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Daniele Zonta

Education

Doctorate Degree (Ph.D.) in Structural Mechanics, at the University of Bologna, Italy, 2000. Dissertation: "Structural damage detection and localization by using vibrational measurements".

Laurea, (B.S./M.S.) magna "cum laude", in Civil Engineering, University of Padova, Italy, 1996. Dissertation: "Structural identification techniques: numerical methods and applications".

Work Experience

Professor, University of Trento, Italy, Apr 2020-present

Head, Centre for Intelligent Infrastructure, University of Strathclyde, Glasgow, UK, Jan 2016-Aug 2019.

Professor, University of Strathclyde, Glasgow, UK, Oct 2015-Aug 2019.

Departmental Guest, Northeastern University, Boston (MA), Jun-Aug 2015.

Associate Professor, University of Trento, Italy, Oct 2014-Mar 2020.

Associate Researcher, Institute for Photonics and Nanotechnologies (IFN), National Research Council (CNR), Italy, Jun 2014-present.

Departmental Guest, Princeton University, Princeton (NJ), Dec 2010-Mar 2011.

Visiting Scholar, University of Michigan, Ann Arbor (MI), Jan-Feb 2010.

Departmental Guest, Princeton University, Princeton (NJ), Dec 2009.

Visiting Professor, University of California, San Diego, Aug-Sep 2002.

Assistant Professor, University of Trento, Italy, Mar 2001-Sep 2014

Post-Doctorate Researcher, University of California, San Diego, 2000-2001.

Post-Doctorate Researcher, University of Padova, Italy, 2000.

Technical Areas of Specialization

- Infrastructure management
- Structural health monitoring
- Smart structures
- Structural reliability
- Bayesian inference
- Decision-making
- Fiber optic sensors

Teaching Philosophy Goal

Training a **new generation of civil engineer**, aware of the possibilities of the new technologies and of the challenges of the changing environment, is an integral part of my academic vision.

The new civil engineer I envision will hold a solid background in the classic subjects: structures, geotechnics and material science. At the same time, he will be well acquainted with emerging technologies from a cross-disciplinary perspective, including smart materials, nano- and micro-technologies, sensors, control devices, NDT evaluation, infrastructure management, risk analysis and decision-making.

At the **graduate** level teaching will stimulate student enthusiasm for new applied technologies, experimental research and the scientific method.

At the **undergraduate** level my aim is to deliver in clear, direct and effective manner the fundamentals of structural engineering, while providing those technical skills that are essential in professional and industrial practice.

Method

- Learn-from-practice lectures: students are encouraged to approach professional life through specific tutorials offered by practicing engineers within design classes;
- Use of internet for multimedia resources and interactive lecturing [A20,C27];
- Direct field and laboratory experience with structures; design classes include activity in the laboratory and guided visits to construction sites and prefabrication plants.

Curriculum Development

Development a new *Master Programme (Laura Magistrale) in Civil Engineering*, University of Trento, 2021-present.

Development of a new PGR *Honours Programme in Advanced Engineering Methods*, University of Trento, 2020.

Revision of the BEng/MEng programme in *Civil Engineering* to incorporate BIM and digital technologies throughout the course, consistently with the UK Joint Board of Moderators (JBM) good practice guide, University of Strathclyde, 2018.

Revision of the MS (*Laura Magistrale*) program in *Civil Engineering*, University of Trento, 2019-present.

Revision of the BS (*Laura Triennale*) program in *Civil Engineering*, University of Trento, 2017-2019.

Teaching Experience Teaching Awards

Nominee for the Teaching Excellence Award 2019, 'Most Supportive', Student Union, University of Strathclyde.

Nominee for the Teaching Excellence Award 2018, Student Union, University of Strathclyde.

Graduate

CL991-Structural Health Monitoring, University of Strathclyde, lectures, 2017/18, 2018/19, 2019/20.

CL976-Prestressed Concrete, Steel-concrete Composite and Structural Stability, University of Strathclyde, lectures, 2016/17, 2017/18, 2018/19.

[140221]-Control and Health Monitoring of Civil Structures, University of Trento, lectures, 2012/13, 2013/14, 2014/15, 2015/16, 2016/17, 2018/19, 2019/20, 2020/21, 2021/22, 2022/23. Course approval: 100%.

[140228]-Special Structures, University of Trento, lectures: 2007/08, 2008/09, 2009/10,

2010/11, 2011/12, 2012/13, 2013/14, 2014/15, 2015/16, 2016/17. Seminars: 2017/18, 2018/19, 2019/20, 2020/21, 2021/22. Course approval: 100%. Instructor approval: 100%.

[140166]-*Structural Safety*, University of Trento, lectures, 2011/12, 2012/13, 2013/14, 2014/15, 2015/16, 2016/17, 2018/19, 2019/20, 2020/21, 2021/22, 2022/23. Course approval: 97.1%.

[140169]-*Structural Design*, University of Trento, lectures, 2018/19, 2019/20, 2020/21. Course approval: 73.17%.

[40626]-*Structural Design (Advanced Concrete)*, University of Trento, lectures: 2007/08, 2008/09, 2009/10, 2010/11. Course approval: 100%. Instructor approval: 100%.

Smart Structures (Doctoral level), University of Trento, lectures: 2006/07, 2010/11.

Modal Analysis of Civil Structures (Doctoral level), University of Trento, lectures: 2005/06, 2007/08, 2009/10.

Earthquake Engineering, University of Trento, tutorials: 2001/02, 2002/03, 2003/04.

Earthquake Engineering, University of California, San Diego, tutorials: 2000/01.

[Teaching evaluation based on last available record]

Undergraduate

CL435-*Prestressed Concrete, Steel-concrete Composite and Structural Stability*, University of Strathclyde, lectures, 2016/17, 2017/18, 2018/19.

[40371]-*Fundamentals of Bridges and Precast Structures*, University of Trento, lectures: 2005/06, 2006/07. Course approval: 100%. Instructor approval: 100%.

[40379]-*Fundamentals of Structural Elements 2 (Concrete)*, University of Trento, lectures: 2003/04, 2004/05, 2005/06, 2006/07, 2007/08, 2008/09, 2009/10. Course approval: 58.8%. Instructor approval: 93.3%.

Fundamentals of Structural Elements 1 (Steel), University of Trento, lectures: 2003/04, 2004/05, 2005/06, 2006/07. Course approval: 87.5%. Instructor approval: 84.0%.

System Identification and Diagnostics, Northeastern University, lectures on Bayesian parametric estimation, 2012/13.

Restoring and Preservation of the Historical Heritage, University of Padova, tutorials: 1999/2000.

Structural Design 2, University of Padova, tutorials: 1997/98, 1998/99.

[Teaching evaluation based on last available record]

Other

Bayesian Logic for smart structural elements, lectures, 12th Asia-Pacific-Euro Summer School on Smart Structures Technology (APESS 2019), Rome, 2019.

Bayesian Logic for structural health monitoring, lectures, 5th International Summer School on Smart Materials, Structures and Systems, Trento, 2016.

Bayesian Logic for structural health monitoring, lectures, 3rd International Summer School on Smart Materials, Structures and Systems, Trento, 2014.

Bayesian Logic for structural health monitoring, lectures, 2nd International Summer School on Smart Materials and Structures, Trento, 2013.

Bayesian Methods and Decision Making lectures, 1st International Summer School on Smart Structures, Trento, 2012.

Bridge Assessment module, *Eurocode Design* course, Trento, Course for continuing professional development: 2007.

Concrete Design module, *Structural Design* course, Trento, Course for continuing professional development: 2005.

Concrete Design module in the *Structural Design* course, Verona, Course for continuing professional development: 2004, 2005.

“TURNKEY: Towards more Earthquake-resilient Urban Societies through a Multi-sensor-based Information System enabling Earthquake Forecasting, Early Warning and Rapid Response Systems” Co-I, Source: European Commission. Period: 1/06/19-31/05/22. Amount: €8,000,000 overall.

“XP-RESILIENCE: Extreme Loading Analysis of Petrochemical Plants and Design of Metamaterial-Based Shields for Enhanced Resilience” Co-I. Source: European Commission. Period: 1/9/2016-31/8/2020. Amount: €3,393,811 overall.

“INDUSE-2-SAFETY: Component fragility evaluation and seismic safety assessment of special risk petrochemical plants under design basis and beyond design basis accidents”. Source: European Commission. Period: 1 Jul 2014-30 June 2017. Amount: €1,713,842 overall.

“MEMSCON: Radio frequency identification tags linked to on board Micro-Electro-Mechanical Systems in a wireless, remote and intelligent monitoring and assessment system for the maintenance of constructed facilities.” **PI**. Source: European Commission FP7-NMP-2007-SME-1. Period: 10/1/2008-31/3/2012. Amount: € 256,406 (€ 5,163,893 overall).

“SEQBRI: Performance-based earthquake engineering analysis of short-medium span steel-concrete composite bridges.” Co-I. Source: European Commission. Period 7/1/2012-8/31/2015. Amount: € 258,121 (€1,401,959 overall).

“INDUSE: Structural Safety of Industrial Steel Tanks, Pressure Vessels and Piping Systems Under Seismic Loading.” Co-I. Source: European Commission. Period 7/1/2009-9/31/2012. Amount: € 262,953 (€1,773,060 overall).

“MONICO: Fiber optic-based intelligent monitoring and assessment system for proactive maintenance and seismic disaster prevention in reinforced concrete tunnel lining.” Co-I. Source: European Commission, FP7-SME-221978. Period: 7/1/2008-6/30/2010. Amount: € 114,000 (€ 4,367,230 overall).

[PI: Principal Investigator; Co-I: Co-Investigator]

Research Councils and other Government Agencies

“RELUIS 2024-2026 – WP6: Monitoring and Satellite Data”, **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 1/1/2024-31/12/2026. Amount: € 15,000.

“SABAP - VE – Monitoring of Portogruaro Civic Tower”, **PI**, Source: SABAP – VE, Period: 1/5/2021, 31/5/2023. Amount: € 46,360.

“RELUIS 2022-2024 – WP6: Monitoring and Satellite Data”, **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 1/1/2022-31/12/2024. Amount: € 15,000.

“RELUIS-Ponti – Implementation of provisions of DM 578/2020.” **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 1/5/2021-15/12/2022. Amount: € 265,060.

“NE/R009090/1 Early warning decision support system for the management of underwater scour risk for road and railway bridges” **PI**. Source: Natural Environment Research Council (NERC). Period: 6/11/2017-5/11/2018. Amount: £93,602.

“A new skin for ageing concrete structures: 3D-printed smart cement patches” Co-I. Source: Royal Society. Period: 1/4/2017-31/3/2018. Amount: £ 14,453.

“Scour Monitoring - River Nith” **PI**. Source: Transport Scotland. Period: 1/6/17 - 31/5/18. Amount: : £13,422.00

“Portogruaro-FOS: Extension of the Portogruaro Tower’s monitoring system with Fiber Optic Sensor and development of a Decision Support System”. **PI**. Source: Comune di Portogruaro. Period: 1/1/2017, 31/12/2017. Amount: € 37,820.

“RELUIS-3: Executive project DPC/ReLUIS 2014 – AQ DPC/ReLUIS 2014-2018 – Year 4.” **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 4/1/2017-3/31/2018. Amount: € 10,285.

“RELUIS-3: Executive project DPC/ReLUIS 2014 – AQ DPC/ReLUIS 2014-2018 – Year

3." **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 4/1/2016-3/31/2017. Amount: € 10,285.

"PAT-DPC: Development of a data acquisition procedure for predictive risk seismic analysis" **PI**. Source: Autonomous Province of Trento, Department of Civil Protection. Period: 23/11/2015-31/03/2016. Amount: € 24,600.

"RELUIS-3: Executive project DPC/ReLUIS 2014 – AQ DPC/ReLUIS 2014-2018 – Year 2." **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 4/1/2015-3/31/2016. Amount: € 10,285.

"PAT-BMS: Update and extension of the APT-BMS." **PI**. Source: Autonomous Province of Trento, Department of Transportation. Period: 8/13/2014-6/13/2015. Amount: € 74,420.

"RELUIS-3: Executive project DPC/ReLUIS 2014 – AQ DPC/ReLUIS 2014-2018 – Year 1." **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 4/1/2014-3/31/2015. Amount: € 12,100.

"Portogruaro-2014: Monitoring of the Civic Tower." **PI**. Source: Municipality of Portogruaro. Period: 1/1/2014-12/31/2014. Amount: € 47,580.

"Portogruaro-5: Update of Civic Tower monitoring system." **PI**. Source: Municipality of Portogruaro. Period: 9/1/2013-12/31/2013. Amount: € 17,495.

"Pilot assessment of the load carrying capacity of a sample of bridges from the APT stock". **PI**. Source: Autonomous Province of Trento, Department of Transportation. Period: 10/12/2012-2/12/2014. Amount: € 102,850.

"Portogruaro-4 Modeling of the Portogruaro Civic Tower." **PI**. Source: Municipality of Portogruaro. Period: 9/1/2012-12/31/2013. Amount: € 22,800.

"RELUIS-RFI: Development of procedures for seismic vulnerability evaluation of steel railways bridges". **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 1/3/2011-29/2/2012. Amount: € 90,000.

"BMS A&E: Update and extension of the APT-BMS." **PI**. Source: Autonomous Province of Trento, Department of Transportation. Period 10/21/2009-4/20/2012. Amount: € 108,000.

"ADIGE: Structural monitoring of the Trento North-Rocchetta cable stayed bridge on Adige river." **PI**. Source: Autonomous Province of Trento, Department of Transportation. Period 6/1/2009-28/2/2013. Amount: € 108,000 (€ 300,000 overall).

"PRIN 2007JHK33Y_002: New technologies for the real-time assessment of the seismic vulnerability of bridges." **PI**. Source: Italian Ministry of Education (MIUR). Period: 9/20/2008-9/19/2010. Amount: € 62,900 (€ 250,000 overall).

"APT-BMS-6: Guided startup of the APT-BMS: support to the inspections on the Provincial Roads." Project manager. Co-I. Source: Autonomous Province of Trento, Department of Transportation. Period 2/1/2007-3/11/2008. Amount: € 96,000.

"PRIN 2004089844: Monitoring and control of the Historical Heritage.", Project manager. Co-I. Source: Italian Ministry of Education (MIUR). Period: 1/1/2007-12/31/2008. Amount: € 59,000.

"RELUIS: Reserch Line 10: New technologies for managing the seismic hazard in road infrastructure". **PI**. Source: Italian Earthquake Engineering Laboratories Network (RELUIS). Period: 11/1/2005-10/31/2008. Amount: € 70,000.

"PRIN 2006084179: New technologies for the management of historical structures and infrastructure." Project manager. Co-I. Source: Italian Ministry of Education (MUR). Period: 1/1/2005-12/31/2006. Amount: € 58,600.

"APT-BMS-4: Guided startup of the APT-BMS: training and support of the inspectors." Project manager. Co-I. Source: Autonomous Province of Trento, Department of Transportation. Period: 9/15/2004-12/12/2005. Amount: € 108,000.

"Portogruaro-3: Monitoring of the Civic Tower." **PI**. Source: Municipality of Portogruaro. Period: 9/1/2004-8/31/2010. Amount: € 31,920.

"APT-BMS-3: APT Bridge Management System: pilot inspections." Project manager. Co-I. Source: Autonomous Province of Trento, Department of Transportation. Period:

5/10/2004-8/10/2004. Amount: € 7,200.

"APT-BMS-2: APT Bridge Management System: deployment and update of the system." Project Manager. Co-I. Source: Autonomous Province of Trento, Department of Transportation. Period: 9/15/2003-12/12/2004. Amount: € 186,000.

"PRIN 2002088932: Structural monitoring and control using advanced techniques." Project manager. Co-I. Source: Italian Ministry of Education (MURST). Period: 1/1/2003-12/31/2004. Amount: € 59,000.

"Portogruaro-2: Monitoring of the Civic Tower." **PI**. Source: Municipality of Portogruaro. Period: 8/18/2003-8/17/2004. Amount: € 21,600.

"Portogruaro-1: Investigation on the safety of the Civic Tower." **PI**. Source: Municipality of Portogruaro. Period: 7/16/2002-2/28/2003. Amount: € 11,772.

"APT-BMS-1: Development of a prototype of Bridge Management System." Project manager. Co-I. Source: Autonomous Province of Trento, Department of Transportation. Period: 7/29/2002-7/29/2003. Amount: € 156,000.

[PI: Principal Investigator; Co-I: Co-Investigator]

Industry and Private Bodies

"MOVYON – Study of the pilot monitoring system of the Settefonti Viaduct" **PI**. Source: Movyon SpA. Period 26/07/2023-31/12/2024. Amount: €59,414.

"Autovie-PNRR– Technical and scientific support to design, execution and management of a remote dynamic monitoring system for highways bridges" **PI**. Source: Autovie Venete SpA. Period 1/12/2021-30/11/2023. Amount: €134,200

"ATECH – Study of the pilot monitoring system of the Settefonti Viaduct" **PI**. Source: Autostrade Tech SpA. Period 16/12/2020-31/12/2022. Amount: €79,300.

"ASPI-Alveo vecchio- Open-air laboratory for infrastructure safety, second testing campaign" Source: Autostrade per l'Italia SpA. Period 2/9/2021-31/12/2023. Amount: € 164,710.

"Autovie – Alignment of Autovie bridge management system to CSLLPP Guidelines and development of a decision support system." **PI**. Source: Autovie Venete SpA. Period 1/12/2021-30/11/2023. Amount: €90,506.

"ASPI-DT9-Validation of inspection system and practice on bridges of ASPI-DT9". **PI**. Source: Autostrade per l'Italia SpA. Period 2/9/2020-31/12/2020. Amount: € 67,100.

"ASPI-DT2-Validation of inspection system and practice on bridges of ASPI-DT2". **PI**. Source: Autostrade per l'Italia SpA. Period 12/6/2020-11/11/2020. Amount: € 110,000.

"ASPI-3-Model for defining the priority of intervention". **PI**. Source: Autostrade per l'Italia SpA. Period 7/6/2020-6/8/2020. Amount: € 195,200.

"A22-3- Analysis of the structural behavior of the Bridge on Po River based on structural health monitoring. Analysis and interpretation of monitoring data from Colle Isarco viaduct". **PI**. Source: Autostrada del Brennero SpA - Brennerautobahn AG. Period: 01/02/2020-30/04/2023. Amount: € 329,400.

"ASPI-2-Design an supervision of the experimental tests to be carried out at the open-air laboratory for infrastructure safety, Alveo Vecchio Viaduct, in Candela". **PI**. Source: Autostrade per l'Italia SpA. Period 2/10/2019-1/12/2019. Amount: € 30,000.

"ASPI-1-Requirements analysis for the development of test protocols and monitoring systems addressing the safety evaluation of existing road bridges". **PI**. Source: Autostrade per l'Italia SpA. Period 7/6/2019-6/8/2019. Amount: € 20,000.

"ITEA-Stardust: development of a method for characterizing the seismic capacity of RC buildings". **PI**. Source: Istituto Trentino Edilizia Abitativa (ITEA) SpA. Period: 8/5/2018-7/9/2018. Amount: € 42,700.

"RFI-DOMUS: Update and Validation of DOMUS bridge management system". **PI**. Source: Rete Ferroviaria Italiana SpA. Period: 01/7/2017-31/10/2017. Amount: € 42,698.

"BBT- Interim Project for the preparation of an EUREGIO proposal". **PI**. Source: Brenner

Basestunnel BBT SE. Period: 1/1/2016-30/4/2016. Amount: € 32,491

"RFI-DOMUS: Update and Validation of DOMUS bridge management system". **PI.** Source: Rete Ferroviaria Italiana SpA. Period: 11/21/2014-8/18/2015. Amount: € 76,860.

"A22-2 Development of a prototype of Decision Support System for the Colle Isarco Viaduct management based on instrumental monitoring". **PI.** Source: Autostrada del Brennero SpA - Brennerautobahn AG. Period: 11/11/2014-11/11/2016. Amount: € 106,964.

"AREA-1: Development of a seismic monitoring system for prefabricated industrial buildings". **PI.** Source: Area Prefabbricati SpA. Period: 04/09/2012-03/11/2013. Amount: € 58,080.

"A22-1: Probabilistic analysis of the structural reliability of Colle Isarco Viaduct based on instrumental monitoring". **PI.** Source: Autostrada del Brennero SpA - Brennerautobahn AG. Period: 20/02/2012-20/02/2014. Amount: € 96,000.

"Pedemontana: Feasibility study for an integrated maintenance, management and monitoring system for the new Pedemontana Lombarda Highway." **PI.** Source: Far System SpA, Roverto. Period: 12/16/2010-01/14/2011. Amount: € 9,600.

"SantaMaria-3/4: Monitoring and vibration analysis of the Church of Santa Maria Maggiore." **PI.** Source: Parish of Santa Maria Maggiore, Trento. Period: 12/1/2010-12/31/2011. Amount: € 19,800.

"EUCentre-1: Development of a bridge management system for the seismic vulnerability of the national road network." **PI.** Source: Foundation EUCentre, Pavia. Period: 12/1/2010-12/31/2011. Amount: € 33,600.

"SantaMaria-2: Monitoring of the Church of Santa Maria Maggiore." **PI.** Source: Parish of Santa Maria Maggiore, Trento. Period: 9/18/2009-12/31/2010. Amount: € 18,000.

"SantaMaria-1: Monitoring of the Church of Santa Maria Maggiore." **PI.** Source: Parish of Santa Maria Maggiore, Trento. Period: 8/20/2008-8/19/2009. Amount: € 21,600.

"RIVOLI-1: Design of a new model of partially post-tensioned precast concrete box-girder element." **PI.** Source: Rivoli SpA. Period: 4/1/2008-11/31/2008. Amount: € 12,500.

"HEIDI-4: Update of the APT-BMS." **PI.** Source: Heidi SpA. Period: 7/16/2007-7/15/2008. Amount: € 61,200.

"HEIDI-3: Update of the APT-BMS." **PI.** Source: Heidi SpA. Period: 7/27/2006-7/15/2007. Amount: € 61,200.

"HEIDI-2-PISTA: Application of PISTA procedures to the industrial deployment in service mode of a specific software package." **PI.** Source: Heidi SpA. Period: 11/24/2006-02/15/2007. Amount: € 24,000.

"HEIDI-1: Update of the APT-BMS." **PI.** Source: Heidi SpA. Period: 11/26/2005-7/26/2006. Amount: € 88,200.

[PI: Principal Investigator]

Editorial Activity

Member of the Editorial Panel, Smart Infrastructure and Construction, ICE Publishing (2016-present).

Member of the Editorial Board, International Journal of Sensor Networks, Inderscience (2015-present).

Member of the Editorial Board, Structural Monitoring and Maintenance: an International Journal, Techno Press (2014-present).

Member of the Editorial Board, International Journal of Distributed Sensor Networks, Hindawi (2014-present).

Guest editor, Journal of Civil Structural Health Monitoring, special issue on "Probabilistic Structural Health Monitoring", publication expected 2015.

Review Activity

International Research Councils

Research Foundation –Flanders (FWO)

Portuguese Foundation for Science and Technology (FCT)
Cyprus Research Promotion Foundation (RPF)
Italian Ministry of Education (MIUR)

Book Proposals

Wiley; Elsevier

Journals

ACI Structural Journal; Advances in Structural Engineering; ASCE Journal of Bridge Engineering; ASCE Journal of Computing in Civil Engineering; ASCE Journal of Engineering Mechanics; Civil Structural Health Monitoring; Computer-Aided Civil and Infrastructure Engineering; Computers and Structures; Earthquake Engineering & Structural Dynamics; Engineering Structures; Geomechanics and Engineering; International Journal of Distributed Sensor Networks; International Journal of Mechanical Sciences; International Journal of Sensor Networks; Journal of Civil Structural Health Monitoring; Journal of Cultural Heritage; Journal of Earthquake Engineering; Journal of Intelligent Material Systems and Structures; Journal of Microwaves and Optoelectronics; Journal of Sound and Vibration; Measurement; Mechanical Systems and Signal Processing; Optical Fiber Technology; Sensors & Actuators: A. Physical; Smart Materials and Structures; Smart Structures and Systems; Structural Control and Health Monitoring; Structural Health Monitoring; Smart Infrastructure and Construction; Structural Monitoring and Maintenance; Transactions on Mechatronics

Awards and Honors

Telford Premium Publishing Award 2023, A. Maroni, E. Tubaldi, H. McDonald, D. Zonta "A monitoring-based classification system for risk management of bridge scour" Proc. of the Institution of Civil Engineers (ICE) - Smart Infrastructure and Construction, 175(2), pp. 92–102, 2022.

Nominee for the Teaching Excellence Award 2019, 'Most Supportive', Student Union, University of Strathclyde.

Bridge Research Award for the Best Paper by a University Researcher: A. Maroni, E. Tubaldi, J. Douglas, N. Ferguson, D. Zonta, H. McDonald, D. Walker, E. Greenoak, C. Green (2018). "Using Bayesian Networks for the assessment of underwater scour for road and railway bridges", Structural Fault + Repair 2018' & 'European Bridge Conference 2018, Edinburgh, 14-17 May 2018.

Nominee for the Teaching Excellence Award 2018, Student Union, University of Strathclyde.

Best Young Researcher Paper Award: C. Cappello, D. Bolognani, D. Zonta (2015). "Mechanical equivalent of logical inference from correlated uncertain information". 7th International Conference on Structural Health Monitoring of Intelligent Infrastructure (SHMII-7 2015). Turin, Italy, 1-3 Jul 2015.

2014 Person of the Year Award for outstanding contribution to the field of Structural Health Monitoring, Editorial board of Structural Health Monitoring: An International Journal, SAGE.

Best Paper Award: M. Bimpas, D. Trapani, D. Zonta, A. Amditis, S. Frondistou Yannas, V. Kalidromitis, Y. Stratakos, A. Gkaretsos (2011). "MEMSCON project: Wireless Sensor Network for post-earthquake evaluation of concrete buildings". 5th International Conference on Structural Health Monitoring of Intelligent Infrastructure (SHMII-5 2011). Cancun, Mexico, 11-15 Dec 2011.

Best Paper Award: M. Ceriotti, L. Mottola, G. Picco, A. L. Murphy, S. Guna, M. Corrà, M. Pozzi, D. Zonta, P. Zanon (2009). "Monitoring Heritage Buildings with Wireless Sensor Networks: The Torre Aquila Deployment". 8th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN 2009, SPOTS track), San Francisco, 13-16 Apr 2009.

SPIE Senior Membership, International Society of Photo-Optical Instrumentation

Engineering (SPIE), 2015.

Invited Lectures

Invited presentations at conferences and workshops

"Deciding based on SHM", **Keynote talk** at the International Conference on Structural Health Monitoring of Intelligent Infrastructure: Transferring Research into Practice, SHMII, 2021-June, pp. 19-33, 2021.

"Validating 3D photonic crystals for structural health monitoring", Invited talk at the 11th International Workshop on Structural Health Monitoring, IWSHM 2017, 12-14 Sep, 2017.

"Expected utility theory for monitoring-based decision making", Invited talk at the 2nd International Conference on Safety and Reliability of Ships, Offshore and Subsea Structures (SAROSS 2016), Glasgow, 15-17 Aug, 2016.

"Solving Bayesian multi-parameter estimation problems using the mechanical equivalent of logical inference", Invited talk at the 8th European Workshop on Structural Health Monitoring (EWSHM 2016), Bilbao, 5-8 July 2016.

"Wireless technology for seismic protection of buildings", Invited talk, The Cambridge Conference on Wireless Sensor Network for Civil Engineering and Infrastructure, Cambridge, 29-30 Jun 2015.

"On estimating the accuracy of monitoring methods using Bayesian error propagation technique", Invited talk, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", San Diego, 9-13 Mar 2014.

"On the impact of prior perception on bridge health diagnosis", Invited talk at the 6th International Conference on Structural Health Monitoring of Intelligent Infrastructure, SHMII-6 2013, Hong Kong, 9-11 Dec, 2013.

"On the impact of prior engineering perception on structural health diagnosis", Invited talk at the 9th International Workshop on Structural Health Monitoring, IWSHM 2013, Stanford, 10-12 Sep, 2013.

"Bayesian analysis of monitoring data from cable-stayed bridge", Invited talk at the 11th International Conference on Structural Safety & Reliability, ICOSAR 2013, New York, 16-20 Jun 2013.

"Tall buildings, data monitoring and Bayesian epistemology", **Keynote talk** at the International symposium by young researchers for advances in disaster responses to seismic hazards in tall buildings using innovative sensing technologies, Kyoto University, 18-19 Dec 2012.

"Analysis of monitoring data from cable-stayed bridge using sensor fusion techniques", Invited talk, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", San Diego, 10-14 Mar 2013.

"Streicker Bridge: The impact of monitoring on decision making", Invited talk at the 8th International Workshop on Structural Health Monitoring, Stanford, 13-15 Sep, 2011.

"Wireless sensor network for seismic evaluation of concrete buildings", Invited talk at the 5th European Workshop on Structural Health Monitoring (EWSHM 2010)", Sorrento, Italy, 29 Jun - 02 Jul, 2010.

"Real-time health monitoring of historic buildings with wireless sensor networks", Invited talk at the 7th International Workshop on Structural Health Monitoring, Stanford, 9-11 Sep 2009.

"Strain-Based Approaches to Damage Localization in Civil Structures", Invited talk at the XXIV IMAC Conference on Structural Dynamics, St.Louis (MO), 30 Jan–2 Feb 2006.

Seminars

"An Introduction to Bayesian Logic for SHM Enthusiasts", Seminar at the Georgia Institute of Technology, Atlanta (GA), 9 August 2019.

"Towards Intelligent Civil Infrastructure", Seminar at the University of Cambridge (UK), 16 Nov 2018.

"Mechanical Equivalent of Logical Inference", Seminar at the Carnegie-Mellon University, Pittsburgh (PA), 5 Mar 2018.

"Bayesian Logic for Intelligent Civil Infrastructure", Seminar at the University of Aberdeen (UK), 17 Nov 2016.

"Bayesian Logic for Intelligent Civil Infrastructure", Seminar at the University of Strathclyde, Glasgow (UK), 21 Jan 2015.

"Bayesian Logic for Intelligent Civil Infrastructure", Seminar at the University of Innsbruck (Austria), 13 May 2014.

"Bridge Managers on the Verge of a Nervous Breakdown", Seminar at the University of California, Berkeley (CA), 11 Mar 2013.

"Bayesian Logic for Intelligent Civil Infrastructure", Seminar at the University of Oxford (UK), 15 Feb 2013.

"Risk-informed Management of Road Infrastructure", Webinar at the Center for Advanced Infrastructure and Transportation, Rutgers University, New Brunswick (NJ), 7 Feb 2013.

"Toward Intelligent Civil Infrastructure", Seminar at the University of Cambridge (UK), Apr 2011.

"Risk-informed Management of Bridge Infrastructure", Seminar at the University of Michigan, Ann Arbor (MI), Feb 2011.

"Bayesian Logic for Smart (and Not-so-smart) Bridge Elements", Seminar at the Imperial College, London, May 2010.

"Bayesian Logic for Smart (and Not-so-smart) Bridge Elements", Seminar at the University of South Carolina, Columbia (SC), Mar 2010.

"Bayesian Logic for Smart (and Not-so-smart) Bridge Elements", Seminar at Tufts University, Medford (MA), Mar 2010.

"Risk-informed Management of Bridge Infrastructure", Seminar at the University of Connecticut, Storrs (CT), Mar 2010.

"Bayesian Logic for Smart (and Not-so-smart) Bridge Elements", Seminar at the Northeastern University, Boston (MA), Feb 2010.

"Bayesian Logic for Smart Bridge Elements", Seminar at the University of Florida, Gainesville (FL), Feb 2010.

"Bayesian Assessment Model for Smart Precast Concrete Elements", Seminar at Princeton University, Princeton (NJ), 2009.

"Bayesian Logic Applied to Damage Assessment of a Smart Precast Concrete Element", Seminar at Columbia University, New York, 2009.

"Smart precast elements for bridge construction", Seminar at the University of Kyoto (Japan), 2009.

"Risk Informed Management of Road Infrastructure", Seminar at the University of Rhode Island, Narragansett (RI), 2009.

"Smart Structural Element for the Condition Monitoring of Bridge Structures", Seminar at the University of Connecticut, Storrs (CT), 2009.

"Risk-informed Management of Road Facilities", Seminar at the Tongji University, Shanghai (China), 2008.

"A Reliability-Based Bridge Management Concept", Seminar at the Northeastern University, Boston (MA), 2008.

"Smart structural elements for the condition monitoring of bridge structures." Seminar at the University of California, Berkeley (CA), 2008.

"Smart structural elements for the condition monitoring of bridge structures." Seminar at the University of Michigan, Ann Arbor (MI), 2008.

"A Reliability-Based Bridge Management Concept", Seminar at the University of California, San Diego (CA), 2007.

"A Reliability-Based Bridge Management Concept." Seminar at the University of Missouri, Rolla (MO), 2006.

"Vibration-based Condition Monitoring of Smart Prefabricated Concrete Elements." Seminar at the Northeastern University, Boston (MA), 2005.

"Vibration-based Damage Assessment of Civil Structures." Seminar at the University of Minho, Guimaraes (Portugal), 2004.

"Experimental modal testing of civil engineering structures"; "Damage identification and localization techniques"; "Structural health monitoring techniques." Seminars at the University of Bologna (Italy), 2001.

"Damage detection and localization using vibrational measurement: methodological approach and applications." Seminar at the Asian Institute of Technology, Bangkok (Thailand), 2000.

Organization of Courses, Conferences and Special Sessions

Academic Technical Committee, 14th International Workshop on Structural Health Monitoring (IWSHM2023), Stanford, 12-14 Sep 2023.

Program Committee Member, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", Long Beach (CA), 6-10 Mar 2023.

International Scientific Committee, 10th European Workshop on Structural Health Monitoring, EWSHM 2022, Palermo, 4-7 Jul 2022.

Academic Technical Committee, 14th International Workshop on Structural Health Monitoring (IWSHM2021), Online, 15-17 March 2022.

Chair, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", Long Beach (CA), 6-10 Mar 2022.

Co-Chair, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", Digital Forum, 22-26 Mar 2021.

Program Committee Member, "Eleventh International Conference on Sensor Device Technologies and Applications, SENSORDEVICES 2020, Valencia, 21-25 Nov 2020.

Co-Chair, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", Anaheim (CA), 26-30 Apr 2020.

Technical Advisory Panel, 3rd International Conference on Health Monitoring of Civil & Maritime Structures (HeaMES 2020), Edinburgh, 28-29 May 2020.

Program Committee Member, "Tenth International Conference on Sensor Device Technologies and Applications, SENSORDEVICES 2019, Nice, 27-31 Oct 2019.

International Organization Committee, 12th International Workshop on Structural Health Monitoring (IWSHM2019), Stanford, 10-12 Sep 2019.

Co-Chair, 12th Asia-Pacific-Euro Summer School on Smart Structures Technology (APESS 2019), Rome, 15 Jul-3 Aug, 2019.

International Scientific Committee, 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, SHMII-9 2019, Saint Louis, 1-3 Jul 2019.

International Scientific Committee, 9th European Workshop on Structural Health Monitoring, EWSHM 2018, Manchester, 10-13 Jul 2018.

Program Committee Member, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", Denver (CO), 3-7 Mar 2019.

Program Committee Member, "Ninth International Conference on Sensor Device Technologies and Applications, SENSORDEVICES 2018, Venice, 16-20 Sep 2018.

Co-Chair, "7th International Summer School on Smart Materials and Structures", Trento, 16-19 Jul 2018.

International Scientific Committee, 9th European Workshop on Structural Health Monitoring, EWSHM 2018, Manchester, 10-13 Jul 2018.

Co-organizer, Special session "Probabilistic SHM", 9th European Workshop on Structural

Health Monitoring, EWSHM 2018, Manchester, 10-13 Jul 2018.

Program Committee Member, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", Denver (CO), 4-8 Mar 2018.

International Organization Committee, International Workshop on Structural Health Monitoring 2017, Stanford, 12-14 Sep 2017.

Co-organizer, Special sessions "Probabilistic SHM" and "Distributed and quasi-distributed fiber-optic and electrical sensors, and associated data analysis and management", International Workshop on Structural Health Monitoring 2017, Stanford, 12-14 Sep 2017.

Co-Chair, "6th International Summer School on Smart Materials and Structures", Trento, 25-28 Jul 2017.

Program Committee Member, "Eighth International Conference on Sensor Device Technologies and Applications, SENSORDEVICES 2017, Rome, 10-14 Sep 2017.

Program Committee Member, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", Portland (OR), 26-29 Mar 2017.

International Advisory Committee Member, "1st Biennial Conference on Bridge Management System", IBMS 2016, New Delhi, 4-5 Oct 2016.

Co-Chair, "5th International Summer School on Smart Materials and Structures", Trento, 14-16 Jul 2016.

Co-Chair, "18th International Conference on Transparent Optical Networks (ICTON 2016)", Trento, 10-14 Jul 2016.

Co-organizer, Mini-Symposium "MS 7-Smart Bridge Structural Health Monitoring", IABMAS 2016, Foz do Iguacu (Brazil), 26-30 Jun 2016.

Program Committee Member, "Seventh International Conference on Sensor Device Technologies and Applications, SENSORDEVICES 2016, Nice, 24-28 Jul 2016.

Program Committee Member, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", Las Vegas, 20-24 Mar 2016.

Program Committee Member, "Sixth International Conference on Sensor Device Technologies and Applications", SENSORDEVICES 2015, Venice, 23-28 Aug 2015.

Program Committee Member, Third Conference on Smart Monitoring, Assessment and Rehabilitation of Structures, SMAR 2015, Antalya, 7-9 Sep 2015.

Co-organizer, Special sessions "Probabilistic SHM" and "Very dense arrays of sensors: 1D, 2D, and 3D distributed and quasi-distributed sensors", International Workshop on Structural Health Monitoring 2015, Stanford, 1-3 Sep 2015.

Co-Chair, "2015 IEEE Workshop on Environmental, Energy and Structural Monitoring Systems (EESMS 2015)", Trento, 9-10 Jul 2015.

Co-Chair, "4rd International Summer School on Smart Materials and Structures", Trento, 3-9 Jul 2015.

Co-organizer, Mini-Symposium "Probabilistic Structural Health Monitoring", 7th International Conference on Structural Health Monitoring of Intelligent Infrastructure, SHMII-7 2015, Torino, 1-3 Jul 2015.

Program Committee Member, 7th International Conference on Structural Health Monitoring of Intelligent Infrastructure, SHMII-7 2015, Torino, 1-3 Jul 2015.

Program Committee Member, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", San Diego, 8-12 Mar 2015.

Co-Chair, "3rd International Summer School on Smart Materials, Structures and Systems", Trento, 21-25 Jul 2014.

Program Committee Member, "2014 World Congress on Advances in Civil, Environmental, & Materials Research", ACEM14, Busan (Korea), 24-27 Aug 2014.

Co-organizer, Special session "Probabilistic Structural Health Monitoring", 7th European Workshop on Structural Health Monitoring, EWSHM 2014, Nantes, 8-11 Jul 2014.

Program Committee Member, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", San Diego, 9-13 Mar 2014.

Co-organizer, Special session "Probabilistic Structural Health Monitoring", 6th International Conference on Structural Health Monitoring of Intelligent Infrastructure, SHMII-6 2013, Hong Kong, 9-11 Dec 2013.

Program Committee Member, "6th International Conference on Structural Health Monitoring of Intelligent Infrastructure", SHMII-6 2013, Hong Kong, 9-11 Dec 2013.

Co-organizer, Special sessions "Statistical Methods for SHM" and "Very Dense Arrays of Sensors", International Workshop on Structural Health Monitoring 2013, Stanford, 10-12 Sep 2013.

Co-Chair, "2nd International Summer School on Smart Materials & Structures", Trento, 22-26 Jul 2013.

Co-organizer, Mini-Symposium "Structural Health Monitoring: Uncertainty Analysis and Decision Making", ICOSAR 2013, New York, 16-20 Jun 2013.

Program Committee Member, "SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems", San Diego, 10-14 Mar 2013.

Scientific Secretary and Co-organizer, "1st International Summer School on Smart Structures", Trento, 3-7 Sep 2012.

Co-organizer, "2nd International Memsccon Workshop: Towards Intelligent Civil Infrastructure", Athens, 29 Mar 2012.

Co-organizer, Mini-Symposium "MS 7-Smart SHM and Application to Bridge Condition Assessment and Maintenance", IABMAS 2012, Stresa, 8-12 Jul 2012.

Co-organizer, Special Sessions "Decision Making in Structural Health Monitoring", International Workshop on Structural Health Monitoring 2011, Stanford, 13-15 Sep 2011.

Co-organizer, "1st International Memsccon Workshop: Structural Monitoring and Assessment of Civil Engineering Structures", Bucharest, 7 Oct 2010.

Co-organizer, Special Session "Health Monitoring for Civil Structures", European Workshop on Structural Health Monitoring 2010, Sorrento, 29 Jun - 02 Jul 2010.

Co-organizer, Special Session "Model updating methods for civil applications", World Forum on Smart Materials and Smart Structures Technology (SMSST07), Chongqing and Nanjing, 22-27 May 2007.

Memberships

Associate Researcher, Institute for Photonic and Nanotechnology (IFN), National Research Council (CNR).

Board of Directors, International Association for Structural Control and Monitoring (IASCM).

Council Member, International Society for Structural Health Monitoring of Intelligent Infrastructure (ISHMII).

Senior Member, International Society of Photo-Optical Instrumentation Engineering (SPIE).

Member, International Federation for Structural Concrete (FIB).

Member, International Association for Bridge Management and Safety (IABMAS).

Member, Italian National Association of Earthquake Engineering (ANIDIS).

Member, Italian National Standardization Agency (UNI).

Member, European Committee for Standardization (CEN).

International Doctoral Committees

Doctoral committee member (Reader), Rebecca Napolitano, Princeton University, 2020.

Doctoral committee member (Reader), Hiba Abdel-Jaber, Princeton University, 2017.

Doctoral committee member, Simon Hoell, University of Aberdeen, 2016.
Doctoral committee member, Chuanchuan Hou, University of Edinburgh, 2016.
Doctoral committee member (Reader), Dorotea Hoeg Sigurdardottir, Princeton University, 2015.
International supervisor and Doctoral committee member, El Hassan Ait Laasri, Ibn Zohr University (Morocco), 2014.
Doctoral committee member, Nicholas De Battista, University of Sheffield, 2014.
International supervisor and Doctoral committee member, Benjamin Torres Gorriz, University of Valencia (Spain), 2012.
Doctoral committee member, Davide Roia, Università Politecnica delle Marche (Italy), 2011.

Alumni in Academia

Cristiano Loss, Assistant Professor, University of British Columbia, Canada, 2018-present
Matteo Pozzi, Professor, Carnegie Mellon University, USA, 2012-present.
Yanchao Yue, Assistant Professor, Xi'an Jiaotong University, China, 2011-present

Postdoctoral Researchers Supervised

Mattia Francesco Bado, University of Trento, 2021-present
Luca Possidente, University of Trento, 2021-2022.
Daniel Tonelli, University of Trento, 2020-present
Andrea Verzobio, University of Trento, 2020-2022
Denise Bolognani, University of Trento, 2019- 2021
Valentina Piccolo, University of Trento, 2019-2020
Carlo Cappello, University of Trento, 2017-2018
Davide Trapani, University of Trento, 2015-2016
Emiliano Debiasi, University of Trento, 2014-2020
Huayong Wu, University of Trento, 2009-2010
Matteo Pozzi, University of Trento, 2008-2011
Francesca Bortot, University of Trento, 2007-2011

Research Students Supervised

Doctoral students

Alessandro Lotti, University of Trento, Expected 2026 (Co- Supervisor: M. Broccardo).
Stefano Zorzi, University of Trento, Expected 2026 (Co- Supervisor: M. Broccardo).
Valeria Caspani, University of Trento, expected 2025 (Sole Supervisor).
Francesca Brighenti, University of Trento, expected 2025 (Sole Supervisor).
Francesca Poli, University of Trento, expected 2024 (Sole Supervisor).
Francesco Rossi, University of Strathclyde, expected 2024 (Co-Supervisor: Enrico Tubaldi, John Quigley).
Elisa Saler, "Seismic vulnerability and fragility of school buildings in Italy. A multiscale approach to assessment, prioritisation, and risk evaluation", University of Trento, 2023 (Co-Supervisor: Mario Rosa Valluzzi).
Jingsi Li, University of Strathclyde, expected 2024 (Co-Supervisor: Neil Ferguson).
Aleksandar Zhelyazkov, "Development of a Damage Indicator Based on Detection of High-Frequency Transients Monitored in Bridge Piers During Earthquake Ground Shaking", University of Trento, 2020 (Co-Supervisors: Helmut Wenzel, Peter Furtner).
Andrea Verzobio, "Supporting rational decision-making in engineering", University of

Strathclyde, 2020 (Co-Supervisor: Enrico Tubaldi, John Quigley).

Daniel Tonelli, "Management of civil infrastructure based on structural health monitoring" University of Trento, expected 2020 (Sole Supervisor).

Andrea Maroni, University of Strathclyde, expected 2020 (Co-Supervisors: Enrico Tubaldi, John Douglas).

Tran Thi Ngoc Lam, "Tin dioxide-based photonic glass-ceramics", University of Trento, 2019 (Co-Supervisor: Maurizio Ferrari).

Valentina Piccolo, University of Trento, "Experimental and Novel Analytic Results for Couplings in Ordered Submicroscopic Systems: from Optomechanics to Thermomechanics", 2019 (Co-Supervisors: Luca Deseri, Maurizio Ferrari).

Denise Bolognani, University of Trento, "Making decisions based on Structural Health Monitoring: an advanced theory", 2019 (Sole Supervisor).

Angela Beltempo, "Study of the aging hereditariness of concrete through a novel viscoelastic formulation", University of Trento, completed 2018 (Co-Supervisors: Oreste Bursi, Massimiliano Zingales).

Carlo Cappello, University of Trento, "Theory of decision based on structural health monitoring", completed 2017 (Sole Supervisor).

Anna Piotrowska, University of Trento, "Mechanochromic Photonic Crystals as Strain Sensors for Structural Applications", completed 2017 (Co-Supervisor: Maurizio Ferrari).

Davide Trapani, University of Trento, "A monitoring method for after-earthquake damage evaluation of buildings", completed 2015 (Sole Supervisor).

Emiliano Debiasi, University of Trento, "Decision making for bridge stock management", completed 2014 (Sole Supervisor).

Yanchao Yue, University of Trento, "Impact of seismic vulnerability on bridge management systems", completed 2011 (Co-Supervisor: Matteo Pozzi).

Cristiano Loss, University of Trento, "Displacement-based seismic design of timber structures", completed 2011 (Co-Supervisor: Maurizio Piazza).

Huayoung Wu, University of Trento, "Fiber optic sensors and damage evaluation methods for structural health monitoring", completed 2009 (Sole Supervisor).

Matteo Pozzi, University of Trento, "Structural health monitoring of reinforced concrete structures by fiber optic sensors", completed 2007 (Sole Supervisor).

Francesca Bortot, University of Trento, "Reliability-based decision-making in infrastructure management", completed 2006 (Co-Supervisor: Riccardo Zandonini).

Tommaso Saccone, University of Bologna, "Generalized formulation for linear MDOF Systems utilizing complex operators", completed 2004 (Co-Supervisor: Erasmo Viola).

Research Master's students

Matteo Drusian, University of Trento, completed 2023 (Sole Supervisor).

Andrea Valentini, University of Trento, completed 2023 (Sole Supervisor).

Federico Costa, University of Trento, completed 2023 (Sole Supervisor).

Fabio Dal Don, University of Trento, completed 2022 (Sole Supervisor).

Alessandro Lotti, University of Trento, completed 2022 (Sole Supervisor).

Francesco Romeo, University of Trento, completed 2022 (Sole Supervisor).

Davide Dussin, University of Trento, completed 2022 (Sole Supervisor).

Riccardo Torboli, University of Trento, completed 2022 (Sole Supervisor).

Stefano Zorzi, University of Trento, completed 2022 (Sole Supervisor).

Giuseppe Bagattini, University of Trento, completed 2021 (Sole Supervisor).

Nicolò Maule, University of Trento, completed 2021 (Sole Supervisor).

Francesca Folchini, University of Trento, completed 2021 (Sole Supervisor).

Michele Speri, University of Trento, completed 2021 (Sole Supervisor).

Francesca Valeria Caspani, University of Trento, completed 2021 (Sole Supervisor).

Samuele Pipere, University of Trento, completed 2021 (Sole Supervisor).

Stefano Meneguzzo, University of Trento, completed 2020 (Sole Supervisor).

Fancesca Brighenti, University of Trento, completed 2020 (Sole Supervisor).

Loris Feller, University of Trento, completed 2020 (Sole Supervisor).

Francesca Poli, University of Trento, completed 2020 (Sole Supervisor).

Michele Luchetta, University of Trento, completed 2020 (Sole Supervisor).

Ahmed Dabbas, University of Trento, completed 2018 (Sole Supervisor).

Simone Pavan, University of Trento, completed 2018 (Sole Supervisor).

Andrea Giovannini, University of Trento, completed 2018 (Sole Supervisor).

Daniele Rizzo, University of Trento, completed 2017 (Sole Supervisor).

Anna Groff, University of Trento, completed 2017 (Sole Supervisor).

Niccolò Grossi, University of Trento, completed 2016 (Sole Supervisor).

Marco Mensel, University of Trento, completed 2016 (Sole Supervisor).

Francesca Parolini, University of Trento, completed 2016 (Sole Supervisor).

Andrea Verzobio, University of Trento, completed 2016 (Sole Supervisor).

Gianluca Carravieri, University of Trento, completed 2016 (Sole Supervisor).

Anna Groff, University of Trento, expected 2016 (Sole Supervisor).

Claudia Sguazzardo, University of Trento, expected 2016 (Sole Supervisor).

Marco Baroni, University of Trento, completed 2016 (Sole Supervisor).

Giulio Ferlisi, University of Trento, completed 2016 (Sole Supervisor).

Matteo Licitra, University of Trento, completed 2016 (Sole Supervisor).

Klemens Raffl, University of Trento, completed 2016 (Sole Supervisor).

Denise Bolognani, "Mechanical equivalent of logical inference", University of Trento, completed 2015 (Sole Supervisor).

Gianluigi Tonidandel, University of Trento, completed 2015 (Sole Supervisor).

Andrea Maroni, "After-earth quake damage detection: numerical and experimental uncertainty analyses of different monitoring strategies" University of Trento, completed 2015 (Sole Supervisor).

Cristiano Bazzoli, University of Trento, expected 2015 (Sole Supervisor).

Mirco Agosti, "Analysis and extension of DOMUS railway bridge management system" University of Trento, 2015 (Sole Supervisor).

Andrea Anselmo, "Development of seismic monitoring system for school buildings", University of Trento, 2015 (Sole Supervisor).

Stefano Decarli, "An investigation of the structural behavior of Portogruaro Civic Tower in view of its reinforcement intervention", University of Trento, 2015 (Sole Supervisor).

Alessio Vallarini, "Structural behavior interpretation of Colle Isarco Viaduct based on Bayesian analysis of monitoring data" University of Trento, 2015 (Sole Supervisor).

Luca Mazzi, University of Trento, "Bayesian estimation of the effectiveness of a monitoring system for Colle Isarco Viaduct: design and analysis of a measurement system based on topographic stations and optical prisms", 2014 (Sole Supervisor).

Alessandro Massarotto, University of Trento, "Bayesian estimation of the effectiveness of a monitoring system for Colle Isarco Viaduct: design and analysis of a network of fiber

optic sensors and thermocouples”, 2014 (Sole Supervisor).

Patrick Soraruf, University of Trento and TU Dresden, “Reliability assessment of roadway bridges under overweight vehicle traffic” 2014 (Co-Supervisor: Wolfgang Graf).

Daniele Dellai, University of Trento, “Evaluation of the load-carrying capacity of existing girder bridges under overweight vehicle traffic”, 2014 (Sole Supervisor).

Luca Perlini, University of Trento, “Structural reliability assessment of Portgruaro Civic Tower”, 2013 (Sole Supervisor).

Carlo Cappello, “An implementation of expected utility theory in a civil engineering decision problem”, University of Trento, 2013 (Sole Supervisor).

Francesco Chesini, “Evaluation of the carrying capacity of girder bridges under overweight vehicle load”, University of Trento, expected 2013 (Sole Supervisor).

Francesco Demozzi, “Reliability analysis of arch bridges of the Province of Trento under overweight vehicle traffic”, University of Trento, 2013 (Sole Supervisor).

Marion Furtschegger, “Analysis of long term structural response of Colle Isarco viaduct using non-classical creep model”, University of Trento, 2013 (Sole Supervisor).

Mattia Montanari, “Analysis and evaluation of a method for seismic damage detection for prefabricated buildings based on instrumental monitoring”, University of Trento, 2013 (Sole Supervisor).

Alberto Palma, “Application of deterioration models for identifying the structural behaviour of Colle Isarco Viaduct”, University of Trento, 2013 (Sole Supervisor).

Luca Perolo, “Specifications for a seismic monitoring system for prefabricated industrial buildings and implementation of an event classification algorithm”, University of Trento, 2013 (Sole Supervisor).

Saulo Maestranzi, “Bayesian analysis of long-term behaviour of the cable-stayed bridge on the Adige river, near Zambana, based on structural monitoring”, University of Trento, 2012 (Sole Supervisor).

Federico Bruschetta, “Structural reliability evaluation of the Adige cable-stayed bridge via Bayesian analysis of the monitoring data”, University of Trento, 2012 (Sole Supervisor).

Luca Mattiuzzi, “Evaluation of the reliability of the Autonomous Province of Trento bridge stock under overweight-vehicle loads”, University of Trento, 2012 (Sole Supervisor).

Daniele Coato, “Laboratory validation of Memscon technology for after-earthquake assessment of RC buildings”, University of Trento, 2012 (Sole Supervisor).

Enrico D’Alessandro, “Seismic risk evaluation of steel railway bridges: an application to the Italian Railway Network (RFI) bridge stock”, University of Trento, 2012 (Sole Supervisor).

Giacomo Cigognetti, “Wireless sensors for seismic monitoring of reinforced concrete buildings: experimental characterization and application to a full-scale frame structure”, University of Trento, 2012 (Sole Supervisor).

Gianfranco Anolfi, “Structural monitoring and analysis of the cantoria in Santa Maria Maggiore Church, Trento”, University of Trento, 2011 (Sole Supervisor).

Marco Molignoni, “Structural monitoring of the cable-stayed bridge on Adige river: analysis of sensors working principle and of structural behaviour”, University of Trento, 2011 (Sole Supervisor).

Federico Larcher, “Experimental validation of Memscon Phase II sensors for reinforced concrete buildings”, University of Trento, 2011 (Sole Supervisor).

Aldo Madaschi, University of Trento, 2011 (Co-Supervisor: Alessandro Gajo).

Alessandro Lastei, “Reliability analysis of the bridge stock of the Autonomous Province of Trento under overweight load condition”, University of Trento, 2011 (Sole Supervisor).

Mattia Modunutti, “The Basilica of Santa Maria Maggiore in Trento: when architecture, archaeology and engineering meet”, University of Trento, 2011 (Co-Supervisor: Giorgio

Cacciaguerra).

Paolo Esposito, University of Trento, "Structural Monitoring of the North Trento-Rocchetta Adige Bridge", 2010 (Sole Supervisor).

Davide Dal Bosco, "Wireless technology for the after-earthquake evaluation of damage state in reinforced concrete structures", University of Trento, 2010 (Sole Supervisor).

Davide Trapani, "Experimental characterization of wireless sensors for the post-earthquake assessment of reinforced concrete buildings", University of Trento, 2010 (Sole Supervisor).

Massimo Dalle Vedove, University of Trento, "Analysis of the collapse mechanism and of the provisional post-seismic artworks for the case of Santa Margherita ex-Jesuits Church in L'Aquila", 2010 (Co-Supervisor: Maurizio Costantini).

Moreno Rosi, University of Trento, "Seismic vulnerability analysis of renaissance churches: the case of Santa Maria Church in Trento", (Co-Supervisor: Paola Gatti).

Alessandro Porto, University of Trento, "Method for evaluating the seismic vulnerability of the tunnel system of the Autonomous Province of Trento", 2010 (Co-Supervisor: Alessandro Gajo).

Emiliano Debiasi, University of Trento, "Theoretical Analysis of seismic vulnerability of buried structures", 2010 (Co-Supervisor: Alessandro Gajo).

Davide Emer, University of Trento, "Analysis of the structural monitoring of a cable-stayed bridge", completed 2010 (Sole Supervisor).

Silvia Cremasco, University of Trento, "Limit state assessment of a masonry barrel vault. The case of the Basilica of Santa Maria Maggiore", completed 2009 (Co-Supervisors: Giorgio Cacciaguerra, Matteo Pozzi).

Tiziano Sartori, University of Trento, "Dissipative behavior of doweled timber connections", completed 2008 (Co-Supervisor: Maurizio Piazza).

Nicola Gavet "Distributed technologies for monitoring and inventorying the historic heritage", completed 2008 (Co-Supervisors: Paolo Zanon, Matteo Pozzi).

Matteo Faccincani "Statistical models and methods for prestressed concrete structure monitoring", completed 2007 (Sole Supervisor).

Massimo Cadrobbi, University of Trento, "Distributed technologies for structural monitoring of historic buildings: the Torre Aquila in Trento", completed 2007 (Co-Supervisor: Paolo Zanon).

Matteo Apollonia, University of Trento, "Fiber optic sensors for structural health monitoring", completed 2006 (Co-Supervisors: Paolo Zanon, Matteo Pozzi).

Nicola Naldo, University of Trento, "Safety assessment of Portogruaro Civic Tower", completed 2005 (Co-Supervisor: Paolo Zanon).

Alberto Lonardi, University of Trento, "Typological analysis of historic buildings", completed 2005 (Co-Supervisor: Paolo Zanon).

Stefano Toffaletti, University of Trento, "Development of shared analysis instruments for the operation of an internet - based monitoring system", completed 2003 (Sole Supervisor).

Massimo Giuliani, "Development and application of an in-line monitoring system for real-time control of structural response", completed 2002 (Sole Supervisor).

University Service

Director of the Materials and Structures Testing Laboratory, Department of Civil, Environmental and Mechanical Engineering, University of Trento (2021-present).

Coordinator of undergraduate studies, Civil Engineering, Department of Civil, Environmental and Mechanical Engineering, University of Trento (2021-present).

Joint Board of Moderators (JBM) Accreditation Group, Department of Civil and Environmental Engineering, University of Strathclyde (2018-2019).

Management Committee, Department of Civil and Environmental Engineering, University of Strathclyde (2016-2019).

Head, Centre for Intelligent Infrastructure, Department of Civil and Environmental Engineering, University of Strathclyde (2016-2019).

Member, Executive Committee, Doctoral School in Civil, Environmental and Mechanical Engineering, University of Trento (2013-2018).

Member, Erasmus Committee, Department of Civil, Environmental and Mechanical Engineering, University of Trento (2012-present).

Member, Double Degree Committee, Department of Civil, Environmental and Mechanical Engineering, University of Trento (2012-present).

Member, "Collegio Area Didattica", Department of Civil, Environmental and Mechanical Engineering, University of Trento (2012-present).

Member, Self-assessment Committee, Master Program ("Laurea Magistrale") in Civil Engineering, School of Engineering, University of Trento (2011-2012).

Member, Student Curriculum Committee, School of Engineering, University of Trento (2006-2012).

Secretary, Doctoral School of Engineering of Civil and Mechanical Structural Systems, University of Trento (2006-present).

Member, Executive Committee, Doctoral School of Engineering of Civil and Mechanical Structural Systems, University of Trento (2006-2012).

Secretary, Doctoral School of Structural Engineering, University of Trento (2003-2006).

Member, Executive Committee, Doctoral School of Structural Engineering, University of Trento (2003-2006).

Member, "Multi Cultural University" program Committee, University of Trento, University of Trento (2002-present).

Member, Erasmus Committee, School of Engineering, University of Trento (2001-2012).

Knowledge Transfer Start-up Activity

Academic tutor and Co-founder, "Intelligent Infrastructure Innovation srl", start-up Company of the University of Trento, established 2014.

Start-up grant "Seed Money FESR 2007-2013", Source: Fondo Sociale Europeo per lo Sviluppo Regionale (FESR). Period: Apr 2014-Oct 2015. Amount: €150,000.

Grant "Sviluppo di un sistema di monitoraggio sismico per patrimoni edilizi esistenti Source: "APIAE Agenzia provinciale per l'incentivazione delle attività economiche, Provincia Autonoma di Trento". Period: Mar 2017-June 2018. Amount: € 61,233.41.

Patents

PR102015000009772 'Sistema e metodo per determinare l'entità della deformazione di una struttura edile e, più in generale, di una costruzione', 2015.

Technical Committees

Convener, Technical Committee TG3.5 "Forensic engineering", International Federation for Structural Concrete (FIB).

Member, Technical Committee "Bridge Health Monitoring", International Association for Bridge Maintenance and Safety (IABMAS).

Member, Workgroups UNI-CIS-GL-6 "Structural Health Monitoring" and UNI-CIS-GL-2 "Existing Structures", Italian Standardization Agency (UNI).

Member, CEN/TC250 "Structural Eurocodes", WG2 "Existing Structures", European Committee for Standardization (CEN).

Professional Experience

Professional Registration

Chartered Engineer in Italy since 1997 (Registration number TN-2298).

Forensic Consultants

Trento District Attorney's Office. On the collapse of a reinforced concrete cantilever roof in Cles (TN). Trento Criminal Court Proceeding #4738-12, 2012.

Trento District Attorney's Office. Verifying the specifications of a guard rail system. Trento Criminal Court Proceeding #1409-08, 2008.

Trento District Attorney's Office. On the failure of worker-fall protection system. Trento Criminal Court Proceeding #2410-06, 2006.

Trento District Attorney's Office. On an accident caused by the failure of a fan gun (snow-making machine). Trento Criminal Court Proceeding #947-06, 2006

Trento District Attorney's Office. On an accident caused by a structural failure in a cement plant. Trento Criminal Court Proceeding #3899-05, 2005

Trento District Attorney's Office. On the collapse of a stone masonry building in Albiano (TN). Trento Criminal Court Proceeding #6691-03-21, 2004.

Trento Court of Appeals. On the collapse of a floor-slab in Riva del Garda (TN). Trento Court of Appeals Proceeding #318-03-RG, 2004.

Trento District Attorney's Office. Verifying construction defects on a residential building block in Civezzano (TN). Trento Criminal Court Proceeding #11290-2001-RG NR, 2003.

Trento District Attorney's Office. On an accident caused by a mixing and pumping machine for concrete. Trento Criminal Court Proceeding #4249-02-21, 2003.

Trento District Attorney's Office. Investigation on the effect of working procedures in porphyry mining system. Trento Criminal Court Proceedings # 9711/00-21, 9717/00-21, 9709/00-21, 9712/00-21, 11996/00-21, 5389/02-21, 2003

Trento District Attorney's Office. On the failure of the anchorage of a fall protection system. Trento Criminal Court Proceeding #11328-01-21, 2002.

Trento District Attorney's Office. On the failure of a crane in a mechanical factory in Condino (TN). Trento Criminal Court Proceeding #10098-01-21, 2002.

Trento Civil Court. Verification of construction defects and economic damage evaluation in the IRST-ITC building in Trento. Trento Civil Court Case #816-2000-RG, 2002.

Structural Design and Assessment

Rivoli SpA. Design of a new model of partially post-tensioned precast concrete box-girder element, 2008.

Autonomous Province of Trento. Safety evaluation and modal testing of the SP139 bridge on Castellaz gorge, 2004.

Autonomous Province of Trento. Safety evaluation of the SP76 bridge on Adige river, 2004.

Autonomous Province of Trento. Safety evaluation of the SP65 bridge on Larganza river, 2004.

Autonomous Province of Trento. Safety evaluation of the SP83 bridge on Nogarè run, 2003.

Autonomous Province of Trento. Safety evaluation of the SP65 bridge on Maso river, 2003.

Municipality of Portogruaro. Experimental modal testing and safety evaluation of the Civic Tower, 2002.

Consorzio Padova Ricerche, Padova. Preliminary design of a roadway bridge on the Adige River at Villa Bartolomea (VR), 1997.

Monitoring and NDE

Area Prefabbricati SpA. Development of a seismic monitoring system for prefabricated

industrial buildings, 2012.

Far System SpA, Rovereto. Feasibility study for an integrated maintenance, management and monitoring system for the new Pedemontana Lombarda Highway, 2010-2011.

Autonomous Province of Trento. Design and installation of an internet-based monitoring system on the Trento Nord-Rocchetta cable-stayed bridge on Adige river, 2009.

Parish of Santa Maria Maggiore, Trento. Design and installation of an internet-based monitoring system for control of the Church of Santa Maria Maggiore, 2008-2009.

Municipality of Portogruaro. Design and installation of an internet-based monitoring system for control of the Civic Tower inclination, 2003-2009.

City of Verona. Design of a monitoring system to be installed on selected structures of the Roman Theatre in Verona, 2000.

Consorzio Padova Ricerche, Padova. Experimental modal testing and numerical modeling of the behavior of freestanding walls of the Roman Theatre in Verona, 2000.

Claudio Modena Engineer, Sommacampagna. Dynamic analysis of the XII century Castello di Maniace in Siracusa, 2000.

Cinel SpA, Castelfranco Veneto. Vibration measurement and consultant on an isolation intervention of a tool machine at the Cinel SpA factory, 2000.

Giotto High Technologies s.r.l., Padova. Vibration measurement and consultant on an isolation intervention of a laser machinery at the Ecoflam factory, 1999.

Veneto Region Conservancy. Design of a new monitoring system to be installed on the XIII century Santa Sofia Church in Padova, 1999.

City of Verona. Design of an updated monitoring system for the Roman Amphitheatre in Verona, 1999.

RWS srl, Vigonza. 1-year operation of the monitoring system for Santa Sofia church in Padova, 1999.

Immobiliare Giò srl, Villorba. Experimental measurements and consultant on the reliability of vibration based integrity tests of foundation piles, 1999.

Claudio Modena Engineer, Sommacampagna. Prediction of the dynamic response of a bell tower in Sopramente (TN), 1998.

Veneto Region Conservancy. Experimental modal analysis of the XIV century Santa Giustina bell tower in Padova, 1998.

RWS srl., Vigonza. Experimental dynamic analysis of the Colonna Marciana monument in Padova, 1998.

Claudio Modena Engineer, Sommacampagna. Signal processing and modelling of the Roman Amphitheatre in Verona, 1997.

Claudio Modena Engineer, Sommacampagna. Analysis of the dynamic response recorded on the Roman Amphitheatre in Verona, 1997.

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Publication List

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A. Referred Journal Papers

- A67 Tonelli, D., Caspani, V.F., Valentini, A., ...Perissin, D., Zonta, D.. "Interpretation of Bridge Health Monitoring Data from Satellite InSAR Technology", *Remote Sensing*, 15(21), 5242, 2023.
- A66 Maroni, A., Tubaldi, E., McDonald, H., Zonta, D.. "Monitoring-based adaptive water level thresholds for bridge scour risk management", *Reliability Engineering and System Safety*, 238, 109473, 2023.
- A65 Poli, F. , Brighenti, F., Bado, M.F., Zonta, D. "Bridge Structural Reliability for Maintenance Prioritization", *Structural Engineering International*, 2023.
- A64 Poli, F., Bado, M.F., Verzobio, A., Zonta, D.. "Bridge structural safety assessment: a novel solution to uncertainty in the inspection practice", *Structure and Infrastructure Engineering*, 2023.
- A63 Carlotto, A., Tran, T.N.L., Babiarczuk, B., Pietralunga, S.M., Chiasera, A.(...) Zonta D., "Low losses Er³⁺-doped flexible planar waveguide: Toward an all-glass flexible planar photonic system", *Ceramics International*, 2023.
- A62 Tonelli, D., Beltempo, A., Cappello, C., Bursi, O.S. Zonta, D. "Reliability analysis of complex structures based on Bayesian inference", *Structural Health Monitoring*, 2023.
- A61 Maroni, A., Tubaldi, E., McDonald, H., Zonta, D. "A monitoring-based classification system for risk management of bridge scour", *Proceedings of the Institution of Civil Engineers: Smart Infrastructure and Construction*, 175(2), pp. 92–102, 2022.
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- A57 Caspani, V.F., Tonelli, D., Poli, F., Zonta, D., "Designing a Structural Health Monitoring System Accounting for Temperature Compensation", *Infrastructures*, 7(1), 5, 2022
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- A54 Brighenti, F., Possidente, L., Zonta, D., "Algorithm to Estimate the Capacity Reserve of Existing Masonry Arch Railway Bridges" *Applied Sciences (Switzerland)*, 12(2), 756, 2022.

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- A42 Bursi, O.S., Zonta, D., Debiasi, E., Trapani, D., "Structural health monitoring for seismic protection of structure and infrastructure systems", *Geotechnical, Geological and Earthquake Engineering*, v.46, pp. 339-358, 2018.
- A41 Cappello, C., Zonta, D., Laasri, H.A., Glisic, B., Wang, M., "Calibration of elastomagnetic sensors on in-service cable-stayed bridges for stress monitoring", *Sensors*, 18(2),466, 2018.
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- A11. Pozzi M., Zonta D., Wu H., Inaudi D., "Development and laboratory validation of in-line multiplexed low-coherence interferometric sensors". *Optical Fiber Technology*, v. 14, p. 281-293, 2008.
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- A7. Bursi O. S., Molinari M., Savadkoobi A., Zonta D., "Finite Element Model Updating of a Steel–Concrete Composite Moment- Resisting Structure with Partial Strength Joints". *Key engineering materials*, v. 347, p. 101-106, 2007.
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