

PERSONAL INFORMATION



Ileana Bodini

📍 via Arnaldo da Brescia, 49, 25016 Ghedi (BS) (Italia)  
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📅 Birth date 14/10/1978 | 🇮🇹 Nationality Italiana

RESEARCH INTERESTS

2D and 3D vision systems: measurements, recognition, tracking, diagnostics  
Mechanical and Thermal Measurements: vibrations, modal analysis, diagnostics  
Reverse engineering  
Augmented reality, human-machine interactions

EDUCATION

20<sup>th</sup> April 2010

**Ph.D.**

University of Padua (Italy)

PhD School of Research in Sciences, Technologies and Measurements for Space – Mechanical Measurement for Engineering. Thesis title: “Non-destructive techniques for diagnostics, based on vibration measurements”.

29<sup>th</sup> March 2006

**Master's degree**

University of Brescia

Title: “Design of innovative measurement systems based on cosmic rays detection”.

July 1197

**High school graduation**

Liceo A. Calini  
Via Montesuello, 2, 25128 Brescia (Italia)

High school science

PROFESSIONAL EXPERIENCE

01/01/2017–today

**Research fellow**

University of Brescia  
Piazza del mercato, 15, 25121 Brescia (Italia)

Research

- Development and characterisation of a system for roughness measurements of specimen surfaces during Rolling Contact Fatigue tests.

Teaching

- Teaching support for the course of 2D vision systems
- Teaching support for the course of Mechanical vibrations and Industrial measurements

01/12/2015–30/11/2016

**Research fellow**

University of Brescia  
Piazza del mercato, 15, 25121 Brescia (Italia)

Research

- Design, Dimensioning, Development and characterisation of a 2D and 3D vision system based on a fast camera and multiple laser illumination for on-line measurement and

monitoring of the surface of specimens undergoing rolling contact fatigue tests.

Teaching:

- Teaching support for the course of 2D vision systems
- Teaching support for the course of Mechanical vibrations and Industrial measurements

01/09/2015–30/11/2015 **Research fellow**

University of Brescia  
Piazza del mercato, 15, 25121 Brescia (Italia)

Research

- Design, dimensioning, development, characterisation and prototype realisation of a vision-based measurement system for deformation measurements of a fall-arrestor system.

Teaching:

- Teaching support for the course of 2D vision systems
- Teaching support for the course of Mechanical vibrations and Industrial measurements

01/09/2014–31/08/2015 **Research fellow**

University of Brescia  
Piazza del mercato, 15, 25121 Brescia (Italia)

Research

- Dimensioning and realisation of a 2D-vision-based prototype for food and beverage recognition and barcode reading, using a smart-camera (Smartbreak project – Smart cities, Regione Lombardia).

01/11/2012–10/07/2014 **Research fellow**

University of Brescia  
Piazza del mercato, 15, 25121 Brescia (Italia)

Research

- Planning and correction of machine-tools path on a hydroforming machine.
- Measurement tests to obtain the strength-deformation relation of memory form polymeric stents, for biomedical applications.

Teaching

- Teaching support for the course of Mechanical and Thermal Measurements
- Teaching support for the course of Laboratory of vibration measurements

01/11/2011–31/10/2012 **Research fellow**

University of Brescia  
Piazza del mercato, 15, 25121 Brescia (Italia)

Research

- Vibration diagnostics and modal analysis
- On-board comfort and infrastructure measurements.

Teaching

- Teaching support for the course of Mechanical and Thermal measurements
- Teaching support for the course of Laboratory of vibration measurements

01/09/2010–31/08/2011 **Research fellow**

University of Brescia  
Piazza del mercato, 15, 25121 Brescia (Italia)

## Ileana's curriculum vitae

### Research

- Miglioramento della sicurezza stradale attiva e del comfort a bordo di veicoli.
- Diagnostica per mezzo di misure di vibrazione ed analisi modale

### Teaching

- Teaching support for the course of Mechanical and Thermal measurements

03/01/2010–31/08/2010

### Research collaboration

Department of Mechanical and Industrial Engineering – University of Brescia

via Branze, 38, 25123 Brescia (Italia)

### Research

- Diagnostics and modal analysis
- On-board comfort measurements.
- Collaboration with Thales Alenia Space: integration of the CM part of the Lisa Pathfinder project, a posteriori uncertainty assessment

### Teaching

- Teaching support for the course of Measurement Basis
- Teaching support for the course Industrial measurements and diagnostics
- Teaching support for the course of Mechanical and Thermal measurements

02/01/2007–31/12/2009

### Ph.D.

Department of Mechanical and Industrial Engineering – University of Brescia

via Branze, 38, 25123 Brescia (Italia)

### Research

- Diagnostics and modal analysis
- On-board comfort measurements.
- Collaboration with Thales Alenia Space: definition of a procedure for the integration and the alignment of the CM part, a priori uncertainty budget and a posteriori uncertainty assessment

### Teaching

- Teaching support for the course of Measurement Basis
- Teaching support for the course Industrial measurements and diagnostics
- Teaching support for the course of Mechanical and Thermal measurements

14/09/2006–04/01/2007

### Mechanical engineer

Energy Watt S.r.l.

Via C. Colombo, 27, 25013 Carpenedolo (Italia)

Technical employee.

04/2006–09/2006

### Research collaboration

Department of Mechanical and Industrial Engineering – University of Brescia

via Branze, 38, 25123 Brescia (Italia)

Applied experimental Physics and Mechanical measurements.

09/2002–12/2008 **Engineering draftsman**  
 Vazzoler s.r.l  
 via San Gervasio, 15, 25010 Cigole (Italia)  
 Technical employee.

PERSONAL SKILLS

Mother tongue italiano

Other languages

	COMPREHENSION		SPEAKING		WRITING
	Listen	Read	Listen	Speak	
English	C2	C2	C1	C1	C2
German	A1	A2	A1	A1	A1

Levels: A1 e A2: basis user - B1 e B2: autonomous user - C1 e C2: advanced user  
 Common European Framework for Languages

Digital skills

SELF-ASSESSMENT				
Information elaboration	Communication	Content creation	Security	Problem solving
Advanced user	Advanced user	Advanced user	Advanced user	Advanced user

Competenze digitali - Scheda per l'autovalutazione

Operating systems: Windows, Mac: buona conoscenza; Linux: conoscenza base

Software: Office, Matlab, Polyworks, Optical Revenge 2.3, SolidWorks, CosmosWorks, Minitab, GEANT4, MCNP, FLUKA, LaTeX, Fluent

Development: C, C++, Java, LabVIEW (CLAD - Certified LabVIEW Associate Developer nel 2012)

Driving Licence B

PUBLICATIONS

1. I. BODINI, G. SANSONI, M. LANCINI, S. PASINETTI, F. DOCCHIO. (In press) "A depth from defocus measurement system using a liquid lens objective for extended depth range" IEEE Transaction on Instrumentation and Measurement.
2. I. BODINI, G. SANSONI, M. LANCINI, S. PASINETTI, F. DOCCHIO. (2016). "A novel optical apparatus for the study of rolling contact wear/fatigue based on a high-speed camera and multiple-source laser illumination" Review of Scientific Instruments, vol. 87, issue 8, n. 083701
3. I. BODINI, S. PASINETTI, G. SANSONI, M. LANCINI, M. TINELLI, F. DOCCHIO. (2016). "A fast autofocus setup using a liquid lens objective for in-focus imaging in the macro range". AIP Conference Proceedings, 12<sup>th</sup> International A.I.VE.LA. Conference, Ancona, 29<sup>th</sup> June – 1<sup>st</sup> July, vol. 1740, n. 050003.
4. I. BODINI, M. LANCINI, D. VETTURI, S. PASINETTI, A. MAZZÙ, L.

- SOLAZZI, C. PETROGALLI, M. FACCOLI. (2015). "Using vibrations measurements to detect high wear rates in rolling contact fatigue tests". ACTA IMEKO. Vol. 4, n. 4, pp. 66 – 74, December 2015
5. I. BODINI, A. ZENONI et al. (2016 – in press). "Historical building stability monitoring by means of a cosmic ray tracking system". International Journal of Modern Physics: Conference Series. Proceedings of the 2015 International Conference on Applications of Nuclear Techniques. Crete, Greece, June 14 – 20, 2015
  6. I. BODINI, F. DOCCHIO, M. LANCINI, S. PASINETTI (2015). "A novel algorithm for EMG signal processing and muscle timing measurement". IEEE Transaction on Instrumentation and Measurement. Vol. 64, n. 11, pp. 2995 – 3004, November 2015
  7. I. BODINI, M. LANCINI, S. PASINETTI, D. VETTURI (2014). "Techniques for on-board vibrational passenger comfort monitoring in public transport". ACTA IMEKO, Vol. 3, Number 4, pp 32-37, December 2014
  8. I. BODINI, A. ZENONI et al. (2014). "Monte Carlo simulations of a stability monitoring system based on tracking cosmic rays". Proceedings of the IX Congress of the National Group of Mechanical and Thermal Measurements. p. 33-42, Universitas Studiorum, ISBN: 9788897683681, Ancona, 11<sup>th</sup> - 13<sup>th</sup> September 2014
  9. I. BODINI, M. LANCINI et al. (2014). "Vibration measurements for contact topology assessment in a rolling contact fatigue bench". Proceedings of the IX Congress of the National Group of Mechanical and Thermal Measurements. p. 25-32, Universitas Studiorum, ISBN: 9788897683681, Ancona, 11<sup>th</sup> - 13<sup>th</sup> September 2014
  10. I. BODINI, D. VETTURI et al. (2014). "Measurement of forces exerted by a polymeric shape-memory stent for biomedical applications". Proceedings of the IX Congress of the National Group of Mechanical and Thermal Measurements. p. 43-47, Universitas Studiorum, ISBN: 9788897683681, Ancona, 11<sup>th</sup> - 13<sup>th</sup> September 2014
  11. I. BODINI, A. BORBONI et al. (2014). "Experimental kinematics of a special shape actuator". ASME 2014 - 12<sup>th</sup> Biennial Conference on Engineering Systems Design and Analysis. Vol. 3, Paper n° ESDA2014-20106, pp. V003T15A003, doi 10.1115/ESDA2014-20106, Copenhagen, Denmark, July 25–27, 2014
  12. I. BODINI, A. ZENONI et al. (2014). "Historical building stability monitoring by means of a cosmic ray tracking system". arXiv:1403.1709 [physics.ins-det]
  13. I. Bodini, S. PANDINI et al. (2014) "Tailored one-way and two-way shape memory capabilities of poly  $\epsilon$ -caprolactone)-based systems for biomedical applications". Journal of Materials Engineering and Performance, Vol. 23(7), pp 2545 - 2552, July 2014
  14. I. BODINI, E. GUANZIROLI, M. LANCINI, S. PASINETTI (2013). "Modified forearm crutches for load bearing measurement in assisted gait". ISB2013 Proceedings, Natal, Brazil, August 2013

- 15.I. BODINI, M. LANCINI, S. PASINETTI, D. VETTURI (2013). "MIMO non-linear sensors calibration based on genetic algorithms". ISMQC 2013, 11<sup>th</sup> International Symposium on Measurement and quality", IMEKO Proceedings, Cracow – Kielce, Poland, 11 – 13 September, 2013
- 16.I. BODINI, M. LANCINI, S. PASINETTI, D. VETTURI (2013). "Definition of a measurability threshold of geometric tolerances in relation to measurement uncertainty and dimensional parameters". ISMQC 2013, 11<sup>th</sup> International Symposium on Measurement and quality", IMEKO Proceedings, Cracow – Kielce, Poland, 11 – 13 September, 2013
- 17.I. BODINI, M. LANCINI, S. PASINETTI, D. VETTURI (2013). "Relationship between measurement uncertainty and verifiability of geometric specifications: The case study of drilled hole orthogonality". International Journal of Metrology and Quality Engineering. Vol 4, Issue 1, pp 35-39, June 2013
- 18.I. BODINI, M. LANCINI, S. PASINETTI, D. VETTURI (2013). "Techniques for on-board vibration passenger comfort monitoring in public transport". 12th IMEKO TC10 Workshop on Technical Diagnostics: New Perspective in Measurement. Tools and Techniques for Industrial Applications, Proceedings, pp. 118-123, ISBN: 9788890314988, Florence, Italy, June 2013
- 19.I. Bodini, S. PANDINI et al. (2012) "Tailored one-way and two-way shape memory response of poly(epsilon-caprolactone)-based systems for biomedical applications". Adaptative, Active and Multifunctional Smart Materials Systems . Advances in Science and Technology, CH-8717 Stafa-Zurich: Trans Tech Publications LTD, vol. 77, p. 313-318, ISBN: 978-3-908158-63-9, ISSN: 1662-0356, doi: 10.4028/www.scientific.net/AST.77.313
- 20.I. BODINI, G. MATERNINI, M. LANCINI, D. VETTURI (2012) "On-board comfort measurement system development for buses". Planning Support Tools: Policy Analysis, Implementation and Evaluation Proceedings of the Seventh International Conference on Informatics and Urban and Regional Planning INPUT 2012 - ISBN: 9788856875973
- 21.I. BODINI D. VETTURI, M. LANCINI, A. DELLI CARRI (2011) Mathematical method for the definition of a non linear multi input - one output calibration diagram of laser position sensor. Advanced mathematical and computational tools in metrology and testing IX - Series on Advances in Mathematics for Applied Sciences - Vol. 84, p. 396-404 - ISSN 1793-0901
- 22.G. MATERNINI, I. BODINI, M. LANCINI, D. VETTURI (2011) Sviluppo di un sistema autonomo per misure di comfort a bordo di un autobus. 1<sup>o</sup> Convegno Sistema Gomma nel TPL - Rome, 23-24 November, 2011
- 23.I. BODINI, M. LANCINI, L. SOLAZZI, C. PETROGALLI, D. VETTURI (2011) Vibration-based diagnostics on a rolling contact fatigue test bench. 6<sup>th</sup> International Workshop on Analysis of Dynamic Measurements, Goteborg, Sweden, 22-June 2011
- 24.I. BODINI, D. VETTURI, M. LANCINI. (2010). How geometrical tolerances affect the measurement of reciprocal alignment of two different assemblies: a case

- study. Proceedings of the ASME 2010 10th Biennial Conference on Engineering Systems Design and Analysis. Istanbul, Turkey, July 12-14, 2010
25. I. BODINI, M. LANCINI, D. VETTURI (2009). Enhancing micropositioning accuracy of a six axis hexapod through uncertainty evaluation. Annals of DAAAM for 2009 & Proceedings of the 20<sup>th</sup> International DAAAM Symposium. Vienna, 25-28.11.2009, Vienna: Danube Adria Association for Automation & Manufacturing, vol. UNICO, p. 0529-0530, ISBN/ISSN: 978-3-901509-70-4
26. I. BODINI, D. CAMBIAGHI, L. DASSA, D. VETTURI (2009). Metodo numerico per la stima degli effetti combinati di tolleranze in un sistema meccanico. Atti del convegno ADM di trasferimento tecnologico. Torino, 8-9 Settembre 2009
27. I. BODINI, G. BONOMI, D. CAMBIAGHI, A. MAGALINI (2007). "Cosmic ray detection based measurement systems: a preliminary study". Measurement Science and Technology, vol. 18, pp. 3537-3546, 2007 - doi:10.1088/0957-0233/18/11/038
28. I. BODINI, D. VETTURI, A. MAGALINI, M. LANCINI (2007). Evaluation of the felt comfort on a bus: a preliminary study. XVIII International DAAAM Symposium. Zadar - HR, 24-27 October 2007, VIENNA: DAAAM International, vol. 1, p. 095-096, ISBN/ISSN: 3-901509-58-5
29. I. BODINI, M. LANCINI, A. MAGALINI, D. VETTURI (2007). Sviluppo di un sistema di misura per la valutazione del comfort a bordo di veicoli per il trasporto pubblico. VII Congresso Nazionale di Misure Meccaniche e Termiche - Atti del Congresso. Folgaria (TN), 10 -12 Settembre 2007, p. 38-44
30. I. BODINI, A. DONZELLA, A. ZENONI, A. FONTANA, B. PEROT, S. BERNARD, C. CARASCO, A. MARIANI, D. SUDAC, V. VALKOVIC (2007). "Experimental validation of MCNP simulations for the EURITRACK Tagged Neutron Inspection System". Nuclear Instruments & Methods in Physics Research. Section B, Beam Interactions with Materials and Atoms, vol. 261; p. 291-294, ISSN: 0168- 583X
31. I. BODINI, M. LANCINI, A. MAGALINI, D. VETTURI (2007). Accelerated fatigue life test for rubber to metal devices. YSESM '07 proceedings. Vrnjacka Banja, Serbia, 9 - 12 May 2007, p. 55-58
32. I. BODINI, A. DONZELLA, A. ZENONI, A. FONTANA, B. PEROT, S. BERNARD, C. CARASCO, A. MARIANI, D. SUDAC, V. VALKOVIC (2006). "Development of the EURITRACK tagged neutron inspection system: from simulation to experiment". NEMEA-3 Proceedings of the enlargement workshop, pp. 133-136, 25-28 October, Borovets, Bulgaria, 2006