Curriculum Vitae: Marco Ajovalasit

Prof. Marco Ajovalasit is an Associate Professor in Human Centred Design (HCD) in the Department of Design at Politecnico di Milano, Italy where he teaches modules in User Experience Design, and Digital Interaction Design. Before joining Politecnico di Milano, he was Reader in Human Centred Design at Brunel University London, UK where he was for 12 years. His research expertise is in the field of design for meaning and human-centred design methods leading to products, systems and services which are physically, perceptually, cognitively and emotionally intuitive to their users. Research involves techniques which communicate, interact, empathise and stimulate the people involved in their context, obtaining an understanding of their needs, desires and experiences which often transcends that which the people themselves actually knew and realised. Research focuses on defining human centred design methods for designing products, systems and services based on new meanings for the consumers, including the use of data, designing ethnography, real fictions and co-creation. The research is a multi-disciplinary activity involving elements of cognitive psychology, digital signal processing, human perception, interaction design, philosophy, psychophysics, receptor physiology and social science. A particular emphasis of the research is on the development of a toolkit for designers for organising the consideration of the intended meaning of the designed artefacts. Focus is placed on the thinking process, dialogue and use of semantics consumers typically associate to the understanding of the designed artefact.

Marco Ajovalasit has been the **Principal Investigator (PI)** (2013-2016) of a £3.2M FP7 EU Grant funded project 'Light.Touch.Matters: Design-driven development of touch sensitive luminous flexible plastics for applications in care & well-being", which put together a multi-disciplinary team of designers and material scientists and industry leaders involving four Universities and thirteen SMEs designers from 9 different countries. The research activity involved a design-driven development of a fully new generation of smart materials that combine touch sensitivity with luminescence, based on latest developments in polymeric piezo materials and flexible OLEDs for products for care and well-being applications that can help consumers feel better, monitor or improve their health and increase comfort, such as rehabilitation aids, wearable alarms, and diet coaches. Within the EU project he has developed design guidelines for smart interactions for the consideration of the effects of product properties on the perceptual experiences which occur at a product interface which can elicit emotional engagement.

He has been **Co-Investigator** (2016) of a £95,739 Industrial project, "Robust Automated Servicing of Passenger Train Fluids (RASPT-F)" sponsored by Rail Strategy and Safety Board (RSSB), UK. The project applied robotic autonomous system technology to rail vehicle maintenance. It investigated the technological feasibility for a Robust Automated Servicing of Passenger Trains – Fluids system to perform specific key individual fluid servicing tasks on passenger trains. The project in collaboration with Chiltern Railways, Train Operating Companies and rail industry experts, involving visits to the Wembley Maintenance Depot and other rail facilities to develop a Human Centred Design solution to automation. Duration: 10 months

For ten years (2000-2010) he run an industrial collaborative research project (£284.493) with Shell Global Solutions Ltd. in the field of human sensory perception of automotive vibration and sound stimuli during which period he developed a test standard protocol in collaboration with Shell which served to understand how a driver's feelings of engine roughness or unpleasantness change with changes in the chemical properties of the fuel so as to choose chemical compounds that meet and exceed customer expectations.
In 2009 he was **Principal Investigator** of a £12,429 industrial research grant funded by Shell Global Solutions, UK. He led the project which results in an industrial test methodology to be used by Shell Research ltd.

Marco Ajovalasit has a Ph.D. in Human Factors Engineering from Sheffield University in the United Kingdom and has both Master's and Bachelor's degrees in Mechanical Engineering from the University of Palermo.
Over the years he has participated in numerous EU and UK research projects and has produced more than 30 publications. Most recently he has published a chapter book in Design for Health (2017) edited by Routledge - 'Behavioral strategies of older adults in the adoption of new technology-based products: the effects of ageing and the promising application of smart materials for the design of future products'. He has had a Visiting Professor role in Italy (2014-2016) at the Politecnico di Milano (PoliMI), at the University of Brescia and at the National Research Council (CNR) Institute of Industrial Technologies and Automation (ITIA) in Milan. He has been a session chair on different occasions including a technical workshop on "Techniques for Delivering a Positive Emotional Response to

Products and Environments" held at Warwick University in April 2012, and the European project VIBTOOL session of the 11th International Conference on Hand-Arm Vibration, Bologna, Italy, 2007.

Marco Ajovalasit is a fellow member of the Human Centred Design Institute (HCDI) of Brunel University London in the UK, an Associate Member of the Institute of Ergonomics and Human Factors (IEHF), and he seats in the Sound & Vibration Product Perception (SVPP) committee of the Engineering Integrity Society (EIS).

1 Refereed Journal Papers and Book Chapters

1. Yu-Han Wang and **Ajovalasit, M.** (2020). Involving Cultural Sensitivity in the Design Process: a Design Toolkit for Chinese Cultural Products. Accepted for publication on *The International Journal of Art & Design Education.*
2. Atherton, M., Hill, SA., Harrison, DJ. and **Ajovalasit, M.,** (2019). Economic and technical feasibility of a robotic autonomous system for train fluid servicing. Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit. https://doi.org/10.1177/0954409719830520
3. **Ajovalasit, M.,** Suriano, R., Ridolfi, S., Turri, S., Levi M., (2019). Human Subjective response to alluminum coating surfaces. J Coat Technol Res (2019) 16: 791. https://doi.org/10.1007/s11998-018-00158-2
4. Spinelli, G., Micocci, M., and **Ajovalasit, M.** (2016). Behavioral strategies of older adults in the adoption of new technology-based products: the effects of ageing and the promising application of smart materials for the design of future products. **Book chapter** in Design for Health, Routledge. https://www.routledge.com/Design-for-Health/Tsekleves-Cooper/p/book/9781472457424
5. **Ajovalasit, M.,** Tajadura A., Shabani, A. and Giacomin J., (2013), Human emotional response to steering wheel vibration in automobiles. Int. J. Vehicle Noise and Vibration, Special Issue, Vol.9, Nos. 1/2, pp 109-128. http://www.inderscienceonline.com/doi/abs/10.1504/IJVNV.2013.053820
6. Berber-Solano, T.P., **Ajovalasit, M.** and Giacomin, J., (2013). Effect of steering wheel acceleration frequency distribution on detection of road type. Ingenierìa Mecaànica, Tecnologìa y Desarrollo, Sociedad Mexicana de Ingeniería Mecánica (SOMIM), Vol. 4 No. 4, pp 145 – 151. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1665-73812013000100005
7. Basahel, A., M., Young, M.S. and **Ajovalasit, M**., (2012), Interaction Effects of Physical and Mental Tasks on Auditory Attentional Resources. Peer reviewed **Book chapter** in Advances Cognitive Engineering and Neuroergonomics" (chapter 9) pp 81-90. http://www.crcnetbase.com/doi/abs/10.1201/b12313-12
8. Basahel, A., Young, M. and **Ajovalasit, M.** (2012). Effects of physical and mental workload interaction on visual attentional resources performance. Submitted to the Ergonomics Journal.
9. **Ajovalasit, M.,** Berber, T., and Giacomin, J., (2010), Facilitating the driver detection of road surface type by selective manipulation of the steering wheel acceleration signal. Proceedings of the IMechE, Part D - Journal of Automobile Engineering, Vol. 224, pp. 1321-1333.
10. Jeon, B., **Ajovalasit, M.** and Giacomin, J., (2009) Effects of gender differences on the subjective perceived intensity of steering wheel rotational vibration. International Journal of Industrial Ergonomics, Vol. 39, No.5, pp.736-743. http://doi.org/10.1016/j.ergon.2009.02.010
11. **Ajovalasit, M**. and Giacomin, J, (2009), A Survey Study of Steering Wheel Vibration and Sound in Automobiles at Idle. Journal of Engineering Integrity Society, Vol. 26, March, pp. 6-14.
12. **Ajovalasit, M**. and Giacomin, J., (2009), Non-linear dependency of the subjective perceived intensity of steering wheel rotational vibration. International Journal of Industrial Ergonomics, Vol. 39, pp 58-67.
13. **Ajovalasit, M.** and Giacomin, J., (2007), Effect of automobile operating condition on the subjective equivalence of steering wheel vibration and sound. International Journal of Vehicle Noise and Vibration (IJVNV), Vol.3, No. 2, pp. 197-215.

14. Gnanasekaran, S., **Ajovalasit, M**. and Giacomin, J., (2006), Driver estimation of steering wheel vibration intensity: laboratory-based tests. Engineering Integrity, Vol. 20, September, pp 25-31.

15. **Ajovalasit, M.** and Giacomin, J., (2005), Human subjective response to steering wheel vibration caused by diesel engine idle. Proceedings of the IMechE, Part D - Journal of Automobile Engineering, Vol 219, No. 4, pp 499-510.

16. Giacomin, J. and **Ajovalasit, M.** (2004), Human perception of diesel engine idle vibration, ATA Ingegneria dell'Autoveicolo, Vol. 57, N.5/6, pp 52-56.

17. **Ajovalasit, M.** and Giacomin, J., (2003), Analysis of variations in diesel engine idle vibration. Proceedings of the IMechE, Part D - Journal of Automobile Engineering, Vol. 217, No. 10, pp 921-933.

2 Editorial Work

1. **Ajovalasit M**, Tajadura, A., and Giacomin, J, (2012), Editorial Material for the Special Issue of International Journal of Vehicle Noise and Vibration (IJVNV) on "Human emotional response to sound and vibration in automobiles".

2. **Ajovalasit, M**. and Giacomin, J., (2011), Editorial Material for the Special Issue on human perception of sound and vibration in automobiles. Proceedings of the IMechE, Part D - Journal of Automobile Engineering, Vol. 224, D10.

3 Magazines

1. **Ajovalasit, M.,** Montesano, L., Pola, A. (2016). L'importanza delle proprietà espressive-sensoriali dei materiali per la produzione dei cerchioni auto in lega di alluminio. Fonderia, Giugno 2016.

2. **Ajovalasit, M**. and Minuzzi J. (2015), Design for Motivation. The Ergonomist N.542, August 2015.

3. **Ajovalasit, M.** and Micocci M., (2014), Enhancing human experience using smart materials. The Ergonomist N.531, September 2014.

4 Conference Papers

1. **Ajovalasit, M.** and Giacomin, J. (2019). Meaning of Artefacts: interpretations can differ between designers and consumers. Conference Proceedings of the Academy for Design Innovation Management (ADIM2019), 2(1), 1178–1188. https://doi.org/10.33114/adim.2019.02.266

2. **Ajovalasit, M**., Giacomin, J., Gkatzidou, V., Jenson Bennett, J., & Pettersson, I. (2019). Track 5.j Introduction: Innovation Through Design for Meaning. Conference Proceedings of the Academy for Design Innovation Management , 2(1), 1162–1164. https://doi.org/10.33114/adim.2019.5j

3. Atherton, M., Hill, SA., Harrison, DJ. and **Ajovalasit, M.** (2017) 'Feasibility of Robotic Autonomous System for Train Fluid Servicing'. *RRUKA Annual Conference.*King's Place, London. 16 November. https://bura.brunel.ac.uk/handle/2438/15703

4. Hill, SA., Atherton, **M., Ajovalasit**, M. and Harrison, D. (2017) 'Robust automated servicing of passenger train fluids'.*The Stephenson Conference: Research for Railways.* IMechE, 1 Bridcage Walk, London. 25 - 27 April https://bura.brunel.ac.uk/handle/2438/14008

5. Micocci M., Spinelli G. and **Ajovalasit M.** (2016), Actualizing agency through Smart Products: Smart Materials and metaphors in support of the ageing population. 6th STS Italia Conference - Sociotechnical Environments", 24th-26th November 2016, University of Trento, Italy.

6. **Ajovalasit, M.,** Micocci, M., Adam, R. (2016), Embedding Smart Materials into products to motivate the user: Flexers, a smarter approach to finger splinting, 10th International Conference on Applied Human Factors and Ergonomics, AHFE2016, Florida, USA, 27th - 31 July 2016. http://link.springer.com/chapter/10.1007/978-3-319-41983-1_12

7. Ridolfi, S., Suriano, R., **Ajovalasit,** M., Levi, M. and Turri S.(2015), Human Centred Design of engineered surfaces and coatings. INSTM CONFERENCE, Favignana (TP), 28th June–1st July 2015.

8. **Ajovalasit, M**., Shabani, A., Tajadura, A. and J. Giacomin. (2012), Affective reactions to vibro-tactile events: A case study in automotive applications. Proceedings of the 8th International Conference on Design & Emotion (Out of Control), London, United Kingdom, 11th- 14th September. 2012**.**

9. King B. and **Ajovalasit, M.** (2012), Mobile Device Tactile Interaction In Multi-Tasking Activities. Proceedings of the 8th International Conference on Design & Emotion (Out of Control), London, United Kingdom, 11th – 14th September. 2012.

10. Basahel, A., M., Young, M.S. and **Ajovalasit, M**., (2012), Interaction Effects of Physical and Mental Tasks on Auditory Attentional Resources, 4th International Conference on Applied Human Factors and Ergonomics (AHFE 2012) on 21-25 July 2012 in San Francisco, USA.

11. Basahel, A., Young, M. and **Ajovalasit, M.** (2010), The Significance of Verbal and Spatial Attentional Resources on Mental Workload and Performance, 2nd International Conference on Advanced Cognitive Technologies and Applications COGNITIVE 2010, Lisbon, Portugal, November 21-26.

12. Basahel, A., Young, M. and **Ajovalasit, M**. (2010), Effects of interaction between physical and mental workload on human performance. Annual Conference of the Institute of Ergonomics and Human Factors on Contemporary Ergonomics and Human Factors 2010;Keele; April 13th -15th.

13. Basahel, A., Young, M. and **Ajovalasit, M**. (2010), Impacts of physical and mental workload interaction on human attentional resources performance, The 28th European Conference on Cognitive Ergonomics (ECCE), Delft, Netherlands, August 25-27.

14. **Ajovalasit, M** (2009), How can vibro-tactile sensations be presented to various body areas in order to enhance sensory information in everyday product? Key issues in sensory augmentation workshop, Institute of development studies, University of Sussex, Brighton, 26-27th March.

15. **Ajovalasit, M**. and Giacomin, J., (2007), Hand-arm equal sensation curves for steering wheel rotational vibration, will be presented at the 11th International Conference on Hand-Arm Vibration, Bologna, Italy, 3–7 June 2007.

16. **Ajovalasit, M.** and Giacomin, J., (2006), Effect of automobile operating condition on the subjective equivalence of steering wheel vibration and sound, presented at ISMA 2006 International Noise and Vibration Engineering Conference, Leuven (Belgium) 18-20 September 2006.