ALLEGATO B

INFORMAZIONI PERSONALI Gianrocco Mucedero

Sesso | Data di nascita '1993 | Nazionalità

POSIZIONE PER LA QUALE SI CONCORRE

Incarico avente per oggetto "impatto della variabilità delle proprietà materiali delle tamponature nella risposta strutturale di edifici esistenti" – cod. 02-2023, University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV

ESPERIENZA PROFESSIONALE

January 2022 – April 2022

Consultancy Service for Design and Supervision of Reconstruction of Public Infrastructures in Cabo Delgado province
Company: A.R.S Progetti SPA, Via Durban, 2, 00144 Roma RM
Project City: Cabo Delgado, Mozambique
Founding: World Bank
Role: Consultant, Member of the Advisors Team (Prof. Ricardo Monteiro and Prof. Carmine Galasso)
Activity: Advisor for the vulnerability assessment and for post-cyclone reconstruction of RC infilled and masonry buildings, supporting the design and planning of all the Disaster Resistant Infrastructures and providing guidelines and best practices.

November – 2018

Professional Engineer
University: University of Pavia
Albo: Ordine degli Ingegneri di Pavia
City: Pavia, Italia
Activity: Qualification as Professional Engineer (Italian legislation), Settore-A, matricola 3572, Ordine degli Ingegneri di Pavia, Via Indipendenza 11, 27100 Pavia.

01 January 2018 - 30 June 2018

Erasmus Traineeship
Company: ARUP, Naritaweg 118, 1043 CA Amsterdam, Netherlands
City: Amsterdam, Netherlands
Supervisiors: *Eng. Alessandro Marasca, PhD Eng. Michele Palmieri*
Activity: Involved in the study of induced seismicity effects in buildings in Groningen, at Arup in Amsterdam, addressing mainly the seismic risk assessment of Dutch unreinforced masonry buildings and retrofit systems. The main topics were to develop a simplified pushover analysis for unreinforced masonry buildings, study on out of plane of masonry wall, seismic risk assessment of unreinforced masonry existing building, studies on different retrofit systems and comparison of different codes.

ISTRUZIONE E FORMAZIONE

October 2022- present

Post-Doctoral Researcher
University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV
Supervisors: *Prof. Ricardo Monteiro*
Topic: Analisi della risposta strutturale e del rischio sismico di edifici in cemento armato considerando diversi tipi di incertezza epistemica.

September 2018- present

PhD Understanding and Managing Extremes (UME)
University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV

Grade: -
Thesis: -
Supervisors: *Prof. Ricardo Monteiro, Dr. Eng. Daniele Perrone*
PhD Research: The main PhD research topic is the comprehensive seismic assessment of existing RC buildings. A better understanding of the impact of a more accurate characterization of the contribution of masonry infills and other non-structural elements in the seismic behaviour of buildings is sought. Both single buildings and building portfolios are considered. The seismic performance is assessed in a fully integrated manners, considering expected annual losses as the main risk metric.

19 December 2017

Master's Degree Civil Engineering – Structures
University: University of Pavia, Via Adolfo Ferrata, 5, 27100 Pavia PV
Grade: 110/110 cum laude
Thesis: *Progressive collapse. Analysis and comparison of different building typologies*
Supervisors: *Prof. Eng. Roberto Nascimbene, Dr. Eng. Emanuele Brunesi*
Abstract: In the last couple decades, several numerical studies and limited experimental tests have investigated progressive collapse resistance of the structures, since an event of low-probability high consequence could represent potential human life and economic losses. In this study, after numerical model validation through experimental tests, progressive collapse resistance of different types of frame buildings were carried out and compared to the common reinforced concrete frame buildings. The results presented could be a reasonable facility for a preliminary progressive collapse resistance of existing buildings, especially if they were designed for only vertical loads, for preliminary design of which cross section might be adopted, taking into account in quantitative terms of possible local failure, for checking new buildings when the Direct Method was not applied.

24 September 2015

Bachlor's Degree Civil/Environmental Engineering
University: University of Pavia
Grade: 104/110
Thesis: *Topology optimization with mixed method Hu-Washizu and implementation of the process in Matlab.*
Supervisors: *Prof. Eng. Paolo Venini*

COMPETENZE PERSONALI

Lingua madre   Italiano

Altre lingue

COMPRENSIONE		PARLATO		PRODUZIONE SCRITTA
Ascolto	Lettura	Interazione	Produzione orale	
Inglese B2	B2	B2	B2	B2

Competenze comunicative   Possiedo buone competenze comunicative acquisite durante la mia esperienza di Dottorato e durante il periodo svolto in Olanda, nonché grazie ai seminari e conferenze svolte in questi anni.

Competenze organizzative e gestionali   Eccellente capacità di raggiungere gli obiettivi sotto pressione.
Eccellente capacità di motivare e sostenere il team nel raggiungimento degli obiettivi.
Ottime capacità organizzative e di lavoro di squadra, sviluppate non solo nello sport ma anche nei numerosi progetti realizzati durante gli studi universitari.

Competenze professionali   Progettazione di opere civili.
Valutazione della vulnerabilità sismica e progettazione interventi di rinforzo strutturali.
Analisi di robustezza strutturale.
Implementazione in Matlab.
Progettazione simulata di edifici esistenti in accordo con le normative dell'epoca di costruzione.
Analisi avanzata di strutture tamponate attraverso l'utilizzo di modelli a più bielle e quantificazione di incertezza epistemica.
Analisi di rischio sismico.

ALLEGATO B

Competenze informatiche	Eccellente capacità di apprendere rapidamente nuovi software e strumenti informatici.

Software e linguaggi di programmazione:

FEM Softwares	Programming Softwares	Other Softwares
Midas	Matlab	Autocad 2D-3D
SeismoStruct	Visual basic	Microsoft Office
SeismoBuild	Tcl	OpenQuake
SAP 2000		SeismoSelect
3 MURI		SeismoMatch
ProSap		
ProCinem		
OpenSees		

Patente di guida	AM (10/01/2013)
	B (24/10/2011)

ULTERIORI INFORMAZIONI

Pubblicazioni

January- December 2022

1. **Mucedero G**, Perrone D, Monteiro R. Infill Variability and Modelling Uncertainty Implications on the Seismic Loss Assessment of an Existing RC Italian School Building. Applied Sciences. **2022**; 12(23):12002. https://doi.org/10.3390/app122312002

2. **Mucedero, G.**, Perrone, D. & Monteiro, R. Seismic risk assessment of masonry-infilled RC building portfolios: impact of variability in the infill properties. Bull Earthquake Eng (**2022**). https://doi.org/10.1007/s10518-022-01563-0

3. **Mucedero, G**, Perrone, D, Monteiro, R. Epistemic uncertainty in poorly detailed existing frames accounting for masonry infill variability and RC shear failure. *Earthquake Engng Struct Dyn*. **2022**; 51: 3755– 3778. https://doi.org/10.1002/eqe.3748

January- December 2021

4. **Mucedero G.**, Perrone D., Monteiro R., Nonlinear static characterisation of masonry-infilled RC building portfolios accounting for variability of infill properties. Bull Earthquake Eng 19, 2597–2641 (**2021**). https://doi.org/10.1007/s10518-021-01068-2

5. **Mucedero G.**, Brunesi E., Parisi F., Progressive collapse resistance of framed buildings with partially encased composite beams, Journal of Building Engineering, Volume 38,**2021**,102228, ISSN 2352-7102, https://doi.org/10.1016/j.jobe.2021.102228.

January- December 2020

6. **Mucedero G.**, Perrone, D., Brunesi, E., Monteiro, R. Numerical Modelling and Validation of the Response of Masonry Infilled RC Frames Using Experimental Testing Results. *Buildings* **2020**, *10*, 182. https://doi.org/10.3390/buildings10100182.

7. **Mucedero G.**, Brunesi E., Parisi F., Nonlinear material modelling for fibre-based progressive collapse analysis of RC framed buildings, Engineering Failure Analysis, Volume 118,**2020**,104901,ISSN 1350-6307, https://doi.org/10.1016/j.engfailanal.2020.104901.

Conferenze

January- December 2023

1. **Mucedero G.**, Couto R., Clemett N., Gabbianelli G., Monteiro R. Implications of masonry infill–related uncertainty on the optimal seismic retrofitting of existing

buildings. 14th International conference on application of statistics and probability in civil engineering (ICASP 14) 9th -13th July **2023**, Trinity College Dublin, Dublin, Ireland (abstract accepted, oral presentation: **Mucedero G.**).

2. **Mucedero G.**, Perrone D., Monteiro R. Developing storey loss functions for evaluation of seismic risk in Italian residential building typologies. COMPDYN 2023, 9th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering M. Papadrakakis, M. Fragiadakis (eds.) Athens, Greece, 12-14 June 2023 (abstract accepted, oral presentation: **Mucedero G.**).

3. Couto R., **Mucedero G.**, Monteiro R., Bento R. On the influence of climate and seismic hazard conditions in the identification of optimal retrofitting strategies for RC buildings. COMPDYN 2023, 9th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering M. Papadrakakis, M. Fragiadakis (eds.) Athens, Greece, 12-14 June 2023 (abstract accepted, oral presentation: Couto R.).

4. **Mucedero G.**, Perrone D., Monteiro R. Improved seismic fragility and vulnerability curves for Italian existing masonry-infilled buildings SECED 2023 Conference Earthquake Engineering & Dynamics for a Sustainable Future 14-15 September 2023, Cambridge, UK (abstract accepted, oral presentation: **Mucedero G.**).

January- December 2022

5. **Mucedero G.**, Perrone D., Monteiro R.   Variability in the seismic demand of non-structural elements in existing RC infilled buildings. Fifth International Workshop on the Seismic Performance of Non-Structural Elements (SPONSE), Stanford University in Palo Alto, California (USA), December 5 to 7, **2022** (oral presentation: **Mucedero G.**).

6. Calò M., **Mucedero G.**, Nicoletti V., Gabbianelli G. Wooden infills influence on the seismic performance of steel structures. Fifth International Workshop on the Seismic Performance of Non-Structural Elements (SPONSE), Stanford University in Palo Alto, California (USA), December 5 to 7, **2022** (oral presentation: **Mucedero G.**).

7. **Mucedero G.**, Perrone D., Monteiro R. Epistemic uncertainty impact on seismic loss estimates of an Italian RC existing school building. The 3th European Conference on Earthquake Engineering & Seismology, Bucharest, Romania, **2022** (oral presentation: **Mucedero G.**).

8. **Mucedero G.**, Carrofilis W., Perrone D., Monteiro R. Impact of masonry infill properties and modelling uncertainty on the seismic risk assessment of existing Italian school buildings. The 13th International Conference on Structural Safety and Reliability (ICOSSAR 2021-2022), 13-17 September **2022**, Tongji University, Shanghai, China J. Li, Pol D. Spanos, J.B. Chen & Y.B. Peng (Eds) (oral presentation: Mucedero G.).

9. **Mucedero G.**, Brunesi E., Parisi F., Performance-oriented regression models for progressive collapse assessment of buildings with partially encased composite beams. The 13th International Conference on Structural Safety and Reliability (ICOSSAR 2021-2022), 13-17 September **2022**, Tongji University, Shanghai, China J. Li, Pol D. Spanos, J.B. Chen & Y.B. Peng (Eds) (video presentation: **Mucedero G.**).

January- December 2021

10. **Mucedero G.**, Perrone D., Brunesi E., Monteiro R.   Impact of masonry infill variability on the estimation of floor response spectra in RC buildings. 8th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and

Earthquake Engineering M. Papadrakakis, M. Fragiadakis (eds.) Streamed from Athens, Greece, 27–30 June **2021** (oral presentation: **Mucedero G.**)

11. **Mucedero G.**, Perrone D., Monteiro R. Nonlinear static response of a masonry infilled RC building stock considering the variability of infill parameters. 17th World Conference on Earthquake Engineering, 17WCEE Sendai, Japan, September 27 to October 2, **2021**.

Progetti di Ricerca

2022 - 2024

Research Project: ReLUIS WP5 2022-2024
Principal Investigator: Prof. Ricardo Monteiro
University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV
Project: Interventi di rapida esecuzione a basso impatto ed integrati
Activity: Following the analysis of the structural deficiencies of a case-study school building using nonlinear static analysis, different retrofit alternatives are proposed and evaluated through a MCDM framework to select the closest-to-ideal, i.e. optimal solution. The MCDM results are analyzed in detail, highlighting the implications of considering the variability in the masonry infill properties, an uncertainty source that is commonly discarded, on the expected annual loss estimation and on the retrofitting alternatives ranking.

25 March 2020 - 24 July 2020

Partnership Contract: RELUIS WP18
University: University of Pavia, Via Adolfo Ferrata, 5, 27100 Pavia PV
Principal Investigator: Prof. Carlo Lai
Project: Valutazione sismica di strutture esistenti tramite metodi semplificati e avanzati
Activities: The research activity aimed at the seismic evaluation of existing RC infilled structures through simplified and advanced methods, including nonlinear static and nonlinear dynamic analysis, has allowed to highlight the impact of masonry infills on both global and local response of reinforced concrete existing buildings, as well as their impact on the related expected annual losses (evaluated with both advanced and simplified methods).

2019 - 2022

Research Project: ReLUIS WP5 2019-2022
Principal Investigator: Prof. Ricardo Monteiro
University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV
Project: Interventi di rapida esecuzione a basso impatto ed integrati
Activities: Investigation and quantification of the effect of masonry-infill variability on the expected annual losses (EALs) of existing infilled reinforced concrete frames of different configurations. EALs are computed and analysed in a statistical fashion in order to quantify, in a simplified manner, the uncertainty induced by the variability of the masonry infill properties, as a function of the number of storeys and masonry infill typology.

2018 - 2022

Research Project: Dipartimenti di Eccellenza - Revision of Seismic Action and Design Methods
Principal Investigator: Prof. Gian Michele Calvi
University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV
Project: New Methods for Seismic Design and Risk Assessment of Structures
Activities: A macro-classification based on different available databases of experimental tests on infilled RC frames has been proposed to understand the variability in the infill properties and the corresponding numerical modelling uncertainties. Then, numerical modelling validation using experimental testing results have been performed, considering and comparing the main formulations available in the literature for the definition of the hysteretic behaviour of infills, allowing to identify the model that minimizes the prediction error, according to specific features of the selected masonry infill.

Attività di docenza/tutoraggio

15 November-14 December 2022

PhD Course

University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV

Course: Integrated Assessment and Retrofitting of Existing Buildings, 6 CFU

Instructors: Rui Pinho, Ricardo Monteiro, Giammaria Gabbianelli, Martina Caruso, Francesco Cavalieri, Gianrocco Mucedero

Topic: Numerical modelling of existing RC infilled structures; Seismic retrofitting strategies for R.C. structures; Seismic loss assessment methodologies (engaged for 12/56 hours)

04 July 2022

Seminar MSc / PhD Course

University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV

Course: Fundamental of Seismic Design, 6 CFU

Advisor: Prof. Ricardo Monteiro

Instructors: Ricardo Monteiro and Giammaria Gabbianelli

Topics: Numerical modelling of existing and new RC infilled frames (engaged for **2** hours)

June 2020 - July 2020

Teaching assistant MSc / PhD Course

University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV

Course: Fundamental of Seismic Design, 6 CFU

Instructor: Prof. Ricardo Monteiro and PhD Gerard O'Reilly

Teaching topics: Force-deformation characteristics of RC elements, Elastic and inelastic response spectra, Seismic design methods, Performance-based seismic design, Direct displacement-based seismic design (DDBD), Conceptual seismic design, Inelastic analysis and seismic assessment methods, Seismic loss assessment (engaged for **54** hours)

October 2019 - February 2020

Teaching assistant Bachelor's degree Course

University: University of Pavia, Via Adolfo Ferrata, 5, 27100 Pavia PV

Course: Structural mechanics, 6 CFU

Advisor: Prof. Carlo Cinquini, Prof. Eng. Paolo Venini

Teaching topics: Finite elements methods, Trusses, Eulero-Bernoulli beam, Timoshenko beam, Basic knowledge of structural dynamics, Theory of Instability, Implementation in Matlab (engaged for **14** hours)

October 2018 - February 2019

Teaching assistant Bachelor's degree Course

University: University of Pavia, Via Adolfo Ferrata, 5, 27100 Pavia PV

Course: Structural mechanics, 6 CFU

Advisor: Prof. Carlo Cinquini, Prof. Eng. Paolo Venini

Teaching topics: Finite elements methods, Trusses, Eulero-Bernoulli beam, Timoshenko beam, Basic knowledge of structural dynamics, Theory of Instability, Implementation in Matlab (engaged for **22** hours)

October 2017 - February 2018

Teaching assistant Bachelor's degree Course

University: University of Pavia, Via Adolfo Ferrata, 5, 27100 Pavia PV

Course: Structural mechanics, 6 CFU

Advisor: Prof. Carlo Cinquini, Prof. Eng. Paolo Venini
Teaching topic: Finite elements methods, Trusses, Eulero-Bernoulli beam, Timoshenko beam, Basic knowledge of structural dynamics, Theory of Instability, Implementation in Matlab (engaged for **22** hours)

October 2016 - February 2017   **Teaching assistant Bachelor's degree Course**
University: University of Pavia, Via Adolfo Ferrata, 5, 27100 Pavia PV
Course: Structural mechanics, 6 CFU
Advisor: Prof. Carlo Cinquini, Prof. Eng. Paolo Venini
Teaching topic: Finite elements methods, Trusses, Eulero-Bernoulli beam, Timoshenko beam, Basic knowledge of structural dynamics, Theory of Instability, Implementation in Matlab (engaged for **22** hours)

October 2015 - February 2016   **Teaching assistant Bachelor's degree Course**
University: University of Pavia, Via Adolfo Ferrata, 5, 27100 Pavia PV
Course: Structural mechanics, 6 CFU
Advisor: Prof. Carlo Cinquini, Prof. Eng. Paolo Venini
Teaching topic: Finite elements methods, Trusses, Eulero-Bernoulli beam, Timoshenko beam, Basic knowledge of structural dynamics, Theory of Instability, Implementation in Matlab (engaged for **22** hours)

Riconoscimenti e premi

October – 2021   **Editor's Choice Article**
Journal: *Buildings*, MDPI (Basel, Switzerland)
Paper: Mucedero, G.; Perrone, D.; Brunesi, E.; Monteiro, R. Numerical Modelling and Validation of the Response of Masonry Infilled RC Frames Using Experimental Testing Results. Buildings 2020, 10, 182. *https://doi.org/10.3390/buildings10100182*.

December 2019   **Winner of the International Blind Prediction Competition**
University/Promoter: QuakeCoRE, in collaboration with the National Centre for Research on Earthquake Engineering (NCREE)
Team members: Eng. Gianrocco Mucedero, PhD Antonio Silva, PhD Eng. Daniele Perrone, Prof. Ricardo Monteiro.
Activity: Prediction of the response of two half- scale 7-story RC structures with torsional irregularities, due to masonry infills, to earthquake shaking.

2017   **Erasmus Traineeship**
University: University of Pavia, Via Adolfo Ferrata, 5, 27100 Pavia PV
Object: Erasmus Traineeship founded by University of Pavia (UNIPV).
Founded Period: 6 months
City: Amsterdam, Netherlands
Company: ARUP, Naritaweg 118, 1043 CA Amsterdam, Netherlands

2015   **Scholarship**
Promoter: EDiSU Pavia - Via Sant' Ennodio, 26, 27100 PAVIA
Object: Scholarship for merit requirements and facilitations.
2014   **Scholarship**
Promoter: EDiSU Pavia - Via Sant' Ennodio, 26, 27100 PAVIA
Object: Scholarship for merit requirements and facilitations.

2013   **Scholarship**
Promoter: EDiSU Pavia - Via Sant' Ennodio, 26, 27100 PAVIA

Object: Scholarship for merit requirements and facilitations.

Appartenenza a gruppi / associazioni

2020 – to present
Member of the Lab: Research & Innovation in multi-hazard Safety & resilience of civil Engineering systems
University: University of Naples Federico II, Corso Umberto I, 40, 80138 Napoli NA
Lab Head: Prof. Fulvio Parisi
Department: Structures for Engineering and Architecture
Topics: Critical infrastructures; Advanced structural simulation; Quantitative risk and resilience analysis to natural, technological and NaTech hazards.

2019 – 2022
Joint Professor-Student Committee
University: University School for Advanced Studies IUSS, Palazzo del Broletto, Piazza della Vittoria 15, 27100 Pavia PV
President: Prof. Nicola Canessa
Role: Representative of PhD Students

ALLEGATI

- Autocertificazione Laurea Magistrale
- Editor's Choice Article
- Blind Prediction Competition 2019
- Learning agreement traineeships

Data 23/02/2023

Firma

Documento
firmato in
originale
conservato agli atti