

Michaël Wiertlewski

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Education

- 2011 Ph.D. in Mechanics, Acoustics, Electronics, and Robotics. Université Pierre et Marie Curie, Paris, France. Research carried at the CEA LIST
- 2007 Master of Science, Computer Vision. Université Jean Monnet, Saint-Etienne, France
- 2007 Diplôme d'Ingénieur, Mechanical Engineering, Ecole Nationale d'Ingénieurs (ENISE), Saint-Etienne, France

Research Experience

- 12–14 Postdoctoral Researcher, Neuroscience and Robotics Laboratory (NXR), Northwestern University, Evanston IL, USA. "Characterization of the behavior of the fingertip under repeated impacts at ultrasonic frequencies." Advised by J. Edward Colgate
- 11–12 Postdoctoral Researcher, Institut des Systèmes Intelligents et de Robotique, Université Pierre et Marie Curie, Paris, France. "Study of dynamic mechanical events triggering the grip reflex." Advised by Vincent Hayward in collaboration with Alan Wing from the University of Birmingham, UK
- 08–11 Research Assistant, Sensory and Ambient Interfaces Laboratory, CEA LIST, Fontenay-Aux-Roses, France. "Development of a tactual textures rendering devices for post-stroke rehabilitation". Advised by José Lozada and Vincent Hayward.
- 07–08 Research and Development Engineer, Centre de Robotique Intégrée d'Île de France, Paris, France. "Development of two 3 dof robots and their control."
- 06–07 "Master 2" Internship, University of Canterbury, Christchurch, New Zealand. "Design of a multi-camera 3D reconstruction system for breast cancer screening." Advised by Geoffrey Chase
- 05–06 "Master 1" Internship, Laboratoire de Robotique de Paris, Paris, France. "Design and implementation of a 8x8 Braille dots matrix, actuated by shape memory alloy springs." Advised by Edwige Pissaloux and Ramiro Velazquez
- 04–05 Bachelor Internship, ESI Group, Lyon, France. "Implementation of a method to merge phase properties of a tempered material in finite-element analysis software."

Awards

- 2013 Winner of the French National Center for Scientific Research (CNRS) "Prix de thèse du GdR Robotique" that awards the best French Ph.D. thesis in robotics
- 2012 Winner of the 2011 edition of the EuroHaptics Society Ph.D. award
- 2011 Nominated for Best paper award and Best student paper award at the WorldHaptics Conference 2011, Istanbul, Turkey
- 2010 Best paper award at the 2010 Eurohaptics conference, Amsterdam, the Netherlands

Grants

- 13–15 Involved in writing the grant proposal for NSF, Human Computer Interaction program, 1302422 , "Force Feedback for Fingertips" with Edward Colgate and Michael Peshkin as principal investigators
 - 11 Travel grant from Student Exchange Program, IEEE Technical Committee on Haptics
- 08–11 PhD grant from CEA LIST
 - 07 Université Jean Monnet's Excellence scholarship
 - 07 University of Canterbury's scholarship
 - 07 Rhône Alpes - Explor'a scholarship

Teaching and Mentoring

- 11–12 Lecture on Haptics at MSc degree, ENISE, Saint Etienne, France. (2x8 hours)
- 11–12 Introduction to Matlab at MSc degree, ENSTA, Paris, France. (2x36 hours)
 - 12 Introduction to Robotics at BS degree, UPMC, Paris, France. (48 hours)
- 10–12 Supervision of 5 Master degree students and 2 Bachelor degree students.

Community Work

- 14 Co-organizer of the "Surface Haptics" Workshop at Haptics Symposium 2014
- 13 Co-editeur of IEEE's Transaction on Haptics Podcast
- 11–13 Reviewer, WorldHaptics'11,'13, Haptic Symposium'12,'14, ICRA'12, Frontier of Neurorobotics, Journal of Biomechanics, Transactions on Haptics, Transactions on Robotics
- 03–07 President of the robotic club of ENISE. Construction of autonomous mobile robots for the Eurobot annual contest.

Publications and Patents

Book

- B1. M. Wiertlewski, (2013) *Reproduction of Tactual Textures: Transducers, Mechanics, and Signal Encoding*, Springer Series on Touch and Haptic Systems.

Articles in Journals

- J4. A. Klocker, M. Wiertlewski, V. Theate, V. Hayward, J-L Thonnard. *Physical factors influencing pleasant touch during tactile exploration*, PloS One, 8(11), e79085.
- J3. M. Wiertlewski, V. Hayward. (2012) *Mechanical Behavior of the Fingertip in the Range of Frequencies and Displacements Relevant to Touch*. Journal of Biomechanics 45(11):1869–1874
- J2. M. Wiertlewski, V. Hayward. (2012) *Transducer For Mechanical Impedance Testing over a Wide Frequency Range*. Review of Scientific Instruments. 83(2):025001
- J1. M. Wiertlewski, J. Lozada, and V. Hayward. (2011) *The Spatial Spectrum of Tangential Skin Displacement Can Encode Tactual Texture*. IEEE Transactions on Robotics, 27(3):461–472

Conference Proceedings

- C10. D.J. Meyer, M. Wiertlewski, M. Peshkin, J.E. Colgate, (2014) *Dynamics of Ultrasonic and Electrostatic Friction Modulation for Rendering Texture on Haptic Surfaces*, In proc. of Haptics Symposium, In press.
- C9. M. Wiertlewski, S. Endo, A. Wing, V. Hayward. (2013) *Slip-Induced Vibration Influences the Grip Reflex: A Pilot Study*. In proc. of IEEE, Worldhaptics 2013, pp. 627-632.
- C8. S. Okamoto, M. Wiertlewski, V. Hayward. (2013) *Anticipatory Vibrotactile Cueing Facilitates Grip Force Adjustment*. In proc. of IEEE, Worldhaptics 2013, pp. 525-530.

- C7. S. Strachan, M. Wiertlewski, H. Zophoniasson, M. Anastassova. (2013) *ViPong: Probabilistic Haptic Feedback for Eyes-Free Interaction*. In proc. of IEEE, Worldhaptics 2013, pp. 193-198
- C6. C. Hudin, J. Lozada, M. Wiertlewski, V. Hayward. 2012 *Tradeoffs In The Application of Time-Reversed Acoustics to Tactile Stimulation*. In proc. of Eurohaptics 2012. LNCS 7283, Part I, pp. 218-226.
(Best Paper Honorable Mention)
- C5. M. Wiertlewski, C. Hudin, V. Hayward. *On the 1/f Noise and Non-Integer Harmonic Decay of the Interaction of a Finger Sliding on Flat and Sinusoidal Surfaces*. In proc. of IEEE, World Haptics 2011, pages 25-30
(Nominations pour le Best paper et le Best student paper)
- C4. M. Wiertlewski, J. Lozada, E. Pissaloux, and V. Hayward. *Causality Inversion in the Reproduction of Roughness*. In proc. of Eurohaptics 2010, pages 17–24 Springer-Verlag, LNCS 6192 **(Best paper award)**
- C3. M. Wiertlewski, J. Lozada, E. Pissaloux, and V. Hayward. *Tactile Interface for Stimulation of Fingertip via Lateral Traction*. In proc. of Actuators 2010, pages 520–523, 2010
- C2. E. Fontaine, R. Velazquez, M. Wiertlewski, and E. Pissaloux. *Experimental evaluation of a new touch stimulating interface dedicated to information display for visually impaired*. In proc. of ECVHI 2006, pages 55–60
- C1. R. Velazquez, E. Pissaloux, and M. Wiertlewski. *A Compact Tactile Display for the Blind with Shape Memory Alloys*. In proc. of IEEE International Conference on Robotics and Automation 2006, pages 3905–3910

Articles in Periodicals

- G2. M. Wiertlewski, V. Hayward. (2011) *Les Interfaces Tactiles*. Biofutur. vol 30/326 pp. 42-43
- G1. M. Wiertlewski, G. Trannoy, S. Roselier, J. Lozada, M. Hafez. (2008) *Interfaces Tactiles Vibratoires, Application pour le Handicap*. Sciences et Technologies Pour le Handicap, 2(2)

Patents

- P2. C. Hudin, V. Hayward, J. Lozada, M. Wiertlewski. *Interface De Stimulation Tactile Par Retournement Temporel*. French patent application, 1255286, submitted june 6th 2012
- P1. M. Wiertlewski, V. Hayward, J. Lozada, *System for simulating a contact with a surface by tactile stimulation*, french patent (FR 10/55479) and international patent (WO/2012/004214)

Seminars and Talks

- 04/13 Seminar at the Italian Institute of Technology, Genoa, Italy
- 09/13 Invited speaker, National day of robotic research JNRH, Annecy, France
- 04/13 Seminar at the ReTouch Lab, Drexel University, Philadelphia, PA, USA
- 10/12 Poster at Society for Neuroscience, New Orleans, LA, USA (with Anne Klöcker)
- 07/12 Seminar at LIMS, Northwestern University, Evanston, IL, USA
- 06/12 Invited speaker at Eurohaptics 2012, Tampere, Finland
- 12/11 Seminar at the Institute of NeuroSciences, UCL, Louvain, Belgium
- 11/11 Seminar at the SyMoN lab, University of Birmingham, England
- 06/11 Oral presentation at Worldhaptics 2012, Istanbul, Turkey
- 02/11 Oral presentation at the PhD Student days of CEA LIST, Fontenay-Aux-Roses, France
- 07/10 Oral presentation at Eurohaptics 2011, Amsterdam, the Netherlands
- 06/10 Oral presentation at Actuator 2010, Bremen, Germany
- 05/09 Poster at the PhD student day, Université Pierre et Marie Curie, France

Work appearing in

- 2010 Les Défis du CEA – *Textures Virtuelles à Sensation*
- 2010 L'Usine Nouvelle – *Des Textures Électroniques*
- 2010 Technology Review – *Touch Screens that Touch Back*