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Educational Background and Research Interests

Maria Teresa Restivo has a Physics degree in Solid State Physics and a Ph.D. in Engineering Sciences, both at University of Porto. In 1988 she became a senior researcher at the Faculty of Engineering, University of Porto (FEUP), working in the Automation, Instrumentation and Control area at the Mechanical Engineering Department (DEMec). She also has been teaching at under and postgraduate level.

In 1992-1994 she was the coordinator of the Automatic Systems area of the Mechanical Engineering Research Centre. In 1994-2000 was joint coordinator of the Physics, Acoustic and Telecommunication Research Unit. In 2005 she joined the research Unit of System Integration and Process Automation (UISPA) integrating the Associated Laboratory of Energy, Transports and Aeronautics (LAETA). She coordinates it since December 2007.

She is member of the Scientific Council at FEUP.

Her activity is related with the sensors development, wireless sensorization, online experimentation (remote experiments and virtual reality interaction with Haptic devices, mixed reality and augmented reality applications), development of sensorized devices of bioengineering for biological measurement and for distance assisted rehabilitation and ageing, use of ICTs and haptic devices in higher education (remote and virtual labs).

She is responsible for the Instrumentation for Measurement Laboratory at FEUP.

She is author (co-author) of articles and 5 books at National and International publishers, one of them was award at national and international level, among other prizes both in R&D. She has been project co-ordinator and team member at national level and as FEUP's partner in European projects. She has been involved in supervising MSc and PhD theses. She has four national patents and one international, and one international still pending. She got the pedagogical qualifying of ING-PAED IGIP – International Engineering Educator (PT003). She is Individual and Institutional (FEUP) Member of the VIT@LIS network and of ELTF – EUNIS and Institutional Member of the Global Online Consortium (GOLC). She was President of SPEE - Portuguese Society for Engineering Education (Feb.2010-May2012). She was Vice-President of IEEE Education Society, Portuguese Chapter (January 2011-14). She is Executive Committee member of GIP - International Society for Engineering Education (September 2010 -) and Executive Committee member of the International Association of Online Engineering (IAOE).

Projects Involvement (last 5 years)

Coordinator of System Integration and Process Automation Research Unit of Associated Laboratory LAETA,
December 2007-

Project Team, NORTE-01-0145-FEDER-000022 - SciTech - Science and Technology for Competitive and Sustainable Industries, co-financed by Programa Operacional Regional do Norte (NORTE2020), through Fundo Europeu de Desenvolvimento Regional (FEDER), 2015-2020.

Project Partner Leader of "U_Academy", Calouste Gulbenkian Foundation, 2015-2016.

Project Team, PEst-OE/EME/LA0022/2013, Portuguese Science and Technology Foundation, 2013-14.

Project Leader, "Partilha e divulgação de experimentação online em cursos de engenharia, suportada por experiências remotas, realidade virtual e aumentada e, interação com dispositivos sensoriais" in "Partilha e Divulgação de Experiências com Inovação Didática", Portuguese Science and Technology Foundation (FCT), FEUP, 2014.

Project Team, "Partilha e divulgação de experimentação online em cursos de engenharia, suportada por redes de sensores e atuadores sem fios e por conteúdos multimédia", in "Partilha e Divulgação de Experiências com Inovação Didática", FCT, Universidade de Coimbra, 2014.

Project Team, PROJECTO ESTRATÉGICO - LA 22 - 2013-2014 (PEst-OE/EME/LA0022/2013), financed by Portuguese Foundation for Science and Technology.

Project Partner leader, NeReLa – Building network of remote labs for strengthening university secondary vocational schools collaboration, 543667-TEMPUS-1-2013-1-RS-TEMPUS-JPHES, December 2013-16.

FEUP Co-leader "Fulbright Specialist Project 5622", for supporting an American expertise in teachers' development, FEUP, 2013-2014.

Project Partner leader, "Experiment@Portugal'2012", funded by Fundação Calouste Gulbenkian, 2012.

Project Team, "Engineering Design, Automation and Innovation Management", NORTE-07-0124-FEDER-000035", From Research to Innovation, QREN/ON2-SAESCTN-PIIC&DT/1/2011, 2011-2015.

Project Team, "Biomechanics: Contributions to Healthcare", NORTE-07-0124-FEDER-000034", From Research to Innovation, QREN/ON2-SAESCTN-PIIC&DT/1/2011, 2011-2015.

Project Leader, "Experiment@Portugal", funded by Fundação Calouste Gulbenkian, 2010.

Granted by TEMPUS Application MU09A0645UP for teachers mobility, 2010.

Lifelong learning program Erasmus, 2009/2010, Slovenska Technicka Univerzita Bratislave (Katarina Zakova)/FEUP (Teresa Restivo).

Project Team, "European of Network of Environmental Evaluation and Services, ENEAS", REF: PS: PT0011, 2007-2011.

Multidisciplinary Projects Including Students (last 5 years)

Project Leader, DINAM - Estudo da validade de um dinamómetro para avaliar a força muscular da mão, Youngers' incentive to research activities at U.Porto (iJUP), funded by UPorto – Santander, Oct 2011 - Sept.12.

Project Team, LabVIH – Laboratórios virtuais com interação háptica ", (iJUP), funded by UPorto – Santander, Oct 2011 - Sept.12.

Project Leader, "LipoTotal - Projecto mecânico de um novo Lipocalibrador", (iJUP), funded by UPorto and Santander Totta, IPG117/2009, Oct.2009-Sept.2010.

Project Team, "SeepTool - Equipamento de Estudo em Modelo Reduzido da Percolação de Água em Solos", (iJUP), funded by Universidade do Porto and Santander Totta, IPG84/09, Oct.2009-Sept.2010.

Project Team, "Sensores de Fibra Óptica para o Estudo dos Fenómenos da Percolação da Água em Solos", (iJUP), funded by Universidade do Porto and Santander Totta, Oct.2009-Sept.2010.

Sample of papers in international journals with referees (last 5 years – in R&D or Teaching)

- Luis de la Torre, Tiago Faustino Andrade, Pedro Sousa, José Sánchez, Maria Teresa Restivo, Assisted Creation and Deployment of Javascript Remote Experiments, accepted for publication in iJOE.
- Eva Barreira, Joaquim Gabriel, Isabel S. Carvalho, Maria Teresa Restivo, Vasco Peixoto Freitas, Exploring On-Line Meteorological Resources in Engineering, *iJOE*, Vol 12, No 06, pp 28-33, (2016)
- Carneiro F., Quintas M. R., Abreu P. and Restivo, M. T., Design and Test of a 1 DOF Haptic Device for Online Experimentation, *International Journal of Online Engineering-ijOE*, Vol. 12 Issue 4, p55-57, (2016).
- Guerra RS, Fonseca I, Pichel F, Restivo MT, Amaral TF. Handgrip Strength and Associated Factors in Hospitalized Patients, *JPEN J Parenter Enteral Nutr.* 2015; 39(3):322-30.
- Guerra RS, Amaral TF, Sousa AS, Pichel F, Restivo MT, Ferreira S, Fonseca I. Handgrip strength measurement as a predictor of hospitalization costs, *Eur J Clin Nutr.* 2015, 69(2):187-92
- M. R. Quintas, T. F. Andrade, M. T. Restivo, M. F. Chouzal, T. Amaral, LipoWise: A New Generation of Skinfold Calipers, *Sensors & Transducers journal*, Vol. 185, Issue 2, Feb. 2015.
- M. T. Restivo, M. F. Chouzal, J. Rodrigues, P. Menezes, B. Patrão, J. B. Lopes, Augmented Reality in Electrical Fundamentals, *iJOE*, Vol 10, No 6 (2014), pp. 68-72.
- M. T. Restivo, A. M. Lopes, L. Machado, R. Moraes, M. F. Chouzal, Feeling Materials' Stiffness by Haptics for Training, *J. Mater. Ed.* 36 (3-4). 51-67 (2014).
- R S Guerra, I Fonseca, F Pichel, M T Restivo and T F Amaral, Hand length as an alternative measurement of height, *Eur. J. Clin. Nutr.*, 2014; 68(2):229-33.
- M T Restivo, F. G. Almeida and D. Freitas, Measuring relative acceleration: a relative angular acceleration prototype transducer, *Meas. Sci. Technol.* 24 (2013), 025101, (8pp).
- P. Xia, A. M. Lopes, M. T. Restivo, (2013) A review of virtual reality and haptics for product assembly: from rigid parts to soft cables, *Assembly Automation*, Vol. 33 Iss: 2, pp.157 – 164.
- M. T. Restivo, A. Cardoso, The Portuguese Contribution for lab2go - pt.lab2go, *iJOE (SI REV2012 Exhibition)*, Vol. 9 (2013), pp. 7-9.
- P. Xia, A. M. Lopes, M. T. Restivo, Y. Yao, A New Type Haptic-based Virtual Environment System for Assembly Training of Complex Products, *The International Journal of Advanced Manufacturing Technology*, (2012), Vol. 58, Iss: 1-4, pp 379-396.
- M. T Restivo, T. F Amaral, M F Chouzal, C. P Leão, R. S Guerra, E. Marques, J. Mendes, M. Quintas, J. Mota, A digital Calliper for training and study purposes, *Asia Pacific Journal of Clinical Nutrition* Vol 21(2), 2012, pp 182-90,
- P. Xia, A. M. Lopes, M. T. Restivo, Virtual reality and haptics for product assembly, *International Journal of Online Engineering (iJOE)*, Vol 8 (2012).
- P. Xia, A. M. Lopes and M.T. Restivo, Design and Implementation of a Haptic-based Virtual Assembly System, *Assembly Automation Journal* (2011), Vol. 31, Issue 4, pp. 369–384.
- T. F. Amaral, M.T. Restivo, et al., Accuracy of a digital skinfold system for measuring skinfold thickness and estimating body fat, *British Journal of Nutrition*, (2011), 105, 478-484.
- Borges, M. T., Mendes, J. G., Restivo, M. T., Pereira, C. M., Linking R&D Activities with Teaching: Water Quality Monitoring in Aquaculture as a Remote Laboratory Proxy for Environmental Studies, *SI iJET*, (2011), Vol. 6.
- M.T. Restivo et al., A Remote Lab in Engineering Measurement, *IEEE Trans. on Industrial Electronics*, vol. 56, nº12, pp 4436-4843, December 2009.

Books (last 5 years in R&D or Teaching)

- M. T. Restivo, A. Cardoso and A. M. Lopes, Editors, Online Experimentation: Emerging Technologies and IoT, International Frequency Sensor Association (IFSA) Publishing, ISBN 978-84-608-5977-2, December 2015.
- M. T. Restivo, F. G. Almeida, M. F. Chouzal, Displacement Measurement, International Frequency Sensor Association (IFSA) Publishing, ISBN 9788461735990, December 2014.
- M. T. Restivo, F. G. Almeida, M. F. Chousal, Medição de Deformação, ISBN: 978-989-746-028-9, U.Porto Editorial, 2013.
- M. T. Restivo, F. G. Almeida, M. F. Chouzal, Strain Measurement, IFSA Publishing, ISBN: 978-84-615-9897-7, July 2012.
- M. T. Restivo, et al., "Handbook of Laboratory Measurements and Instrumentation", International Frequency Sensor Association (IFSA) Publishing, Barcelona, May 2011, ISBN: 978-84-615-1138-9.

Book Chapters (last 5 years in R&D or Teaching)

- P. Xia, A. M. Lopes and M. T. Restivo, Virtual Reality and Haptics for Product Assembly, Surgical Simulation and Online Experimentation, Chapter 23 in Online Experimentation: Emerging Technologies and IoT, International Frequency Sensor Association (IFSA) Publishing, ISBN 978-84-608-5977-2, December 2015.
- M. T. Restivo, G. R. Alves, Acquisition of higher-order experimental skills through remote and virtual laboratories, Chap. XIII, pp 321-347, in IT Innovative Practices in Secondary Schools: Remote Experiments, O. Dziabenko and J. García-Zubía (eds.), Univ. Deusto, 2013.
- J. M. Ferreira and M. T. Restivo, "Laboratórios On-line: Casos de estudo e direções de trabalho futuro", Seção II, Cap. 3, A Educação em Engenharia. Fundamentos teóricos e possibilidades didático-pedagógicas, Org. L. Andreatta and C. Nitke, Ed. UFRGS, ISBN 978-85-386-0174-6, pp. 177-206, 2012.
- M. T. Restivo, On the use and promotion of Remote Labs in Portugal: A Personal Commitment in Using Remote Labs in Education, Two Little Ducks in Remote Experimentation, Javier García Zubía and Gustavo R. Alves (eds.), ISBN: 978-84-9830-335-3, Chapter , pp. 441-464, 2011.
- Carvalho, I. S., Bereczky, A., Schmerl, G. and Restivo, M. T., International Cooperation in Remotely Accessed Tools to Support Engineering Education, in "Innovations 2011: World Innovations in Engineering Education and Research", iNEER, Potomac, MD, USA, 2011, Chapter 2, pp. 13-26.
- J.O. Uhomobhi, J. Palma, P. Alves, M. T. Restivo, et.al., Development of E-Learning in Higher Education and Future Directions, in Innovations 2011, iNEER, Potomac, MD, USA, 2011, Chapter 4, pp. 35-49.

Teaching Activities (last 5 years)

Electronics and Instrumentation, Integrated Master in Mechanical Engineering (MIEM) FEUP, 1^o semester, 4 year, Responsible Lecturer, ended by 2013-14.

Systems I, Master in Mechanical Engineering and Industrial Management, Escola Superior de Tecnologia do Instituto Politécnico de Viseu, Co-Lecturer, 2009/2010.

Instrumentation for Measurement, Acquisition and data Transmission, Doctoral Program in Mechanical Engineering, Responsible Lecturer.

Dissertation in Integrated Master in Informatics and Computers, in Electrical and Computers and Mechanical Engineering, cooperation in different moments as Supervisor or Co-supervisor.

Instrumentation for Measurement, 2nd year, 2nd semester, MIEM, 2013-14 ---, Responsible Lecturer.

Innovation in Biodesign, 1st semester, Bioengineering Integrated Master, Co-supervision of a students group, 2012-13.

Bioengineering Project, FEUP, 2012/13. Co-supervision of a students' group.
Applications of Mechatronics Systems, 1st semester, 5th year, supervision of 5 students
Integrated Master thesis in Mechanical Engineering, Automation area, supervision/co-supervision
Integrated Master thesis in Electrical and Computers Engineering, supervision/co-supervision
Integrated Master thesis in Informatics and Computing Engineering, co-supervision

Patents and Licensed Prototype (last 5 years)

System for hand rehabilitation in dexterous manipulation of daily objects, February 2016.
Dispositivo pra medir força e energia musculares, P300.3PP, september 2015.
Device for Measuring Skinfold Thickness, USA Patent 13/807 658 granted (December 2015); European Patent EP10809178.6 pending. Technology licenced by U.Porto to a company in the field of medical devices, METABLUE.
Dispositivo para Medição de Espessura de Pregas Cutâneas, INPI nº 105187, PT, 2-07-2010, granted (Oct. 2013).
Lipowise, licenced prototype by UPorto to Metablue

Prizes and Awards (last 5 years in R&D or Teaching)

2016, Scientific Recognition of Faculty of Engineering of University of Porto, M. Teresa Restivo
2015, Linking experiments with the real world", 2º place in "Prémio Docentes de Engenharia" in "As Novas Fronteiras da Engenharia", Ordem dos Engenheiros da Região Centro, J. C. Marques, et al.
2015, GOLC Online Laboratory Award 2015 (category "Simulation Laboratory"), M. Teresa Restivo *et al.*
2015, Scientific Recognition of Faculty of Engineering of University of Porto, M. Teresa Restivo
2014, 1st Place Fresenius Kabi de Nutrição Clínica, R. Guerra, et al.
2013, 2nd Place APNEP 2013, Guerra RS, *et al.*
2013, Best Demo, Exhibition Session I, exp.at'13, M. Teresa Restivo, *et al.*
2012, Silver Medal, Salon International des Inventions Genève, Geneva, Switzerland, M. Quintas, *et al.*
2012, Scientific Recognition Faculty of Engineering of University of Porto, M. Teresa Restivo.
2012, Honorable Mention, Blended Learning "experiment@portugal", International E-Learning Awards, Academic Division (IELA), M. Teresa Restivo, et al.
2012, Travel Fellowship, Guerra RS, *et al.*
2011, Honorary Medal of International Society for Engineering Education (IGIP), 2011, M. Teresa Restivo
2010, Nutrition Award 2010, 1st place Innovation, 2010, M. Teresa Restivo, *et al.*
2010, Award "FEUP Colheita 75", 2010, M. Teresa Restivo, *et al.*

Editorial Activity in R&D or Teaching

Editorial Advisory Board, International Journal on Advances in Systems and Measurements, 2016-
Editorial Board, International Journal of Applied Engineering and Technology (JET), 2014-
Editorial Board, International Journal of Computer Science and Engineering Applications (IJCEA), 2014-
Western Europe Regional Associate Editor, International Journal of Online Engineering, iJOE, 2012-
Editorial Board of International Journal of Online Engineering, iJOE, 2012 -
Editorial Board of International Journal of Engineering Pedagogy, iJEP, 2011 -
Editorial Coordination of SPEE Newsletter between January 2011 and April 2012

Editorial Board of International Journal on Advances in Systems and Measurements, 2010 -

Associate Editor The Interface, IEEE Education Society, ASEE Electrical and Computer Engineering Division, 2009

Editorial Advisory Board, Sensors & Transducers Journal (ISSN 1726- 5479), 1998-

February, 2016