



## Gerard J. O'Reilly

Associate Professor

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🏠 [gerardjoreilly.github.io](https://gerardjoreilly.github.io)

🐙 [GitHub](#)

in [LinkedIn](#)

🎓 [Scopus](#)

G [Google Scholar](#)

## Appointments

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### Current

- Associate Professor of Structural Engineering @ Centre for Training and Research on Reduction of Seismic Risk (ROSE Centre), [IUSS Pavia](#), Italy Dec 2023 - present
- Affiliated Researcher @ [EUCENTRE Foundation](#), Pavia, Italy Jan 2014 – present

### Other

- Member of the Doctoral Advisory Board (*Collegio dei docenti*) for PhD programme in Earthquake Engineering (ROSE) @ [IUSS Pavia](#), Italy Apr 2024 - present
- Member of the Advisory Board (*Comitato di Coordinamento*) @ [EUCENTRE Foundation](#), Pavia, Italy Jan 2024 – present

### Past

- Assistant Professor (*Ricercatore a tempo determinato Tipo A*) of Structural Engineering @ Centre for Training and Research on Reduction of Seismic Risk (ROSE Centre), [IUSS Pavia](#), Italy May 2019 - Nov 2023
- Visiting Researcher @ [Kobori Research Complex](#), Tokyo, Japan Nov 2019 – Dec 2019
- Post-doctoral Researcher @ Centre for Training and Research on Reduction of Seismic Risk (ROSE Centre), [IUSS Pavia](#), Italy Mar 2017 – Apr 2019
- Visiting Researcher @ [University of California, Berkeley](#), USA Sept 2011 – Aug 2012

## Education

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- Ph.D in Earthquake Engineering & Engineering Seismology, [IUSS Pavia](#), Italy 2016
- M.Sc. in Civil Engineering, [University of Galway, Ireland](#) 2013
- B.Eng. in Civil Engineering, [University of Galway, Ireland](#) 2010

## Honours & Awards

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- Awarded 2024 Engineering Structures Best Paper of the Year (Artificial Intelligence in Structural Engineering) for paper on "Next-generation non-linear and collapse prediction models for short to long period systems via machine learning methods"
- Awarded Editor's Featured Paper Award by Engineering Structures for paper on "Next-generation non-linear and collapse prediction models for short to long period systems via machine learning methods"
- 2022 recipient of the Shah Family Innovation Prize by the Earthquake Engineering Research Institute to honour an individual under the age of 35 for creativity, innovation and an entrepreneurial spirit in earthquake risk mitigation and management [[Link](#)]
- Won the [2020 Outstanding Paper Award](#) by the International Association for Bridge and Structural Engineering for the research article: [Once upon a Time in Italy: The Tale of the Morandi Bridge](#)
- Awarded a fellowship by the University of California Education Abroad Program to complete a 1-year research exchange at the University of California, Berkeley
- Awarded "Best Structures Paper" for paper presented at the BCRI2012 conference in Dublin, Ireland

- Awarded “University Scholar Prize” in 2007 and 2008 by the University of Galway in recognition of academic excellence during undergraduate studies

## Research Projects

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### Research Project Coordination

- Progetto DPC/ReLUIIS 2024-2026: WP5.4: Rapid, low impact and integrated retrofitting schemes for bridges** Apr 2024 – present  
*Webpage:* <http://www.reluis.it/>  
*Role:* Coordinator  
*Budget:* €75,000  
*Funding:* Italian Civil Protection Department  
*Description:* The investigation of damage mechanisms in existing bridge structures commonly found throughout Italy and comparison with past damage observations. The objective is to investigate the level of inter- and intra-structure correlation between these typologies to facilitate the more refined regional assessment and prioritisation of required interventions.
- EFEHR - European Facilities for Earthquake Hazard and Risk** Jul 2024 – present  
*Webpage:* <http://www.efehr.org/start/>  
*Role:* Local Coordinator  
*Budget:* €8,600  
*Funding:* European Plate Observing System - European Research Infrastructure Consortium (EPOS-ERIC)  
*Description:* This project facilitates the EUCENTRE’s involvement in advancing earthquake hazard and risk assessment in the European-Mediterranean area as part of the EFEHR consortium’s overall efforts.
- Built Environment Data Thematic Core Service** Oct 2022 – present  
*Webpage:* <https://builtenvdata.eu/>  
*Role:* Coordinator  
*Funding:* Italian Ministry of University and Research (MUR)  
*Description:* The development of a new candidate thematic core service as part of EPOS (European Plate Observing System) related to the built environment. This comprises the development of databases and computational tools that facilitate the collaboration and sharing of data and knowledge according to the FAIR (Findable, Accessible, Interoperable, and Reusable) principles related to buildings and urban infrastructure.
- Progetto Dipartimento di Eccellenza 2023-2027** Jan 2023 – Dec 2027  
*Webpage:* [www.iusspavia.it/it/ricerca/dipartimento-di-eccellenza-2023-2027](http://www.iusspavia.it/it/ricerca/dipartimento-di-eccellenza-2023-2027)  
*Role:* Coordinator (Line R1)  
*Budget:* €6,650,000  
*Funding:* Italian Ministry of University and Research (MUR)  
*Description:* The development of a risk-based approach for the sustainable design of structures and infrastructures with particular regard to those of protection from natural disasters and the sustainable development of the nation.
- ERIES: Engineering Research Infrastructures for European Synergies** Jun 2022 – May 2026  
*Webpage:* [www.eries.eu](http://www.eries.eu)  
*Role:* Project Coordinator  
*Budget:* €11,616,118.24  
*Funding:* European Union Horizon Europe

*Description:* ERIES provides transnational access to advanced experimental facilities in the fields of structural, seismic, wind and geotechnical engineering, with new and unique infrastructures available for the first time. It allows users to advance frontier knowledge and conduct curiosity-driven research towards the reduction of losses and disruption due to these hazards, the management of their associated risk, and the development of innovative solutions to address them that will contribute to a greener and more sustainable society. The project comprises 13 partners from 8 different countries across Europe and North America, including: IUSS Pavia (Italy, Coordinator), Eucentre Foundation (Italy); University of Patras (Greece); Aristotle University of Thessaloniki (Greece); Laboratório Nacional de Engenharia Civil (LNEC), Lisbon (Portugal); Centre de recherche (CEA) Paris-Saclay (France); University of Bristol (United Kingdom); Institute of Earthquake Engineering and Engineering Seismology (IZIIS) Skopje (N. Macedonia); University of Genova (Italy); Western University (Canada); Eindhoven University of Technology (TU/e), Eindhoven (Netherlands); Centre Scientifique et Technique du Bâtiment (CSTB) Nantes (France); European Laboratory for Structural Assessment at the Joint Research Centre (JRC), Ispra (Italy).

- **ROSSINI: Progettazione, realizzazione e sperimentazione di un sistema prototipale di navigazione risk-aware per la gestione e mitigazione del Rischio Sismico in industrie a rischio di Incidente rilevante** Jun 2020 – Nov 2022

*Webpage:* [www.progetto-rossini.it](http://www.progetto-rossini.it)

*Role:* Principal Investigator and Coordinator

*Budget:* €333,300

*Funding:* Italian National Institute for Insurance against Accidents at Work (INAIL)

*Description:* ROSSINI placed itself within the overall field of seismic risk-aware navigation systems. It used of a sensor array in tandem with a customisable library of fragility functions and numerical models for the integrated risk-aware navigation in industrial plants at risk of NaTech accidents, using an industrial plant facility in Italy as its pilot study. The integration of structural and environmental risks estimated and measured in different ways via a sensor array network was presented as part of an integrated risk identification and evaluation (RIE) online module. This module was used to combine and map the possible risks spatially within an industrial plant's layout and shown how this information can then be used to not only compute the safest path to safety for a worker located within such a plant but also how mobile communications can be used to aid and guide them in different scenarios.

- **Progetto Dipartimento di Eccellenza 2018-2022** Jan 2019 – Jun 2022

*Webpage:* [www.iusspavia.it/it/ricerca/dipartimento-di-eccellenza-2018-2022](http://www.iusspavia.it/it/ricerca/dipartimento-di-eccellenza-2018-2022)

*Role:* Deputy Coordinator (Line 3)

*Budget:* €8,205,100

*Funding:* Italian Ministry of University and Research (MUR)

*Description:* The research activities associated with Line 3 envisaged a complete review of available seismic design and assessment methods currently employed. It focussed on issues related to problems with current code-based approaches and aimed to incorporate avant-garde approaches such as risk-targeted and loss-driven approaches in order to promote and more optimal use of available resources in the future with the overall goal of reducing seismic risk.

- **INFRA-NAT – Increased Resilience of Critical Infrastructure under Natural and Human-induced Hazard** Jan 2018 – Dec 2019

*Webpage:* [www.infra-nat.eu](http://www.infra-nat.eu)

*Role:* Deputy Coordinator and Research Collaborator

*Budget:* €762,839.05

*Funding:* European Union Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO)

*Description:* The objective of the INFRA-NAT project was to assess the seismic vulnerability of roadway networks taking into account ageing and deterioration effects of their bridge structures. It focussed on the collection of structure data in Italy, Israel and North Macedonia with the aim of engaging local practitioners and authorities to encourage the adoption of such assessment and prioritisation methodologies.

## Research Project Collaboration

- **ERIES-PASFIT: Long-Term Performance Assessment of Base Isolated Buildings through Field Testing** Jan 2024 – Dec 2024

*Role:* Research Collaborator & Task Coordinator

*Funding:* ERIES Transnational Access Joint Research Funding Mechanism

*Description:* ERIES- PASFIT will conduct full-scale in-situ testing of buildings, base isolated via laminated rubber bearings and friction pendulum (FP) systems that have been in service for approximately 15 years. The results of these field tests will be the first of their kind, and will be used to fill important research gaps pertaining to the characterisation of the response and performance of base isolated buildings, including aspects of system-level response in conjunction with ageing, deterioration and, more generally, variability of the mechanical properties of the isolation devices. Thus, this will have important implications on base isolation design, assessment and modelling strategies.
- **ERIES-RACKSLIDE: Content sliding investigations for pallet racking systems** Jan 2024 – Dec 2024

*Role:* Research Collaborator & Task Coordinator

*Funding:* ERIES Transnational Access Joint Research Funding Mechanism

*Description:* Racking systems form the backbone of modern logistics and goods supply chains, lying at the core of every physical product route from manufacturer to consumer. Rack-supported and rack-containing warehouses come in various shapes and sizes, universally constructed from cold-formed steel frames that range from 4m to more than 25m of height. The vast majority stores palletized goods that stay put only by the force of gravity and friction. This is a potentially vulnerable situation that has been severely tested by recent earthquakes, resulting in disruptions of operation and some spectacular collapses. Presently, there are evident gaps in the slide-proof design of racking systems and even in their sliding assessment, both at the professional and the academic level. ERIES-RACKSLIDE brings together 7 universities, one association of manufacturers, and 5 supporting industrial partners with active interest in researching pallet sliding, and proposing the usage of the 9DLAB facility to conduct innovative investigations that will form the state-of-art in content- structure-sliding interaction and inform the future of EN16681, the seismic rack-design standard.
- **ERIES-SUPREME: Seismic oUt-of-Plane REsponse of Masonry gables** Jan 2024 – Dec 2024

*Role:* Research Collaborator & Task Coordinator

*Funding:* ERIES Transnational Access Joint Research Funding Mechanism

*Description:* Low-rise masonry buildings in Europe often have unreinforced masonry walls and masonry gables supporting pitched roofs. These buildings are common in seismic-prone areas and are particularly vulnerable to earthquakes. The masonry gables are especially susceptible due to their poor connections to the roof structure, positioning at the top of the building, and interaction with flexible roof diaphragms. However, there is limited experimental data on the seismic performance of these gables. This project aims to improve understanding by conducting experiments with easily replicable conditions for numerical simulations. The data will be used to refine existing models and develop new tools for assessing gable performance. A blind-prediction contest will be held to encourage calibration, and the results will be published in a peer-reviewed journal to improve assessment guidelines.
- **ERIES-ENFRAG: ENhancing state-dependent FRAGility through experimentally validated Energy-Based Approaches** May 2023 – Jul 2024

*Role:* Research Collaborator & Task Coordinator

*Funding:* ERIES Transnational Access Joint Research Funding Mechanism

*Description:* ERIES-ENFRAG advances state-dependent earthquake fragility assessment methodologies. The project focuses on masonry infill walls experiencing cumulative states of damage due to combinations of in- plane (IP) and out-of-plane (OOP) actions, commonly quantified through two different peak-based engineering demand parameters (EDPs). ERIES-ENFRAG explores the experimental validation of hysteretic energy-based fragility assessment approaches, which are: 1) currently based only on analytical and/or numerical validations; 2) only considering one type of action/damage mechanism. ERIES-ENFRAG will pave the way for similar cumulative-damage

tests for different structures/structural components while providing experimental data on the IP and OOP response of masonry infills. ERIES-ENFRAG aims at a robust consideration of damage-accumulation, particularly relevant in mainshock-aftershock conditions, and will also shed further light on the appropriateness of IP and OOP loading protocols used in experimental testing.

- **ERIES-RESTORING: REtrofitting of STOne masonRy using INno-vative Grid- based composites**

*Role:* Research Collaborator & Task Coordinator

*Funding:* ERIES Transnational Access Joint Research Funding Mechanism

*Description:* The seismic retrofitting of existing masonry buildings has become a priority in seismically prone countries with significant cultural heritage. The proposed project aims to research the effectiveness of Composite Reinforced Mortars (CRM) in strengthening rubble stone masonry buildings. Full-scale tests will be conducted on piers with CRM applied to assess their behavior compared to non-retrofitted piers. The project will also investigate different aspect ratios and load rates. The data collected will contribute to future design guidelines for CRM as a strengthening solution, reducing vulnerability and losses after earthquakes.

May 2023 – Jul 2024
- **Progetto DPC/ReLUIS 2019-2021: WP5.1: Assessment of integrated seismic retrofitting schemes for buildings**

*Role:* Research Collaborator

*Budget:* €75,000

*Funding:* Italian Civil Protection Department

Jan 2020 – Jan 2022
- **Progetto DPC/ReLUIS 2019-2021: WP5.4: Rapid, low impact and integrated retrofitting schemes for bridges**

*Role:* Task Coordinator and Collaborator

*Budget:* €75,000

*Funding:* Italian Civil Protection Department

Jan 2019 - Jan 2022
- **Investigation of Seismic Deformation Demand, Capacity and Control in a Novel Self-Centring Steel Braced Frame**

*Role:* Research Collaborator

*Description:* SERA: Seismology and Earthquake Engineering Research Infrastructure Alliance for Europe (EU Horizon 2020)

Jan 2019 – Jun 2021
- **Joint Research: Comparison in Performance of Base-Isolated Structures between Japan and Italy @ Kabori Research Complex**

*Role:* Lead Researcher

*Budget:* €6,850 (822,000 JPY)

*Funding:* Kabori Research Complex, Tokyo, Japan

Nov 2019 – Dec 2019
- **ReLUIS/DPC Line 7: Displacement-based seismic loss assessment**

*Role:* Lead Researcher

*Budget:* €475,250.00

*Funding:* Italian Civil Protection Department

May 2016 – Dec 2018
- **Progetto Scuole**

*Role:* Lead Researcher

*Budget:* €1,500,000

*Funding:* Centro Geomorfologia Integrata Per L'Area Del Mediterraneo

May 2015 – Dec 2016
- **DiSTEEL: Displacement-Based Seismic Design of Steel Moment Resisting Frame Structures**

*Role:* Researcher Collaborator

*Funding:* European Commission Research Fund of Coal and Steel

Feb 2014 – May 2014

- **BRACED: Improved European design and assessment methods for concentrically-braced frames**

Sep 2012 - Aug 2013

*Role:* Researcher Collaborator

*Funding:* SERIES: Seismic Engineering Research Infrastructures for European Synergies (European Commission FP7)

## People

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### Postdoctoral Researchers

#### 1. Volkan Ozsarac

*Topic:* Impacts of input and energy dissipation in the seismic behaviour of the built environment

*Period:* Jun 2024 - present

#### 2. Davit Shahnazaryan

*Topic:* Design, realisation and experimentation of a risk-aware navigational prototype for the management and mitigation of seismic risk in NaTech industrial plants

*Period:* Oct 2021 - present

### PhD Students

#### 1. Serkan Hasanoglu

*Topic:* Development of tools and services for the advanced assessment of existing construction typologies in Europe

*Period:* Oct 2022 - Oct 2026 (expected)

*Role:* Principal advisor

#### 2. Jose Poveda

*Topic:* Development of PBEE-based design, assessment and risk classification methods, with possible experimental testing of innovative and sustainable solutions for existing structures in South America

*Period:* Oct 2022 - Oct 2026 (expected)

*Role:* Principal advisor

#### 3. Savvinos Aristeidou

*Topic:* Risk-based seismic assessment of bridge structures

*Period:* Oct 2020 - Oct 2024 (expected)

*Role:* Principal advisor

#### 4. Al Mouayad Bellah Nafeh

*Topic:* Advancements in Risk- and Loss-Based Methodologies for Large-Scale Assessment of Non-Ductile Infilled Reinforced Concrete Buildings [\[PDF\]](#)

*Period:* Oct 2019 - Oct 2023 (expected)

*Role:* Principal advisor

#### 5. Andres Abarca Jimenez

*Title:* Regional Seismic Risk Assessment for Integrated Loss-Based Prioritisation of Bridge Portfolios [\[PDF\]](#)

*Period:* Sept 2017 - Apr 2022

*Role:* Co-advisor (Principal advisor: Ricardo Monteiro)

#### 6. Davit Shahnazaryan

*Title:* Integrated Performance-Based Seismic Design: Traversing Affordances for Practical Implementation [\[PDF\]](#)

*Period:* Sept 2017 - Nov 2021

*Role:* Principal advisor (Co-advisor: Ricardo Monteiro)

## MSc Students

### 1. Tomas Mejia Saldarriaga

*Period:* Feb 2024 – Oct 2024

*Role:* Principal advisor

### 2. Eyal Shalev

*Period:* Feb 2024 – Oct 2024

*Role:* Principal advisor

### 3. Letizia Palamara

*Title:* Italian guidelines for the risk classification and management of existing bridges: a case study implementation and evaluation [\[PDF\]](#)

*Period:* Feb 2021 – Oct 2021

*Role:* Co-advisor (Principal advisor: Gian Michele Calvi)

### 4. Federico Damiani

*Title:* Seismic design and loss assessment of base-isolated structures using a PBEE framework [\[PDF\]](#)

*Period:* Feb 2020 – Dec 2020

*Role:* Co-advisor (Principal advisor: Ricardo Monteiro)

### 5. Savvinos Aristeidou

*Title:* A Performance-Based Assessment of a Case Study Bridge and Impact of Retrofitting Interventions [\[PDF\]](#)

*Period:* Feb 2020 – Sept 2020

*Role:* Co-advisor (Principal advisor: Gian Michele Calvi)

### 6. Carlos Andres Mora Castrillo

*Title:* Risk-Consistency of Force-Based and Displacement-Based Design of Reinforced Concrete Moment Frames [\[PDF\]](#)

*Period:* Sept 2018 – Feb 2019

*Role:* Co-advisor (Principal advisor: Ricardo Monteiro)

### 7. Onur Deniz Akan

*Title:* Displaced Shapes of Infilled RC Frames for Displacement-Based Design and Assessment [\[PDF\]](#)

*Period:* Sept 2018 – Mar 2019

*Role:* Co-advisor (Principal advisor: Ricardo Monteiro)

### 8. Jose Rafael Leone Villalba

*Title:* Evaluation of Risk-Consistency of Force-Based and Displacement-Based Design of RC Wall Buildings [\[PDF\]](#)

*Period:* Sept 2018 – Feb 2019

*Role:* Co-advisor (Principal advisor: Ricardo Monteiro)

### 9. Wilson Carofilis

*Title:* Seismic Assessment and Retrofit of an Existing Reinforced Concrete School Building in Italy [\[PDF\]](#)

*Period:* Sept 2017 – Feb 2018

*Role:* Principal advisor (Co-advisors: Andre Filiatrault, Daniele Perrone, Ricardo Monteiro)

# Synergistic Activities

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## Peer Review

- Peer reviewer for the following funding bodies:
  - Swiss National Science Foundation
  - Italian Ministry of Universities and Research (PRIN2020: Research Projects of Significant National Interest)
- Peer reviewer for the following international journal publications:
  - Advances in Structural Engineering
  - ASCE Journal of Performance of Constructed Facilities
  - ASCE Journal of Structural Engineering
  - Bulletin of Earthquake Engineering
  - Computers and Structures
  - Earthquake Engineering & Engineering Vibrations
  - Earthquake Engineering & Structural Dynamics
  - Earthquake Spectra
  - Earthquakes & Structures
  - Engineering Structures
  - International Journal of Disaster Risk Reduction
  - Journal of Building Engineering
  - Journal of Earthquake Engineering
  - Journal of Structural Integrity & Maintenance
  - Nature Communications
  - Reliability Engineering & System Safety
  - Resilient Cities and Structures
  - Soil Dynamics & Earthquake Engineering
  - Sustainable Cities & Society
  - Steel & Composites
  - Structural Engineering & Mechanics, An International Journal
  - Structures
  - The Structural Design of Tall & Special Buildings
- Conference organising committee member for:
  - World Conference on Earthquake Engineering, Milan, 2024

## Keynote and Invited Lectures

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|---|----------------|
| • Invited theme lecture on “Advancements in seismic risk assessment of existing structures: insights from analytical models and empirical earthquake data” at the 10th Turkish Conference on Earthquake Engineering in Istanbul, Türkiye                    | September 2025 |
| • Invited theme lecture on “The Built Environment Data Framework for Simulated Design and Vulnerability Modelling in Earthquake Engineering” at the 9th International Course on Seismic Analysis of Structures Using OpenSees in Lausanne, Switzerland      | April 2025     |
| • Invited lecture on “Built environment data for multi-hazard vulnerability models within EPOS” at the EFEHR Scientific Session 2024 organised as part of the 102nd Journées Luxembourgeoises de Géodynamique (JLG) in Luxembourg                           | November 2024  |
| • Invited lecture on “Quantifying fragility functions for non-ductile infilled reinforced concrete buildings from past earthquakes: analytical models versus empirical data” at the 3rd Structural Engineering Workshop by the University of Palermo, Italy | July 2024      |



- Keynote lecture on “European Research Synergies Towards Loss and Risk-Driven Mitigation Approaches” at the [20th International Symposium of the Macedonian Association of Structural Engineers](#) from 28-29 September 2023 in Skopje, North Macedonia September 2023
- Invited lecture on “Myths and fallacies in performance-based earthquake engineering: Ode to Nigel” at the 49th Risk, Hazard and Uncertainty Workshop in Hydra, Greece June 2023
- Invited lecture on “Valutazione e gestione del rischio NaTech negli stabilimenti PIR” at the symposium organised by INAIL in Rome, Italy on the topic of “La ricerca nel campo della gestione del rischio NaTech da sisma” May 2023
- Invited webinar to the [2nd RICH Europe Webinar on Transnational and Virtual Access Opportunities](#) on the topic of “ERIES – Engineering Research Infrastructures for European Synergies” April 2023
- Invited webinar to the [Italian Association for Wind Engineering Young \(ANIV - Associazione Nazionale per Ingegneria del Vento - Giovani\)](#) on the topic of “ERIES research infrastructure network: how to apply for transnational access grants” November 2022
- Invited talk on “Developments in performance-based seismic design and assessment: an Italian perspective” at the University of Canterbury, New Zealand October 2019

## Professional Memberships and Qualifications

- Member of the [European Geosciences Union](#) (EGU) 2023 – present
- Approved by the Italian Ministry of Universities and Research’s National Scientific Committee as qualified to hold the rank of Full Professor in Structural and Geotechnical Engineering 2025 - 2037
- Approved by the Italian Ministry of Universities and Research’s National Scientific Committee as qualified to hold the rank of Associate Professor in Structural and Geotechnical Engineering 2022 - 2031
- Member of the [Earthquake Engineering Research Institute](#) (EERI) 2022 – present

## Coordination and Editorial Roles

- Editorial Board Member in the role of Associate Editor for [Earthquake Spectra](#) journal 2025 - present
- Director of the Centre for Training and Research on Reduction of Seismic Risk (ROSE Centre) at [IUSS Pavia](#), Italy, organising regular online seminars available on [YouTube](#) and maintaining a constant social media presence on [LinkedIn](#) to disseminate the research centre’s activities (Deputy Director 2020-2025) 2025 - present
- Member of the Editorial Board of Geohazards and Georisks for the journal *Frontiers in Earth Science* 2020 – present
- Member of the Editorial Board of Earthquake Engineering for the journal *Frontiers in Built Environment* 2020 – present

## International Conference Participation

- WCEE2024 - 18th World Conference on Earthquake Engineering, Milan, Italy 2024
  - Organising committee member
  - Organiser and chairman for the following technical sessions:
    - \* Economic loss in seismic areas: from empirical data to prescriptive guidance for mitigation
    - \* ERIES: Advancing frontier knowledge in earthquake engineering through laboratory testing
    - \* Characterizing seismic input for engineering applications

- SECED 2023 Conference - Society for Earthquake and Civil Engineering Dynamics, Cambridge, UK 2023
- MASE - 20th International Symposium of the Macedonian Association of Structural Engineers, Skopje, North Macedonia 2023
  - Keynote speaker
- ICASP14 - 14th International Conference on Applications of Statistics and Probability in Civil Engineering, Dublin, Ireland 2023
  - Chairman for general session on “Novel challenges in performance-based seismic design and seismic performance assessment of structures”
- 49th Risk, Hazard and Uncertainty Workshop, Hydra, Greece 2023
- Earthquake Engineering Research Institute Annual Meeting, San Francisco, USA 2023
- ANIDIS - Associazione Nazionale Italiana di Ingegneria Sismica 2022, Turin, Italy 2022
- 3ECEES - 3rd European Conference on Earthquake Engineering & Seismology, Bucharest, Romania 2022
- ASME 2022 Pressure Vessels & Piping Conference, Las Vegas, USA 2022
- ICONHIC 2022 - 3rd International Conference on Natural Hazards & Infrastructure, Athens, Greece 2022
- 17WCEE - 17th World Conference on Earthquake Engineering, Sendai, Japan 2021
- COMPDYN 2021 - 8th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Athens, Greece 2021
- QuakeCoRE Annual Meeting, Nelson, New Zealand 2019
- ICASP13 - 13th International Conference on Applications of Statistics and Probability in Civil Engineering, Seoul, South Korea 2019
- COMPDYN 2019 - 7th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Hersonissos, Greece 2019
- 4SPONSE - The Fourth International Workshop on Seismic Performance of Non-Structural Elements, Pavia, Italy 2019
- 16ECEE 16th European Conference on Earthquake Engineering, Thessaloniki, Greece 2018
  - Chairman for general session on “Reinforced Concrete Structures IX”
- COMPDYN 2017 - 6th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Rhodes, Greece 2017
- IMAC-XXXV Conference & Exposition on Structural Dynamics, Orange County, USA 2017
- 16WCEE - 16th World Conference on Earthquake Engineering, Santiago, Chile 2017
  - Chairman for general session on “Seismic Design and Analysis of Reinforced Concrete Buildings”
- COMPDYN 2015 - 5th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Hersonissos, Greece 2015
- 2ICSA - 2nd International Conference on Structures and Architecture, Guimaraes, Portugal 2013
- BCRI2012 - Bridge and Concrete Research in Ireland, Dublin, Ireland 2012
- 15WCEE - 15th World Conference on Earthquake Engineering, Lisbon, Portugal 2012

## Languages

Mother tongues	English, Irish (Gaelic)				
Other languages <sup>1</sup>	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
Italian	C2	C2	C2	C2	C1
Spanish	B1	B1	A2	A2	A2
French	A2	A2	A2	A2	A2

## Teaching

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### Academic Year 2024/2025

- **Dynamics of Structures**

*Role:* Lecturer (22 hours)

*Programme:* Master Degree in Civil Engineering for Mitigation of Risk from Natural Hazards

*Institute:* Università di Pavia and IUSS Pavia, Italy

- **Performance-Based Earthquake Engineering**

*Role:* Lecturer (48 hours)

*Programme:* Doctoral Course in Earthquake Engineering

*Institute:* IUSS Pavia, Italy

- **Risk, Reliability and Catastrophe Modelling**

*Role:* Lecturer (10 hours)

*Programme:* Advanced undergraduate course (*Corsi Ordinari*)

*Institute:* IUSS Pavia, Italy

### Academic Year 2023/2024

- **Dynamics of Structures**

*Role:* Lecturer (22 hours)

*Programme:* Master Degree in Civil Engineering for Mitigation of Risk from Natural Hazards

*Institute:* Università di Pavia and IUSS Pavia, Italy

- **Performance-Based Earthquake Engineering**

*Role:* Lecturer (37 hours)

*Programme:* Doctoral Course in Earthquake Engineering

*Institute:* IUSS Pavia, Italy

### Academic Year 2022/2023

- **Performance-Based Earthquake Engineering**

*Role:* Lecturer (37 hours)

*Programme:* Doctoral Course in Understanding and Managing Extremes

*Institute:* IUSS Pavia, Italy

### Academic Year 2020/2021

- **Laboratorio di Tecnica delle Costruzioni (*in Italian*)**

*Role:* Lecturer (26 hours)

*Programme:* Laurea Magistrale in Ingegneria Edile-Architettura

*Institute:* Università di Pavia, Italy

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<sup>1</sup>Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user ([Common European Framework of Reference for Languages](#))

## Academic Year 2019/2020

- **Fundamentals of Seismic Design**

*Role:* Guest Lecturer (4 lectures, 12 hours)

*Programme:* Master Degree in Civil Engineering for Mitigation of Risk from Natural Hazards

*Institute:* Università di Pavia and IUSS Pavia, Italy

## Academic Year 2018/2019

- **Fundamentals of Seismic Design**

*Role:* Guest Lecturer (4 lectures, 12 hours)

*Programme:* Master Degree in Civil Engineering for Mitigation of Risk from Natural Hazards

*Institute:* Università di Pavia and IUSS Pavia, Italy

- **Performance-Based Earthquake Engineering**

*Role:* Guest Lecturer (1 lecture, 3 hours)

*Programme:* Master Program of Structural Engineering

*Institute:* Universidad de las Fuerzas Armadas – ESPE, Ecuador

## Academic Year 2017/2018

- **Fundamentals of Seismic Design**

*Role:* Guest Lecturer (4 lectures, 12 hours)

*Programme:* Master Degree in Civil Engineering for Mitigation of Risk from Natural Hazards

*Institute:* Università di Pavia and IUSS Pavia, Italy

## Academic Year 2016/2017

- **Seismic Design of Building Structures**

*Role:* Teaching Assistant

*Lecturer:* Ricardo Monteiro

*Programme:* MSc Programme in Civil Engineering

*Institute:* University of Stellenbosch, South Africa

## Academic Year 2013/2014

- **Seismic Design of Steel Structures**

*Role:* Teaching Assistant

*Lecturer:* Roberto Leon

*Programme:* ROSE/MEEES MSc Programme

*Institute:* Università di Pavia and IUSS Pavia, Italy

## Professional Experience

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- **Studio Calvi Srl, Pavia, Italy**

Jan 2017 – Mar 2017

*Role:* Consulting Engineer

*Project:* Rio Sixaola Bridge

*Description:* Collaborated on the seismic design and numerical analysis of friction pendulum isolator system of the new bridge to be constructed over Rio Sixaola in Costa Rica

- **BAM Civil Ltd, Ireland**

Apr 2009 – Aug 2009

*Role:* Site Engineer

*Project:* Kilronan Harbour Development

*Description:* Worked as site engineer on new harbour development in west of Ireland to provide new breakwater and landing berths for ships and ferries

• **McInerney Homes Ltd, Ireland**

May 2007 – Aug 2007

*Role:* Site Engineer

*Project:* Doughiska Residential Housing Development

*Description:* Summer internship that involved basic surveying and coordination of site operations

## Publications

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### Journal Papers

- [1] S. Aristeidou, D. Shahnazaryan, and G. J. O'Reilly, "Artificial neural network-based ground motion model for next-generation seismic intensity measures," *Soil Dynamics and Earthquake Engineering*, vol. 184, p. 108 851, Sep. 2024, ISSN: 02677261. DOI: [10.1016/j.soildyn.2024.108851](https://doi.org/10.1016/j.soildyn.2024.108851). [Online]. Available: <https://linkinghub.elsevier.com/retrieve/pii/S0267726124004032>.
- [2] A. M. B. Nafeh and G. J. O'Reilly, "Fragility functions for non-ductile infilled reinforced concrete buildings using next-generation intensity measures based on analytical models and empirical data from past earthquakes," *Bulletin of Earthquake Engineering*, Jun. 2024, ISSN: 1570-761X. DOI: [10.1007/s10518-024-01955-4](https://doi.org/10.1007/s10518-024-01955-4). [Online]. Available: <https://link.springer.com/10.1007/s10518-024-01955-4>.
- [3] G. J. O'Reilly and J. Goggins, "Validation of a Numerical Model for Novel Self-Centring Concentrically Braced Steel Frames," *Infrastructures*, vol. 9, no. 7, p. 112, Jul. 2024, ISSN: 2412-3811. DOI: [10.3390/infrastructures9070112](https://doi.org/10.3390/infrastructures9070112). [Online]. Available: <https://www.mdpi.com/2412-3811/9/7/112>.
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- [6] G. J. O'Reilly, K. Hasegawa, D. Shahnazaryan, *et al.*, "On the fragility of non-structural elements in loss and recovery: Field observations from Japan," *Earthquake Engineering & Structural Dynamics*, vol. 53, no. 3, pp. 1125–1144, Mar. 2024, ISSN: 0098-8847. DOI: [10.1002/eqe.4066](https://doi.org/10.1002/eqe.4066). [Online]. Available: <https://onlinelibrary.wiley.com/doi/10.1002/eqe.4066>.
- [7] S. Aristeidou and G. J. O'Reilly, "Exploring the Use of Orientation-Independent Inelastic Spectral Displacements in the Seismic Assessment of Bridges," *Journal of Earthquake Engineering*, pp. 1–24, Apr. 2024, ISSN: 1363-2469. DOI: [10.1080/13632469.2024.2343067](https://doi.org/10.1080/13632469.2024.2343067). [Online]. Available: <https://www.tandfonline.com/doi/full/10.1080/13632469.2024.2343067>.
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- [11] G. J. O'Reilly, A. M. B. Nafeh, and D. Shahnazaryan, "Simplified tools for the risk assessment and classification of existing buildings," *Procedia Structural Integrity*, vol. 44, pp. 1744–1751, 2023. DOI: [10.1016/j.prostr.2023.01.223](https://doi.org/10.1016/j.prostr.2023.01.223). [Online]. Available: <https://doi.org/10.1016/j.prostr.2023.01.223>.
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## Conference Papers

- [1] M. J. Fox, T. Yeow, and G. J. O'Reilly, "Seismic loss assessment considering low-damage repair of non-structural components," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [2] M. Ponte, G. Guerrini, L. Garcia-Ramonda, *et al.*, "Retrofitting of stone masonry using innovative grid-based composites: the ERIES-RESTORING project," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [3] G. J. O'Reilly, S. Aristeidou, and D. Shahnazaryan, "On the application of neural networks to ground motion intensity and correlation modelling," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [4] G. J. O'Reilly and A. M. B. Nafeh, "Analytical and empirical fragility functions for regionally assessing non-ductile infilled frames," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [5] J. Goggins, H. Alwahsh, Y. Jiang, *et al.*, "Advancement of a novel self-centring concentrically braced frame (SC-CBF) structural steel system for seismically active zones," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [6] G. J. O'Reilly and A. M. B. Nafeh, "PB-LOSS: A future candidate for seismic risk classification guidelines," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [7] G. J. O'Reilly and G. M. Calvi, "ERIES: Advancing frontier knowledge in earthquake engineering through laboratory testing," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [8] S. Aristeidou, D. Shahnazaryan, and G. J. O'Reilly, "Correlation models for filtered incremental velocity with spectral acceleration and significant duration," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [9] J. Poveda and G. J. O'Reilly, "Seismic Loss Assessment of Existing Hotel in Ecuador," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [10] R. Gentile, G. Angelucci, J. Wu, *et al.*, "ENFRAG: ENhancing state-dependent FRAGility through experimentally validated energy-based approaches," in *18th World Conference on Earthquake Engineering*, Milan, Italy, 2024.
- [11] G. J. O'Reilly, "European research synergies towards loss and risk-driven mitigation approaches," in *20th International Symposium of the Macedonian Association of Structural Engineers*, Skopje, N. Macedonia, 2023.
- [12] S. Aristeidou and G. J. O'Reilly, "Orientation-independent inelastic spectral displacement intensity measures for the risk assessment of bridges," in *SECED 2023 Conference*, Cambridge, UK, 2023.
- [13] A. Rosti, E. Brunesi, F. Dacarro, *et al.*, "On the Quantification of Accidental Gas Release From Pressurized Vessels," in *Volume 7: Seismic Engineering; ASME Nondestructive Evaluation, Diagnosis and Prognosis (NDPD) Division*, American Society of Mechanical Engineers, Jul. 2023, ISBN: 978-0-7918-8750-9. DOI: [10.1115/PVP2023-107249](https://doi.org/10.1115/PVP2023-107249). [Online]. Available: <https://asmedigitalcollection.asme.org/PVP/proceedings/PVP2023/87509/V007T08A015/1171590>.
- [14] A. M. B. Nafeh and G. J. O'Reilly, "Towards the assessment and risk classification of existing building typologies using storey-loss functions," in *ICASP14 - 14th International Conference on Applications of Statistics and Probability in Civil Engineering*, Dublin, Ireland, 2023.
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Place and date

Gerard J. O'Reilly

Pavia, Italy, 1st March 2025

A handwritten signature in black ink, reading "Gerard O'Reilly". The signature is written in a cursive style with a long horizontal flourish at the end.