory for Linear Systems: a Tutorial*”, in Proc. 19th International Symposium on Mathematical Theory of Networks and Systems, pp. 1579–1590, Budapest, Hungary, July 5-9, 2010.
- C15. L. Consolini, F. Morbidi, D. Prattichizzo, M. Tosques, “*Non-rigid Formations of Nonholonomic Robots*”, in Proc. IEEE International Conference on Robotics and Automation, pp. 4976-4981, Anchorage, AK, USA, May 3-8, 2010.
- C14. F. Chinello, S. Scheggi, F. Morbidi, D. Prattichizzo, “*KCT: a MATLAB toolbox for motion control of KUKA robot manipulators*”, in Proc. IEEE International Conference on Robotics and Automation, pp. 4603-4608, Anchorage, AK, USA, May 3-8, 2010.
- C13. G. Marro, F. Morbidi, D. Prattichizzo, “*A Geometric Solution to the Cheap Spectral Factorization Problem*”, in Proc. European Control Conference, pp. 814-819, Budapest, Hungary, August 23-26, 2009.
- C12. F. Morbidi, G. Ripaccioli, D. Prattichizzo, “*On Connectivity Maintenance in Linear Cyclic Pursuit*”, in Proc. IEEE International Conference on Robotics and Automation, pp. 363-368, Kobe, Japan, May 12-17, 2009.
- C11. F. Morbidi and D. Prattichizzo, “*Range estimation from a moving camera: an I&I approach*”, in Proc. IEEE International Conference on Robotics and Automation, pp. 2810-2815, Kobe, Japan, May 12-17, 2009.
- C10. G.L. Mariottini, S. Scheggi, F. Morbidi, D. Prattichizzo, “*Planar Cata-dioptric Stereo: Single and Multi-View Geometry for Calibration and Localization*”, in Proc. IEEE International Conference on Robotics and Automation, pp. 1510-1515, Kobe, Japan, May 12-17, 2009.

- C9. F. Morbidi, F. Bullo, D. Prattichizzo, “*On leader-follower visibility maintenance for Dubins-like vehicles via controlled invariance*”, in Proc. 47th IEEE Conference on Decision and Control, pp. 1821-1826, Cancun, Mexico, December 9-11, 2008.
- C8. F. Morbidi, G.L. Mariottini, D. Prattichizzo, “*Vision-based range estimation via Immersion and Invariance for robot formation control*”, in Proc. of the IEEE International Conference on Robotics and Automation, pp. 504-509, Pasadena, CA, USA, May 19-23, 2008.
- C7. L. Consolini, F. Morbidi, D. Prattichizzo, M. Tosques, “*Steering hierarchical formations of unicycle robots*”, in Proc. 46th IEEE Conference on Decision and Control, pp. 1410-1415, New Orleans, LA, USA, December 12-14, 2007.
- C6. G. Marro, F. Morbidi, D. Prattichizzo, “*H₂-Pseudo Optimal Model Following: A Geometric Approach*”, in Proc. 3rd IFAC Symposium on System, Structure and Control, Foz do Iguaçu, Brazil, October 17-19, 2007.
- C5. F. Morbidi, L. Consolini, D. Prattichizzo, M. Tosques, “*Leader-Follower Formation Control as a Disturbance Decoupling Problem*”, in Proc. European Control Conference, pp. 1492-1497, Kos, Greece, July 2-5, 2007.
- C4. F. Morbidi, A. Garulli, D. Prattichizzo, C. Rizzo, S. Rossi, “*A Kalman filter approach to remove TMS-induced artifacts from EEG recordings*”, in Proc. European Control Conference, pp. 2201-2206, Kos, Greece, July 2-5, 2007.
- C3. L. Consolini, F. Morbidi, D. Prattichizzo, M. Tosques, “*A Geometric Characterization of Leader-Follower Formation Control*”, in Proc. of the IEEE International Conference on Robotics and Automation, pp. 2397-2402, Rome, April 10-14, 2007.
- C2. G.L. Mariottini, F. Morbidi, D. Prattichizzo, G.J. Pappas, K. Daniilidis, “*Leader-Follower Formations: Uncalibrated Vision-Based Localization and Control*”, in Proc. of the IEEE International Conference on Robotics and Automation, pp. 2403-2408, Rome, April 10-14, 2007.
- C1. L. Consolini, F. Morbidi, D. Prattichizzo, M. Tosques, “*On the Control of a Leader-Follower Formation of Nonholonomic Mobile Robots*”, in Proc. 45th IEEE Conference on Decision and Control, pp. 5992-5997, San Diego, CA, USA, December 13-15, 2006.

Refereed National Journals and Conferences

- N3. F. Morbidi, E. Mouaddib, “*E-Cathédrale: numérisation de la cathédrale d’Amiens et reconstruction des trajectoires balistiques de l’artillerie allemande en avril 1918*”, actes du colloque “*Cathédrales en Guerre: XVI^e - XX^e siècles*”, Amiens, June 8-9, 2017, Presses Universitaires du Septentrion, Eds. X. Boniface and L. Dessavre, 1st edition, January 31, 2020, <http://www.septentrion.com/fr/livre/?GCOI=27574100809690>

- N2. E. Mouaddib, G. Caron, D. Lecllet-Groux, F. Morbidi, “*Le patrimoine in silico. Exemple de la cathédrale d’Amiens*”, In Situ. Revue des patrimoines, n. 39, special issue on “Imagerie numérique et patrimoine culturel : enjeux scientifiques et opérationnels”, P. Liévaux and L. De Luca editors, May 2019.
- N1. G. Caron, F. Morbidi, “*Gyroscope visuel sphérique basé mélange de potentiels photométriques*”, in Reconnaissance des Formes, Image, Apprentissage et Perception (RFIAP), Marne-la-Vallée, France, June 25-28, 2018. <https://rfiap2018.ign.fr>

Other

- O3. J. Caracotte, F. Morbidi, E. Mouaddib, “*Photometric Stereo with Twin-Fisheye Cameras*”, in Journées Francophones des Jeunes Chercheurs en Vision par Ordinateur (ORASIS), Lac de Saint-Ferréol, France, September 13-17, 2021. <https://orasis2021.sciencesconf.org/>
- O2. G. Hardouin, F. Morbidi, J. Moras, J. Marzat, E. Mouaddib, “*Surface-driven Next-Best-View planning for exploration of large-scale 3D environments*”, in Reconnaissance des Formes, Image, Apprentissage et Perception (RFIAP) and Conférence sur l’Apprentissage automatique (CAp), Vannes, France, June 23-26, 2020. <https://cap-rfiap2020.sciencesconf.org/>
- O1. S. Scheggi, F. Morbidi, D. Prattichizzo, “*Mixed human-robot formation control with vibrotactile haptic feedback*” in IEEE International Conference on Robotics and Automation Workshop “Haptic Teleoperation of Mobile Robots: Theory, Applications and Perspectives”, St. Paul, MN, USA, May 14-18, 2012.

NOTE: My papers have been cited overall 2508 times ([J2] in particular has been cited 655 times) and my h-index is 26 (March 2022). For more details, visit my Google Scholar profile.

6 Honors & awards

- **Outstanding Reviewer** for the IEEE Transactions on Robotics for the years 2013 and 2014.
- Recipient of a **PEDR**, “Prime d’Encadrement Doctoral et de Recherche” (P,E,D,R = A,B,A,B; Overall score of the CNU61, 30%) in October 2017 for a period of 4 years.
- Recipient of a **CRCT**, “Congé pour Recherches ou Conversions Thématiques” au titre de l’établissement (UPJV): One semester (1 February 2021 - 1 September 2021).

7 Ph.D. thesis defenses

7.1 Committee member

1. “*Algorithmes d’estimation et de commande pour des quadrirotors en interaction physique avec l’environnement*”, Quentin DELAMARE, Université de Rennes 1 (IRISA, INRIA Rennes - Bretagne Atlantique), France, 9 December 2019.
Ph.D. supervisor: Paolo Robuffo Giordano
Ph.D. co-supervisor: Antonio Franchi
Isabelle Fantoni (president), Nicolas Marchand (rapporteur), Pascal Morin (rapporteur), Fabio Morbidi (examineur)
2. “*The Shape of Damping: Optimizing Damping Coefficients to Improve Transparency on Bilateral Telemanipulation*”, Olmo Alonso Moreno Franco, Università degli studi di Genova and Istituto Italiano di Tecnologia (IIT), Italy, 14 February 2019.
Ph.D. supervisor: Domenico Prattichizzo
External evaluators: Francesco Chinello, Fabio Morbidi
Member of the jury: Lucia Pallottino
3. “*Synthesis and Analysis of Virtual Holonomic Constraints for Lagrangian Mechanical Systems*”, Alessandro COSTALUNGA, University of Parma, Italy, March 2017.
Ph.D. supervisor and co-supervisor: Marco Locatelli and Luca Consolini
External evaluators: Manfredi Maggiore, Fabio Morbidi
Member of the jury: Antonio Visioli
4. “*Distributed Methods for Finite-time Average Consensus Protocol Design and Network Robustness Assessment*”, Thi-Minh Dung TRAN, Université Grenoble Alpes, France, 26 March 2015.
Ph.D. supervisor: Carlos Canudas de Wit
Ph.D. co-supervisor: Alain Kibangou
Membres du jury: C. Commault, J.-M. Gorce, A. Giua (rapporteur), A. Girard (examineur), W. Hachem, F. Morbidi
5. Filippo Bertonecelli, Università degli studi di Modena e Reggio Emilia, Italy, May 2022.
Ph.D. supervisor: Lorenzo Sabattini

7.2 Comités de sélection

- Poste de Maître de Conférences (Section CNU 61), INSA de Rouen, laboratoire LITIS, April 9, 2021 (rapporteur). President of committee: Pr. Ouidad Labbani-Igbida.

7.3 CST: Comités de suivi de thèse

- “*Conduite assistée dun fauteuil roulant : navigation par intervalles à l’aide de beacons Ultra Large Bande*”, Julien Albrand, IRISA-INSA de Rennes (October 2020 - Present). Supervisors: Vincent Drevelle, Eric Marchand, Marie Babel.

8 Teaching employment

During my career, I have taught courses in the fields of Robotics, Systems and Control Theory, and Computer Vision. A detailed description of the courses given in three different institutions is reported below.

- Université de Picardie Jules Verne, EEA Department, Amiens, France:
 - Academic year 2021-2022: 216.75 UC (full service)
 - * **Instructor** of the Master 2 course “*Perception Avancée et Robotique Mobile*”, parcours RoVA, semester 9, winter 2021-2022.
 - * **Instructor** of the Licence Pro course “*Initiation à la Robotique*”, ME 1.1, parcours Robotique et Automatisme, managed by Promeo, semester 1, winter 2021-2022.
 - * **Instructor** of the Master 2 course “*Localisation et Navigation de Robots*”, parcours RoVA, semester 9, winter 2021-2022.
 - * **Instructor** of the Master 2 course “*Surveillance Distribuée de Systèmes Multi-Agents*”, parcours RoVA, semester 9, winter 2021-2022.
 - * **Instructor** of the Master 2 course “*Systèmes Robotiques Hétérogènes et Coopératifs*”, parcours RoVA, semester 9, winter 2021-2022.
 - * **Co-instructor** of the Master 2 course “*Projet Transversal - L’Usine du Futur: Industrie 4.0*”, parcours RoVA, semester 9, winter 2021-2022.
 - * **Instructor** of the Master 1 course “*Robotique Industrielle*”, parcours RoVA, semester 8, spring 2021.
 - Academic year 2020-2021: 95.25 UC (CRCT of 6 months starting from February 1, 2021)
 - * **Instructor** of the Licence Pro course “*Initiation à la Robotique*”, ME 1.1, parcours Robotique et Automatisme, managed by Promeo, semester 1, winter 2020-2021.
 - * **Instructor** of the Master 2 course “*Localisation et Navigation de Robots*”, parcours RoVA, semester 10, winter 2020-2021.
 - * **Instructor** of the Master 2 course “*Systèmes Robotiques Hétérogènes et Coopératifs*”, parcours RoVA, semester 10, winter 2020-2021.
 - * **Co-instructor** of the Master 2 course “*Projet Transversal - L’Usine du Futur: Industrie 4.0*”, parcours RoVA, semester 9 and 10, winter-spring 2020-2021.
 - Academic year 2019-2020: 226.25 UC (full service). REH recherche 2019-2020: 25 UC (for the local coordination of ADAPT project)
 - * **Instructor** of the Master 2 course “*Perception Avancée et Robotique Mobile*”, parcours RoVA, semester 9, winter 2019-2020.
 - * **Instructor** of the Licence Pro course “*Initiation à la Robotique*”, ME 1.1, parcours Robotique et Automatisme, managed by Promeo, semester 1, winter 2019-2020.

- * **Instructor** of the Master 2 course “*Localisation et Navigation de Robots*”, parcours RoVA, semester 10, winter 2019-2020.
 - * **Instructor** of the Master 2 course “*Surveillance Distribuée de Systèmes Multi-Agents*”, parcours RoVA, semester 10, winter 2019-2020.
 - * **Instructor** of the Master 2 course “*Systèmes Robotiques Hétérogènes et Coopératifs*”, parcours RoVA, semester 9, winter 2019-2020.
 - * **Co-instructor** of the Master 2 course “*Projet Transversal - L’Usine du Futur: Industrie 4.0*”, parcours RoVA, semester 9 and 10, winter-spring 2019-2020.
 - * **Instructor** of the Master 1 course “*Robotique Industrielle*”, parcours RoVA, semester 8, spring 2020.
- Academic year 2018-2019: 215.25 UC (full service)
- * **Instructor** of the Master 2 course “*Perception Avancée et Robotique Mobile*”, parcours RoVA, semester 1, winter 2018-2019.
 - * **Instructor** of the Licence Pro course “*Initiation à la Robotique*”, ME 1.1, parcours Robotique et Automatisation, managed by Promeo, semester 1, winter 2018-2019.
 - * **Instructor** of the Master 2 course “*Localisation et Navigation de Robots*”, parcours RoVA, semester 1, winter 2018-2019.
 - * **Co-instructor** (50% with M. Chadli) of the Master 2 course “*Surveillance Distribuée de Systèmes Multi-Agents*”, parcours RoVA, semester 1, winter 2018-2019.
 - * **Co-instructor** (50% with M. Chadli) of the Master 2 course “*Systèmes Robotiques Hétérogènes et Coopératifs*”, parcours RoVA, semester 1, winter 2018-2019.
 - * **Co-instructor** of the Master 2 course “*Projet Transversal - L’Usine du Futur: Industrie 4.0*”, parcours RoVA, semester 1 and 2, 2018-2019.
 - * **Instructor** of the Master 1 course “*Robotique Industrielle*”, parcours RoVA, semester 2, spring 2019.
- Academic year 2017-2018: 201.5 UC (full service)
- * **Instructor** of the Master 2 course “*Perception Avancée et Robotique Mobile*”, parcours ViRob, semester 9, winter 2017-2018.
 - * **Instructor** of the Licence Pro course “*Initiation à la Robotique*”, ME 1.1, parcours Robotique et Automatisation, managed by Promeo, semester 1, winter 2017-2018.
 - * **Instructor** of the Master 2 course “*Localisation et Navigation de Robots*”, parcours ViRob, semester 8, spring 2018.
 - * **Instructor** of the Master 1 course “*Découverte de la Recherche*”, parcours ViRob, semester 8, spring 2018.
 - * **Instructor** of the Master 1 course “*Robotique Industrielle*”, parcours ViRob, semester 9, spring 2018.
- Academic year 2016-2017: 194.5 UC (full service)

- * **Co-instructor** (50% with D. Kachi) of the Master 2 course “*Perception Avancée et Robotique Mobile*”, parcours ViRob, semester 9, winter 2016-2017.
 - * **Instructor** of the Licence Pro course “*Initiation à la Robotique*”, ME 1.1, parcours Robotique et Automatismes, managed by Promeo, semester 1, winter 2016-2017.
 - * **Instructor** of the Master 2 course “*Localisation et Navigation de Robots*”, parcours ViRob, semester 8, spring 2017.
 - * **Instructor** of the Master 1 course “*Découverte de la Recherche*”, parcours ViRob, semester 8, spring 2017.
 - * **Instructor** of the Master 1 course “*Robotique Industrielle*”, parcours ViRob, semester 9, spring 2017.
- Academic year 2015-2016: 220 UC (full service)
- * **Co-instructor** (50% with D. Kachi) of the Master 2 course “*Perception Avancée et Robotique Mobile*”, parcours ViRob, semester 9, winter 2015-2016.
 - * **Instructor** of the Licence Pro course “*Initiation à la Robotique*”, ME 1.1, parcours Robotique et Automatismes, managed by Promeo, semester 1, winter 2015-2016.
 - * **Instructor** of the Licence Pro course “*Phénomènes Dynamiques Engendrés par les Mouvements des Robots*”, ME 4.2, parcours Robotique et Automatismes, managed by Promeo, semester 1, winter 2015-2016.
 - * **Instructor** of the Master 2 course “*Localisation et Navigation de Robots*”, parcours ViRob, semester 8, spring 2016.
 - * **Instructor** of the Master 1 course “*Découverte de la Recherche*”, entitled “Introduction aux Systèmes Collaboratifs Multi-Agent”, parcours ViRob, semester 8, spring 2016.
 - * **Instructor** of the Master 1 course “*Robotique Industrielle*”, parcours ViRob, semester 9, spring 2016.
- Academic year 2014-2015: 144 UC or 108 hours, 25% service discharge (i.e. 48 UC)
- * **Instructor** of the Master 2 course “*Localisation et Navigation de Robots*”, parcours ViRob, semester 9, winter 2014-2015.
 - * **Co-instructor** (50% with D. Kachi) of the Master 2 course “*Perception Avancée et Robotique Mobile*”, parcours ViRob, semester 9, winter 2014-2015.
 - * **Instructor** of the Master 1 course “*Robotique Industrielle*”, parcours ViRob, semester 9, spring 2015.
- Johannes Kepler University Linz, Institute for Design and Control of Mechatronical Systems, Austria (Language of the courses: English):
 - **Instructor** of the Master course “*Distributed and Cooperative Control for Multi-agent Systems*”, March-June 2012. Total: 30 hours.
 - **Co-instructor** of the Bachelor course “*Regelsysteme I*” (*Control systems I*), March-June 2012. Total: 15 hours.

- **Co-instructor** of the Bachelor course “*Rechnerbasierter Entwurf von Regelkreisen*” (*Computer-based design of control systems*), October 2011-January 2012. Total: 15 hours.
- University of Siena, Italy (Language of the courses: Italian):
 - **Teaching assistant** of the Master course “*Multivariable and Robust Control*” (May-June 2006), given by Prof. A. Vicino. Total: 10 hours.
 - **Instructor** of a Matlab laboratory (July 2006). Total: 20 hours.
 - **Teaching assistant**: Assisted in teaching the Master course “*Robotics and Vision*”, (February-April 2007), given by Prof. D. Prattichizzo. Total: 15 hours.
 - **Teaching assistant** of the Master course “*Multivariable and Robust Control*” (May-June 2007), given by Prof. A. Vicino. Total: 10 hours.
 - **Instructor** of a Matlab laboratory (July 2007). Total 20 hours.
 - **Teaching assistant** of the Bachelor course “*Linear Systems*” (May-June 2008), given by Prof. D. Prattichizzo. Total: 20 hours.
 - **Teaching assistant** of the Master course “*Multivariable and Robust Control*” (May-June 2008), given by Prof. A. Vicino. Total: 5 hours.
 - **Teaching assistant** of the Bachelor course “*Linear Systems*” (May-June 2009), given by Prof. D. Prattichizzo. Total: 20 hours.
 - **Teaching assistant** of the Master course “*Multivariable and Robust Control*” (May-June 2009), given by Prof. A. Vicino. Total: 2 hours.

Other university activities:

- Academic contact for the Erasmus+ Programme (Mobility for Learners and Staff) between the UPJV and the University of Catania (Italy), 2020-present.
- International contact for DAuSy (“Dottorato di interesse nazionale in Autonomous Systems”) directed by Politecnico di Bari (M. Dotoli), Italy.
- Between October 2018 and October 2020, I was in charge of the parcours RoVA (“*Robotique et Vision Artificielle*”) of the 3EA Master, EEA Department, UPJV.
- In 2017-2018, I was involved in a *Teaching Innovation Project* in the ViRob (“*Robotic Vision*”) Master Program of the EEA Department at the University of Picardie Jules Verne (2 UC). The projet, entitled “*Industry 4.0: Modular Factories*”, was coordinated by G. Caron. Seven members of the EEA Department participated in the projet for a total budget of 10.4 k€.
- I was a member of the recruitment committee of 6 ATER (section 61) and of a contract teacher (LRU), EEA Department, UPJV: June 19, 2019, September 11, 2019, June 23, 2020, June 14, 2021 and July 12, 2021.

9 Invited talks

- “*Distributed Estimation and control of UAV Swarms for Environmental monitoring*”, Dept. of Mechanical Engineering, Northwestern University, IL, USA, May 11, 2010.
- “*The Deformed Consensus Protocol*”, GIPSA-lab, CNRS, University of Grenoble, France, September 19, 2012.
- “*Robust traffic estimation over graphs*”, EU HYCON2 WP5 meeting - traffic showcase, Seville, Spain, May 17, 2013.
- “*Calibration précise et robuste de caméras RGB-D basée sur les objets sphériques*”, Journée GdR ISIS-Robotique “Analyse des données RGB-Depth pour l’analyse de scènes”, Telecom Paris, France, May 31, 2016.
- “*Cooperative Active Target Tracking for Multiple Aerial Vehicles*”, équipe Lagadic, Inria Rennes - Bretagne Atlantique, France, June 30, 2016.
- “*Digital Modeling of Cultural Heritage: Toward Cloud-based Robotic Solutions*”, (Keynote talk), Int. Conference on Cloud and Robotics (ICCR16), Saint Quentin, France, November 22, 2016.
- “*Minimum-Energy Path Generation for Battery-Powered Multirotor UAVs*”, équipe RIS, LAAS-CNRS, Toulouse, France, December 12, 2016.
- “*Feature-based and Dense Omnidirectional Visual Compass for Autonomous Robots*”, International multidisciplinary Workshop on Sensing, Reconstruction, and Recognition of Environment, Optical Media Interface Lab, Nara Institute of Science and Technology (NAIST), Japan, March 16-17, 2017.
- “*E-Cathédrale: numérisation de la cathédrale d’Amiens et reconstruction des trajectoires balistiques de l’artillerie allemande en avril 1918*”, Colloquium “Les Cathédrales en Guerre (XVIe-XXIe siècles)”, organized by the Society of Friends of Amiens Cathedral, in partnership with the Université de Picardie Jules Verne, Amiens, June 8-9, 2017.
- “*Vision non conventionnelle pour la robotique mobile: caméras catadioptriques, plénoptiques et event-based*” in the Perception session and video presentation of the research activities of the MIS laboratory, at the Journées Nationales de la Recherche Robotique (JNRR), Domaine de Françon, Biarritz, France, November 9, 2017.
- “*Minimum-Energy Trajectory Generation for Battery-Powered Multirotor UAVs*”, Dipartimento di Ingegneria e Architettura, University of Parma, Italy, November 5, 2021.
- “*Minimum-Energy Trajectory Generation for Battery-Powered Multirotor UAVs*”, GT-UAV (Véhicules Aériens), GdR Robotique, Webinar, December 10, 2021.

10 Professional activities: chair service, organization of invited sessions, outreach

- IEEE International Conference on Robotics and Automation, Rome, Italy, April 2007. **Chair** of the regular session: *Adaptive Visual Servoing*.
- IEEE International Conference on Robotics and Automation, Anchorage, Alaska, May 2010. **Co-Chair** of the regular session *Software Tools for Robotics*.
- **Organizer** (with G. Marro, L. Ntogramatzidis and D. Prattichizzo) of the mini-course (8 talks, 4 hours) entitled “*The Geometric Approach to Systems & Control Theory*” at the 19th International Symposium on Mathematical Theory of Networks and Systems (MTNS), Budapest, Hungary, July 8, 2010.
- **Judge** for the FIRST LEGO League (www.firstlegoleague.org), Grades 4-8. Museum of Nature & Science, Dallas, TX, USA, November 13, 2010. Dept. of Computer Science and Engineering, University of Texas at Arlington, USA, December 4, 2010.
- American Control Conference, San Francisco, CA, USA, June 2011. **Co-Chair** of the regular session *Cooperative Control II*.
- IEEE International Conference on Decision and Control, Maui, HI, USA, December 2012. **Co-Chair** of the regular session “*Agents and Autonomous Systems II*”.
- European Control Conference, Zurich, Switzerland, July 2013. **Chair** of the regular session “*Vehicle Formation Control*”.
- European Control Conference, Strasbourg, France, June 2014. **Organizer** and **Chair** (with A. Ferrara) of the invited session entitled “*Traffic Control and Estimation: New Trends and Opportunities*”.
- “Journée des Jeunes Chercheurs en Robotique” (JJCR) and “Journées Nationales de la Recherche en Robotique” (JNRR), October 20-23, 2015. Member of the **Organizing Committee** and charged of **Local Arrangements**.
- IEEE International Conference on Robotics and Automation, Singapore, May 31, 2017. **Chair** of the regular session, *Semantic Understanding*.
- IEEE/RSJ International Conference on Intelligent Robots and Systems, Madrid, Spain, October 1, 2018. **Co-organizer** with M. Babel, D. Daney, S. Mohammed, F. Colas and Y. Amirat of the full-day workshop entitled “*Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics*”.
<http://www.iros-ar2018.lissi.fr/doku.php>
- **Local organizer** of the Journée Régionale des Doctorants en Automatique (JRDA2018), July 3, 2018, Amiens, France.

- European robotic projects, **H2020 program showcase** at ICRA'20, 31 May - 31 August 2020, Paris, France. Presentation of the ADAPT project (with M. Babel, INSA Rennes). <https://www.icra2020.org/robotics-eu>

11 Participation in international conferences, schools and symposia

- “*International Advanced School on Nonlinear Analysis of Complex Dynamical Systems*”, Centro per lo studio dei sistemi complessi (CSC), Siena, Italy, November 16-18, 2005.
- Symposium on “*Geometric Control and Nonsmooth Analysis*”, Istituto Nazionale di Alta Matematica (INDAM), Rome, Italy, June 5-9, 2006.
- *Human Brain Mapping (12th Annual Meeting)*, Florence, Italy, June 11-15, 2006.
- *Summer Ph.D. School CIRA*, Bertinoro (Fc), Italy, July 9-15, 2006. Attended courses: “Positive systems” and “Models for the control of production systems”.
- *Convegno CIRA*, presentation of a paper, Milano, September 18-20, 2006.
- *Colloquium on Robotics and Automation*, University of Naples Federico II, Naples, December 18, 2006.
- Robotics, Science and Systems Conference, Atlanta, GA, June 2007.
- “*2nd HYCON Graduate School on Hybrid Systems*”, Siena, July 2007.
- European Control Conference, Kos, Greece, July 2007.
- IEEE International Conference on Decision and Control, New Orleans, LA, December 2007.
- IEEE International Conference on Robotics and Automation, Pasadena, USA, May 2008.
- IEEE International Conference on Decision and Control, Cancun, Mexico, December 2008.
- IEEE International Conference on Robotics and Automation, Kobe, Japan, May 2009.
- European Control Conference, Budapest, Hungary, August 2009.
- IEEE International Conference on Decision and Control, Atlanta, GA, USA, December 2010.
- Workshop on “*Multibody System Dynamics, Robotics and Control*” September 26th - 27th, 2011, Johannes Kepler University Linz.
- A3PS “*Eco-mobility*” conference, November 15, 2011, Vienna, Austria.

- Réunion du GdR ISIS et MIA “*Geometric Optimization on Manifolds*”, November 21, 2014, Paris, France.
- Journées Francophones des Jeunes Chercheurs en Vision par Ordinateur (ORASIS’15), Le Logis du Roy, Amiens, June 15-19, 2015.
- IEEE/RSJ International Conference on Intelligent Robots and Systems, Hamburg, Germany, September 28 - October 2, 2015.
- IEEE International Conference on Robotics and Automation, Stockholm, Sweden, May 16 - May 21, 2016.
- IEEE International Conference on Robotics and Automation, Singapore, May 29 - June 3, 2017.
- Journée de lancement de la SFR Numérique & Patrimoine, DRAC Hauts-de-France, Amiens, January 19, 2018.
- IEEE International Conference on Robotics and Automation, Brisbane, May 21 - May 25, 2018.
- IEEE/RSJ International Conference on Intelligent Robots and Systems, Madrid, Spain, October 1-5, 2018.
- Journée Thématique Inter-GdR ISIS et Robotique “Capteurs Visuels Emergents”, Ivry-sur-Seine, France, June 6, 2019.
- Journée GRAISyHM des Jeunes Chercheurs en Traitement de Signal et des Images, Logis du Roy, Amiens, France, June 17, 2019.
- Optical Media Interface Lab, Nara Institute of Science and Technology (NAIST), Japan, April 7-15, 2019. Meeting with the collaborators of NAIST, CNRS-AIST JRL (Tsukuba) and University of Tokyo, for the preparation of a joint France-Japan JST-ANR (CREST) project.
- Visit of the Institute of Fundamental Technological Research of the Polish Academy of Sciences (IPPT PAN), Warsaw, Poland, February 3-7, 2020 and July 20-24, 2021. A research collaboration with Dr. Dominik Pisarski has been established.

12 Editorial boards

Journals

- Associate Editor for the “*IEEE Transactions on Robotics*”, since April 1st, 2022.
- Associate Editor for the “*IEEE Robotics and Automation Letters*”, since March 2022.
- Member of the Editorial Board of the “*International Journal of Advanced Robotic Systems*”, since April 26, 2013.

- Member of the Editorial Board (as a Review Editor) of “*Frontiers in Robotics and AI*”, specialty “Robotic Control Systems”, since June 2015.
- Member of the Editorial Board of “*Robotics*” (MDPI), since July 2019.

Conferences

- Associate Editor for the Conference Editorial Board (CEB) of the IEEE Robotics and Automation Society for ICRA 2017, 2018, 2019, 2020, 2021 and 2022.
- Associate Editor for the IROS Conference Paper Review Board (CPRB) for IROS 2020, 2021 and 2022.
- Program Co-Chair of the *3rd International Conference on Robotics, Computer Vision and Intelligent Systems*, Valletta, Malta, October 2022, <https://robovis.scitevents.org>
- Member of the Program Committee of the “*10th European Conference on Mobile Robots*”, ECMR 2021, August 31st - September 3rd, 2021, Bonn, Germany, <https://ecmr2021.org>
- Member of the International Program Committee of the “*2nd International Conference on Robotics, Computer Vision and Intelligent Systems*”, ROBOVIS 2021, 27-29 October 2021, Valletta, Malta.
- Member of the Program Committee of the “*9th European Conference on Mobile Robots*”, ECMR 2019, 4-6 September 2019, Prague, Czech Republic, www.ecmr2019.eu
- Member of the Program Committee of the “*International Symposium on Multi-robot and Multi-Agent Systems*”, MRS17, 4-5 December 2017, University of Southern California, Los Angeles, USA.
- Member of the International Program Committee of the “*14th International Conference on Informatics in Control, Automation and Robotics*”, ICINCO17, 29-31 July 2017, Madrid, Spain.

13 Society membership

- **IEEE Membership** (IEEE Robotics & Automation Society, RAS):
 - IEEE *Student Member* since January 2007,
 - IEEE *Associate Member* since October 2009,
 - IEEE *Member* since May 2012,
 - IEEE **Senior Member** since April 2019.
- Member of the IEEE RAS Technical Committee on Multi-Robot Systems, since September 2014.
- Secretary of the Italian Chapter of IEEE RAS from October 2006 to October 2010.

- Member of the GdR MACS (“Groupement de Recherche Modélisation, Analyse et Conduite des Systèmes dynamiques” <http://gdr-macs.cnrs.fr>), since January 2018.

14 Service as Peer Reviewer

- Assessment of national and international **research proposals**:
 - Evaluation of a proposal for the AAP IRS 2021 of the IDEX Communauté Université Grenoble Alpes, March 21, 2021.
 - Evaluation of a French ANR generic proposal (2nd phase, evaluation committee “CE33 - Interaction, Robotique”), May 10, 2019.
 - Evaluation of a proposal for the “Research Grants Council” (RGC) of Hong Kong, China, February 16, 2018.
- Reviewer for the top **journals** in the area of robotics and automatic control, including: *IEEE Transactions on Robotics* (27 submissions reviewed), *International Journal of Robotics Research*, *Robotics and Autonomous Systems*, *Autonomous Robots*, *IEEE Robotics and Automation Letters*, *IEEE Transactions on Automatic Control*, *Automatica*, *Systems & Control letters*, *IEEE Transactions on Control Systems Technology*, *International Journal of Robust & Nonlinear Control*, *IEEE Transactions on Control of Network Systems*.
- Reviewer for the world-leading **conferences** in robotics and control, including: *IEEE Int. Conf. Robotics and Automation*, *IEEE/RSJ Int. Conf. Intelligent Robots and Systems*, *Robotics: Science and Systems*, *IEEE Conf. on Decision and Control*, *American Control Conf.*, *European Control Conf.*, *Int. Symp. on Mathematical Theory of Networks and Systems*, *IFAC World Congress*.

15 Laboratory service

- Leader of the Robotic Perception group of the MIS laboratory since March 2022.
- Member of the Council of the MIS Laboratory: January 2017 - December 2021 and March 2022 - present.
- Elected to the Finance Committee of the MIS laboratory in March 2017.
- Responsible, with Corinne Lucet, for the seminars of the MIS laboratory (May 23, 2018 - Present).

16 Outreach

- “*Handicap. Un fauteuil électrique intelligent conçu à Rennes*”, interview of M. Babel, E. Leblong and F. Morbidi (ADAPT project). Nathalie Flochlay, Ouest France, 4 November 2020.

17 Knowledge of foreign languages

- *Italian*: Mother tongue
- *English*: Excellent knowledge of the spoken and written language
- *French*: Excellent knowledge of the spoken and written language
- *German*: Basic knowledge of the spoken and written language