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Associate Professor on Mechanical
Engineering & Robotics

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Academic Experiences

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| since 2005 | Maître de Conférences <i>Hors-Classe</i> (Associate Professor) ISIR, Institut des Systèmes Intelligents et de Robotique, Dep. of Mechanical Eng., Sorbonne Université, Paris, France |
| 2004–2005 | Research Engineer CEA-LIST, French Alternative Energies and Atomic Energy Commission, Fontenay-aux-Roses, France |
| 2002–2004 | Research Associate <i>Laboratoire de Robotique de Paris</i> , Dep. of Mechanical Eng., Université Pierre et Marie Curie, Paris, France |
| 1999–2002 | Ph.D candidate & teaching assistant <i>Laboratoire de Robotique de Paris</i> , Université Pierre et Marie Curie, Paris, France |

Education

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| 1994–1997 | B.A Mechanical Engineering ENS Cachan & Université Pierre et Marie Curie |
| 1997–1999 | Master in Robotics <i>Grade A+, ranking: 1</i> ENSAM & Université Pierre et Marie Curie |
| 1999–2002 | Ph.D on Mechanical Engineering & Robotics <i>Adhesion forces and dynamics for micro-manipulation; adv. Prof. J.-C. Guinot</i> ; Université Pierre et Marie Curie, Paris, France |

Teaching Experience

Teaching since 1999, and since 2002 at the Dep. of Mechanical Eng., Sorbonne U.; approx. 200h/year.

Master Sc. Robotics and Intelligent Systems

- Scientific Programming for Robotics
- Dynamics and Simulation
- Haptics & Virtual reality
- Robotics Student Projects

Bachelor Sc. Mechanical Engineering

- Robotics 101
- Mechanical Design and Machine Theory
- Technical Drawing & CAD
- Multiphysics Simulation

Research activities

Currently head of "MULTISCALE INTERACTIONS" group at ISIR: **6 permanent researchers, 14 PhD candidates, 2 engineers** *Keywords : User interfaces, Virtual Reality and Haptics, microphysics, micro/nano-robotics, micro/nano manipulation*

Ongoing Grants as coordinator

- **IOTA**, Interactive Optical Tweezers, ANR-France 2016-2019, **coordinator**, with U. Aix-Marseille, ISM.
- **FishTank** and **TeleTweezer** Projects, Labex SMART Sorbonne, 2016-2019

Current Collaborative Projects

- **COLAMIR**, Collaborative microscale assembly, ANR-France 2016-2019, with Femto-ST, Besançon (Cédric Clevy) and Percipio SA.
- **MultiFlag**, bio-inspired swimming microrobots, ANR-France 2016-2019, Stéphane Régnier, with Femto-ST, Besançon and iCUB, Strasbourg.

Technology Transfer & Industrial Collaborations

- Percipio Robotics, Robeauté, InSimo, Auréa Tech, Segula-Matra, Thalès

Completed Collaborative Projects

- RuBAN, Interactive simulation of DNA strands, Convergence UPMC 2015-2018, with L.J.P., UPMC.
- NANOROBUST Nanomanipulation under scanning electronic microscope, funding ANR-France (2011-2014), collaboration with FEMTO-ST (Pr. Ph. Lutz, leader), LPN and IRISA.
- WearHAP, WEARable HAPtics, EC FP7-ICT-2011-9-2.1 Cognitive Systems and Robotics
- GOLEM - Bio-inspired assembly of meso-scale components, EC FP6-NMP (2006-2010) with Eindhoven University (Pr. Yves Bellouard, leader), EPFL - Stuttgart Uni. - NPL - CEA/LIST - Delong - Octax and Quintenz
- AFM based nanohandling, funding EGIDE (2008-2010), Collaboration with AMIR (Oldenburg University - Germany - Prof. Fatikow)
- Haptic perception of the micro and nano scales, funding ANR (2006-09), collaboration with CEA/LIST (Dr A. Micaelli) and IRISA Rennes (Dr A. Lecuyer)
- NanoRAC - Nano Robotics for Assembly Characterization, EC FP6-NMP (2005-2008), collaboration with LIST/CEA (Dr P. Gravez, leader) - AMIR - UCAM Cambridge Uni - MIC Copenhagen - Nascatec Germany

Editorial Positions and Referee Activities

- Associate Editor of *Mechatronics*, Elsevier (2016 -)
- General secretary IARP'06, Local chair IEEE ISOT'12; MARSS'16; Publication Chair MARSS'17 to 19; Communication chair ICRA'20
- Member of the scientific committees of CIRA'05, ISOT'13, 3MNANO'12 to 3MNANO'15, MARSS'16 to 20
- Scientific reviews : IEEE Trans. on Mechatronics, IEEE Trans. on Robotics, Plos ONE, Mechatronics, Int. J. Advanced Robotics...

Publications

3 book chapters, 32 peer reviewed journal articles, 60+ conference communications, 6 international patents;
H-index: 19 (source: ISI Web of Knowledge, Feb 2019)

Selected publications

1. E. Gerena, S. Régnier and S. Haliyo, (2019). *High-bandwidth 3D Multi-Trap Actuation Technique for 6-DoF Real-Time Control of Optical Robots*. IEEE Robotics and Automation Letters, IEEE, publisher. Vol 4 No 2 Pages 647 - 654.
2. Z. Y. Bayraktaroglu, O. F. Argin, Omer and S. Haliyo (2018). *A Modular Bilateral Haptic Control Framework for Teleoperation of Robots*. Robotica, Cambridge University Press, doi:10.1017/S0263574718001042.
3. L. Cohen, S. Régnier, M. Chetouani, and S. Haliyo. (2018). *A natural interface based on intention prediction for semi-autonomous micromanipulation*. J. on Multimodal User Interfaces. Vol 12 No 1 Pages 17–30.
4. S. Sakr, T. Daunizeau, D. Reversat, S. Régnier, and S. Haliyo, (2018). *An Ungrounded Master Device for Tele-Microassembly*. 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2018)
5. M. Yin, E. Gerena, C. Pacoret, S. Haliyo, and S. Régnier, (2017). *High-bandwidth 3D Force Feedback Optical Tweezers for Interactive Bio-manipulation*. 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Vancouver, Canada. Pages 1889-1894.
6. A. Mohand Ousaid, S. Haliyo, S. Régnier, and V. Hayward (2015). *A Stable and Transparent Microscale Force Feedback Teleoperation System*. IEEE/ASME Transactions on Mechatronics . Vol 20 No 5 Pages 2593-2603.
7. L. Cui, E. Marchand, S. Haliyo and S. Régnier (2015). *Hybrid Automatic Visual Servoing Scheme using Defocus Information for 6-DoF Micropositioning*. IEEE Int. Conf. on Robotics and Automation, ICRA'15,. Pages in press. Seattle, WA.
8. A. Mohand Ousaid, G. Millet, S. Haliyo, S. Régnier, V. Hayward (2014) *Feeling What an Insect Feels*. PLoS ONE 9(10): e108895.
9. J.C. Acosta, J. Polesel-Mariss, F. Thoyer, H. Xie, S. Haliyo and S. Régnier (2013). *Gentle and fast atomic force microscopy with piezoelectric scanning probe for Nanorobotics Applications*. Nanotechnology. Vol 24 No 6 Pages 065502.
10. N. Ouarti, B. Sauvvet, S. Haliyo, and S. Régnier (2013). *RobPosit, a robust pose estimator for operator controlled nanomanipulation*. Journal of Micro-Bio Robotics . Vol 8 No 2 Pages 73-82.
11. A. Bolopion, H. Xie, S. Haliyo, S. Régnier, (2012). *Haptic Teleoperation for 3D Microassembly of Spherical Objects*. IEEE/ASME Transaction on Mechatronics. Vol 17 No 1 Pages 116-127.
12. C. Pacoret, R. Bowman, G. Gibson, S. Haliyo, D. Carberry, A. Bergander, S. Régnier, M. Padgett, *Touching the microworld with force-feedback optical tweezers*, (2009) Optics Express, vol. 17, no. 12, pp. 10259– 10264.