
CURRICULUM VITAE Prof. EMANUELE ZAPPA, PhD

Education: Degree in Mechanical Engineering (1998), Politecnico di Milano, Milano, Italy; PhD in Applied Mechanics (2002), Politecnico di Milano, Milano, Italy.

Current position: Full Professor in Mechanical and Thermal Measurements, Politecnico di Milano, Milano, Italy.

Bibliometric Data from Scopus: Documents by author: 126, h-index: 19 (September 2nd, 2021)

Scientific and academic roles:

- Associate Editor in Chief of the IEEE Transaction on Instrumentation and Measurement since June 17th 2021.
- Associate Editor of the IEEE Transaction on Instrumentation and Measurement, from January 1st 2017 to June 16th 2021.
- Member of the Administration Board of the Department of Mechanical Engineering of Politecnico di Milano since December 2011.
- Member of the board of experts invited by the Italian National Agency for the Evaluation of Universities and Research Institutes, for Research Quality Assessment, 2011-2014.
- Head of the communication activities for the Department of Mechanical Engineering of Politecnico di Milano since December 2011.

Research activities:

The scientific activity of prof. Emanuele Zappa is mainly in the fields of 2D and 3D image-based measurements and conservation of cultural heritage. In the field of 3D vision-based measurements, the focus of the research is mainly on the following measuring principles: Digital Image Correlation (DIC), fringe projection 3D scanning, and stereoscopy. The most recent research in this area is aimed at analyzing the uncertainty of the Digital Image Correlation (DIC) technique in both static and dynamic applications, as well as proposing approaches to reduce this uncertainty. The 3D vision-based systems developed and qualified are applied also in a wide variety of other research themes, including: structure dynamics analysis, helicopter blades tracking, face-based biometrics, fluid-structure interaction, 3D scanning and material characterization. As for the conservation of cultural heritage, the research is focused in particular on the development of techniques and devices for protection of works of art against human and vehicle induced vibration, as well as against earthquakes. To this purpose, a significant effort is devoted to the development and validation of measurement systems, including long term monitoring, aimed to obtain information on the work of art under analysis without damaging it, for the design of protection devices, and to generate early warnings in the case of potentially dangerous conditions.

Contributes in these research topics cover: the measuring techniques development, the corresponding applications in complex and hostile environments, as well as the qualification and reduction of the measuring uncertainty in dynamic applications.

Main projects:

- **Work Package Leader** of the **Manoeuvres project, funded by the European Union**. Full title: "Manoeuvring Noise Evaluation Using Validated Rotor State Estimation Systems", call Identifier: SP1-JTI-CS-2013-01, Grant agreement no: 620068
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- Member of the **ENDURE project, funded by the European Union**. Project full title: “European Network for Durable Reinforcement and Rehabilitation Solutions”, Marie Curie Initial Training Networks (ITN), Call Identifier: FP7-PEOPLE-2013-ITN, G.a. no.: 607851

Awards:

- In 2018, 2019 and 2020 he has been selected as one of Outstanding Associate Editors of the IEEE Transactions on Instrumentation and Measurement (<http://tim.ieee-ims.org/content/outstanding-associate-editors>).
- Outstanding reviewer for the *IEEE Transactions on Instrumentation and Measurement*, 2017
- Certificate of Excellence in Reviewing from *Optics and Lasers in Engineering* in 2013 and 2018
- Certificate of Outstanding Contribution in Reviewing from *Measurement* in 2018, from Mechanical Systems and Signal Processing, 2017, and from Journal of Visual Communication and Image Representation in 2017
- In 2011 was awarded a funding for a research project aimed at developing techniques to estimate the uncertainty of stereoscopic vision systems by the Department of Mechanical Engineering of Politecnico di Milano.
- In the years 2007, 2009, 2011 and 2012 prof. Zappa was awarded as one of the 5 researchers that obtained the highest scientific productivity among the researchers of the Department of Mechanical Engineering of Politecnico di Milano.
- In 2005, together with prof. Alfredo Cigada and Dr. Remo Sala, prof. Zappa obtained the prize for the best business idea and Business Plan in the “Startcup 2005, Milano Lombardia” competition. This prize also provided part of the funding which were used to found the company Innovative Security Solutions (ISS) srl, spin-off of Politecnico di Milano, in 2006. prof. Zappa was a co-founder of this company.

Technology transfer activities and patents:

- Prof. Zappa is one of the three co-founder of the Politecnico di Milano spin-off company Innovative Security Solutions (ISS) srl, founded in 2006.
 - Alfredo Cigada, Remo Sala, Emanuele Zappa, Italian national patent N. 0001369131, approved on January 11th 2010, title: ‘Metodo per l’acquisizione di immagini stereoscopiche finalizzate alla verifica di identità’; (submitted on April 3rd 2006, document number BG2006A000019).
 - Vincenzo De Astis, Alfredo Cigada, Emanuele Zappa, Stefano Manzoni, International patent pending N. PCT/IT2011/000421, 29th December 2011, ‘Monitoring system of an intrusion barrier’. PCT/IT/2011/000422
 - Vincenzo De Astis, Alfredo Cigada, Emanuele Zappa, Stefano Manzoni, International patent pending N. PCT/IT2011/000422, 29th December 2011, ‘Method to assign a zone identifier to an intrusion barrier’. PCT/IT/2011/000422
 - Vincenzo De Astis, Alfredo Cigada, Emanuele Zappa, Stefano Manzoni, International patent pending N. PCT/IT2011/000423 29th December 2011, ‘Monitoring device of an intrusion barrier’. PCT/IT/2011/000423
 - Matteo Redaelli, Luca Riviello, Attilio Colombo, Lorenzo Trainelli, Emanuele Zappa, Alberto Rolando, Potito Cordisco, Edoardo Vigoni, Mauro Terraneo, Riccardo Grassetti, European Patent Application No. 16164552.8 filed on April 8, 2016, ‘Rotor for a hover-capable aircraft and method for detecting the attitude of a blade with respect to a hub of such a rotor’
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