Davit Shahnazaryan

Assistant Professor (RTDA)
IUSS Pavia, Italy
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GitHub
LinkedIn
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Appointments

Current

- **Assistant Professor (RTDA)** Oct 2025 - present

  Institute: Centre for Training and Research on Reduction of Seismic Risk (ROSE Centre), IUSS Pavia, Italy

  Details: Fixed-term researcher (Ricercatore a Tempo Determinato, tipo A) working on the SONATA project, funded by a Fondo Italiano per la Scienza (FIS) Starting Grant. The research addresses the earthquake safety of Italy's built environment with a focus on non-structural elements, combining shake-table testing, sensor-based monitoring, and AI and image recognition to assess seismic damage, derive fragility functions and develop a prototype risk-management system.

- **Affiliated Researcher** Feb 2024 - present

  Institute: European Centre for Training and Research in Earthquake Engineering EUCENTRE Foundation, Pavia, Italy

  Details: I led the development of software tools and web-based services to support the management and dissemination of experimental research data. This included the design of APIs and the preparation of detailed technical documentation, enabling streamlined integration and access. The platform was tailored to host and organize outputs from large-scale experimental campaigns, supporting structured data sharing and long-term accessibility.

  I was responsible for managing the deployment and operation of the service on Eucentre's internal infrastructure. I actively engaged with international collaborators to facilitate database hosting, foster data exchange, and support collaborative research workflows. This work also contributed to the production of a peer-reviewed journal publication in Earthquake Engineering and Structural Dynamics (see journal paper 2 below) describing the system and its application in experimental research contexts.

Past

- **Post-doctoral Researcher** Oct 2021 - Sep 2025

  Institute: Centre for Training and Research on Reduction of Seismic Risk (ROSE Centre), IUSS Pavia, Italy

  Details: Contributed to several European projects, including ROSSINI and ERIES, with a focus on risk assessment and the application of AI in structural engineering. I developed research-oriented software tools, supported experimental activities, and facilitated international collaboration. As part of the ERIES project, I helped coordinate Transnational Access, enabling external researchers to engage in large-scale experimental campaigns.

  My role also involved managing research deliverables, contributing to EU reporting, and ensuring compliance with project requirements. Supported the planning and execution of experimental campaigns, fostered cross-institutional collaboration, and oversaw the timely production of technical documentation and scientific outputs.

  A peer-reviewed research article on risk-aware navigation in industrial plants at risk of NaTech accidents has been published in the International Journal of Disaster Risk Reduction (see journal paper 8 below). The manuscript presents the outcomes of the project, with a particular focus on the development of a mobile application designed to assist industrial plant workers in safely evacuating following hazardous events. In addition, I was responsible for designing and managing the underlying database architecture used during the software testing phase.

Education

- **Ph.D. in Understanding and Managing Extremes** Oct 2017 - Feb 2022

  Curriculum: Earthquake Engineering and Engineering Seismology

  Institute: IUSS Pavia, Italy

  Thesis: Integrated Performance-Based Seismic Design: Traversing Affordances for Practical Implementation (Advisors: Gerard O'Reilly, Ricardo Monteiro)

- **M.Sc. (Master di Secondo Livello) in Earthquake Engineering and Engineering Seismology** Sep 2016 - Feb 2018

  Institute: IUSS Pavia, Italy

  Thesis: Comparison of Earthquake-Induced Losses of Reinforced Concrete and Steel Frame Buildings (Advisors: Ricardo Monteiro, Jose Miguel Castro)

- **M.Sc. (Laurea Magistrale) in Civil Engineering** Sep 2013 - Oct 2015

  Institute: University of Bologna, Italy

  Thesis: Wave Propagation in Periodic Structures Bragg- and Fano- Like Band Gaps in Monodimensional Chains (Advisor: Alessandro Marzani)

  Graduated: 110 cum laude

- **B.Sc. in Industrial and Civil Engineering** Sep 2008 - Jun 2012

  Institute: Yerevan State University of Architecture and Construction, Armenia

  Thesis: Design of an Industrial Structure and Management of Construction Technologies (Advisor: Lusine Karapetyan)

  GPA: 18.06/20.00

Honours & Awards

- 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"
- Awarded the Consortium Scholarship by the ROSE programme to pursue 1.5-year M.Sc. in Earthquake Engineering and Engineering Seismology

Research Projects

Research Project Coordination

- **ERIES: Engineering Research Infrastructures for European Synergies** Jun 2022 – May 2026

  Webpage: www.eries.eu

  Role: Project Coordination Team

  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).

Research Project Collaboration

- **SONATA: Sensor-driven statistical tools to evaluate risks and manage safety in the built environment** Oct 2025 – Sep 2028

  Webpage: https://gerardjoreilly.github.io/projects/sonata/

  Role: Assistant Professor (RTDA)

  Funding: Fondo Italiano per la Scienza (FIS), Starting Grant

  Description: SONATA addresses the earthquake safety of Italy's built environment with a focus on non-structural elements. It combines shake-table testing, sensor-based monitoring, and artificial intelligence and image recognition to assess seismic damage, derive fragility functions, and develop a prototype risk-management system for buildings and their contents.

- **Monitoring Earth's Evolution and Tectonics (MEET)** Feb 2024 – Present

  Role: Research Collaborator and Software Developer

  Description: As part of the MEET project, I collaborated closely with INGV to develop a web service aimed at centralizing structural test data from Italian laboratories. This platform supports the vulnerability assessment of buildings and infrastructure in Italy, enhancing data accessibility and promoting national efforts in natural hazard risk reduction.

- **Joint Research Unit (JRU) EPOS Italia 2025** Feb 2024 – Present

  Role: Research Collaborator and Software Developer

  Description: In support of the Joint Research Unit (JRU) within the EPOS (European Plate Observing System) framework, I contributed to the development of web services that enable global access to structural and experimental data. These services align with EPOS's mission to integrate and provide open access to multidisciplinary solid Earth science data, fostering international collaboration and advancing research on the physical processes driving natural hazards. The platform facilitates standardized data sharing across research institutions worldwide, supporting improved resilience and scientific understanding on a global scale.

- **Built Environment Data Thematic Core Service** Oct 2022 – present

  Webpage: https://builtenvdata.eu/

  Role: Research Collaborator and Lead Software Developer

  Budget: €6,650,000

  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.

- **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

  Role: Research Collaborator

  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 and 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

  Role: Research Collaborator

  Budget: €8,205,100

  Funding: Italian Ministry of University and Research (MUR)

People

PhD Students

1. **Tomas Mejia Saldarriaga**

   Topic: Structure-to-Structure Damage Correlation

   Period: Oct 2024 – Present

   Role: Co-advisor (Principal advisor: Gerard O'Reilly)

2. **Savvinos Aristeidou**

   Title: Advances in the Practical Application of Next-Generation Intensity Measures for Efficient Seismic Risk Assessment

   Period: Oct 2020 - May 2025

   Role: Co-advisor (Principal advisor: Gerard O'Reilly)

Synergistic Activities

Peer Review

- Peer reviewer for the following international journal publications:
  - Bulletin of Earthquake Engineering
  - Journal of Earthquake Engineering
  - Earthquake Spectra
- Workshop organising committee member for:
  - International Workshop in Engineering Research Infrastructures for European Synergies (ERIES-IW2025), Lisbon, Portugal, 2025

Professional Memberships and Qualifications

- Member of the Earthquake Engineering Research Institute (EERI) 2021

International Conference Participation

- COMPDYN 2025 - 10th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Rhodes, Greece — 2025
  - Organiser and chairman for the following technical session:
    - MS 11 - Developments in Computational Tools for Seismic Risk Mitigation
- ERIES-IW2025 - International Workshop in Engineering Research Infrastructures for European Synergies, Lisbon, Portugal — 2025
  - Organising committee member
- 3CroCEE - 3rd Croatian Conference on Earthquake Engineering, Split, Croatia — 2025
- WCEE2024 - 18th World Conference on Earthquake Engineering, Milan, Italy — 2024
- 3ECEES - 3rd European Conference on Earthquake Engineering & Seismology, Bucharest, Romania — 2022
- COMPDYN 2021 - 8th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Athens, Greece — 2021
- 17WCEE - 17th World Conference on Earthquake Engineering, Sendai, Japan — 2021
- COMPDYN 2019 - 7th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Hersonissos, Greece — 2019

Languages

Mother tongue	Armenian				
Other languages[1]	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C1
Italian	B1	B1	A2	A2	A2
Russian	C2	C2	C1	C1	C1

Teaching

Academic Year 2024/2025

- **Performance-Based Earthquake Engineering**

  Role: Teaching Assistant
  Lecturer: Gerard O'Reilly
  Institute: IUSS Pavia, Italy

Academic Year 2023/2024

- **Performance-Based Earthquake Engineering**

  Role: Teaching Assistant
  Lecturer: Gerard O'Reilly
  Institute: IUSS Pavia, Italy

Academic Year 2022/2023

- **Performance-Based Earthquake Engineering**

  Role: Teaching Assistant
  Lecturer: Gerard O'Reilly
  Institute: IUSS Pavia, Italy

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

Academic Year 2017/2018

- **Nonlinear Response Analysis**

  Role: Teaching Assistant
  Lecturer: Athol Carr
  Programme: ROSE/MEEES MSc Programme
  Institute: IUSS Pavia, Italy

Skills and Training

Engineering and Related Software Skills

- Microsoft Office
- LaTeX
- AutoCad
- SeismoStruct
- SeismoBuild
- OpenSees
- SAP2000
- Robot Autodesk
- OpenQuake
- QGIS
- Tensorflow
- PACT

Programming Languages

- Python
- JavaScript/TypeScript
- SQL/NoSQL
- MATLAB
- R
- Git
- HTML5/CSS3
- Docker
- NGINX
- Rest API
- Swagger

Certifications

- *Deep Language Model AI Course Certificates*, Coursera (120 hours)
- *Python For Engineers*, University of Porto, 2018
- *International course on forecast engineering: Flutter stability analysis of Lillebaelt suspension bridge in Denmark* – Bauhaus University, Weimar, Aug 2017 (80 hours)

Software Development & Open Source Contributions

- **GEM/OQ Engine Collaborator for a ground motion model**

  Role: Collaborator (with Savvinos Aristeidou)
  Project: Artificial neural network-based generalised ground motion model
  Link: https://github.com/Savvinos-Aristeidou/ANN-GGMM
  Description: Collaboratively developed an artificial neural network-based ground motion prediction model, contributing to the OpenQuake Engine and enhancing its capabilities for seismic hazard analysis.
  Technologies: Python, Tensorflow, machine learning, OQ Engine.

- **GEM/OQ Engine Collaborator for a correlation model**

  Role: Collaborator (with Savvinos Aristeidou)
  Project: Artificial neural network-based correlation models
  Link: https://github.com/Savvinos-Aristeidou/ANN_correlation_models
  Description: Collaboratively developed an artificial neural network-based correlation model encompassing a wide range of classical and next-generation intensity measures within a unified framework, contributing to the OpenQuake Engine and enhancing its capabilities for seismic hazard analysis.
  Technologies: Python, Keras, machine learning, OQ Engine.

- **Python Open-Source Package Development**

  Role: Developer & Maintainer
  Project: Python package for demand-intensity models using machine learning

Link: https://pypi.org/project/xgb-rhomut/

Description: Developed next-generation non-linear and collapse prediction models for short- to long-period systems using machine learning techniques, specifically Extreme Gradient Boosting (XGBoost). The models predict relationships among strength ratio, ductility, and period, based on non-linear dynamic analysis results from 7,292 unique single-degree-of-freedom (SDOF) systems—totaling over 26 million observations, including both collapse and non-collapse outcomes.

Technologies: Python, xgboost, machine learning.

- **Web Services for Built Environment Data (BED)**

  Role: Software Developer

  Project: API Services

  Links: Built Environment Data OpenAPI, Public Repository Scaffold

  Description: Designed, developed, and deployed BED, a suite of web services offering structured API access via HTTP-POST and HTTP-GET methods. Built the backend architecture and containerized the application using Docker for consistent, scalable deployment. The platform enables seamless programmatic interaction through well-documented and organized API endpoints, supported by usage examples including cURL.

  Technologies: Django (Python), Nuxt, Vue (Typescript), MongoDB (NoSQL), docker, nginx, Redis caching.

- **Web Services for Djura Platform**

  Role: Software Developer

  Project: API Services

  Link: Djura Platform

  Description: Designed, developed, and deployed the Djura platform, a cloud-hosted web service on AWS providing programmatic access to structural, seismic, risk, and loss data via HTTP-POST and HTTP-GET methods. Built with engineering applications in mind, the platform supports seamless integration into analysis workflows, backed by comprehensive API documentation and practical usage examples to facilitate adoption by engineering professionals.

  Technologies: Django (Python), Nuxt, Vue (Typescript), Supabase (Database), AWS deployment.

- **Reinforced concrete moment resisting frame modeller**

  Role: Open-Source Developer & Maintainer

  Link: https://github.com/davitshahnazaryan3/RCMRF 15 Stars, 11 Forks

  Description: Procedures to create a reinforced concrete building (3D), or a frame (2D) nonlinear building model consisting of moment resisting frames (MRF) as the primary lateral load resisting system.

  Technologies: Python, OpenSees.

- **Risk-aware navigation system with a Database**

  Role: Software Developer

  Project: Rossini

  Link: https://github.com/davitshahnazaryan3/risk-aware-navigation

  Description: Development of a Modified A* Risk-aware navigation algorithm tailored for industries with a focus on accident prevention and insurance coverage. Uses NoSQL database to store building and map information.

  Technologies: Node.js, NoSQL, Python, docker, swagger, Redis caching.

- **OpenSees Modellere Open-Source tool**

  Role: Developer & Maintainer

  Project: Performance-based earthquake engineering (PBEE) course preparation

  Link: https://github.com/davitshahnazaryan3/opensees-modeller-mp

  Description: Created to facilitate the use of OpenSees models in Python, this open-source resource was designed to support students undertaking PBEE coursework. Used for every iteration of PBEE course.

  Technologies: Python, OpenSees.

- **Storey-loss function generator**

  Role: Open-Source Developer & Maintainer

  Link: https://github.com/davitshahnazaryan3/SLFGenerator 10 Stars, 3 Forks

  Description: Storey loss function tool to generate engineering demand parameter vs decision variable relationships.

  Technologies: Python.

- **Integrated Performance-Based Seismic Design (IPBSD) Framework**

  Role: Open-Source Developer & Maintainer

  Link: https://github.com/davitshahnazaryan3/IPBSD 7 Stars, 3 Forks

  Description: Design framework based on limiting economic losses, i.e. expected annual loss (EAL) and targeting a probability of collapse, i.e., mean annual frequency of collapse (MAFC). As long as there are no Failures and/or Warnings, then the framework has successfully completed.

  Technologies: Python, OpenSees.

Professional Experience

- **Djura — Risk-Data-Engineering [djura.it]** Jun 2024 – Present

  Role: Co-Founder & Developer

  Project: EDP-DV Generator - tool to create response to decision variable functions enabling analysts to quantify expected monetary losses in both structural and non-structural elements.
  Record-Selector - tool for selecting ground motion records based on sophisticated criteria to ensure relevant and precise seismic data.
  EDP-IM Models - predictive models that establish relationships between seismic intensity measures and structural responses.
  Hazard Consistency - a validation tool to assess the consistency and reliability of selected ground motions.

  Description: Contributed to the development of research-focused, data-driven web services tailored for engineering applications. Delivered technical consulting support.

- **ECO Panel Group, Glendale, CA, USA** 2017 – 2018

  Role: Structural Designer (freelancing, remote)

  Project: Preparation of structural design and design manuals for EPG panels

  Description: The ECO Panel system is a wall system that produces a structural and insulated concrete wall. The system is a series of rebar trusses held together by EPS (foam).

- **Smart Construction LLC, Yerevan, Armenia** Feb 2016 – May 2017

  Role: Structural Designer

  Project: BMW building in Arinj, Armenia

  Description: Collaborated on the seismic design and numerical analysis of key structural components for a BMW car shop building complex, ensuring compliance with seismic codes and performance standards.

- **Armproject OJSC, Yerevan, Armenia** May 2013 – Sep 2013

  Role: Structural Designer

  Project: Vanadzor Medical Center, Armenia

  Description: Prepared detailed structural drawings for various building projects, translating engineering designs into clear, code-compliant construction documents.

- **Davtakert LLC, Yerevan, Armenia** Jul 2012 – Jun 2013

  Role: Structural Designer

  Description: Performed structural design and analysis for residential and commercial buildings

Publications

As of Saturday 26th September, 2026:

	h-index	Number of documents	Number of citations
Scopus, Author ID: 57208563808	6	15	136
Google Scholar	7	25	184

Journal Papers

[1] S. Aristeidou, D. Shahnazaryan, and G. J. O'Reilly, "Correlation models for next-generation amplitude and cumulative intensity measures using artificial neural networks," *Earthquake Spectra*, vol. 41, no. 1, pp. 851–875, 2025. DOI: 10.1177/87552930241270563. eprint: https://doi.org/10.1177/87552930241270563. [Online]. Available: https://doi.org/10.1177/87552930241270563.

[2] D. Shahnazaryan, R. Pinho, H. Crowley, and G. J. O'Reilly, "The Built Environment Data platform for experimental test data in earthquake engineering," *Earthquake Engineering & Structural Dynamics*, vol. 53, no. 15, pp. 4627–4640, 2024. DOI: https://doi.org/10.1002/eqe.4231. eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/eqe.4231. [Online]. Available: https://onlinelibrary.wiley.com/doi/abs/10.1002/eqe.4231.

[3] 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. [Online]. Available: https://linkinghub.elsevier.com/retrieve/pii/S0267726124004032.

[4] D. Shahnazaryan and G. J. O'Reilly, "Next-generation non-linear and collapse prediction models for short- to long-period systems via machine learning methods," *Engineering Structures*, vol. 306, p. 117 801, 2024, ISSN: 0141-0296. DOI: https://doi.org/10.1016/j.engstruct.2024.117801. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S0141029624003638.

[5] G. J. O'Reilly and D. Shahnazaryan, "On the utility of story loss functions for regional seismic vulnerability modeling and risk assessment," *Earthquake Spectra*, Apr. 2024, ISSN: 8755-2930. DOI: 10.1177/87552930241245940. [Online]. Available: https://journals.sagepub.com/doi/10.1177/87552930241245940.

[6] D. Shahnazaryan and G. J. O'Reilly, "Appraising the Risk Assessment of Non-Structural Components via Simplified and Machine-Learning-Based Approaches," *Journal of Earthquake Engineering*, pp. 1–24, Feb. 2024, ISSN: 1363-2469. DOI: 10.1080/13632469.2024.2314169. [Online]. Available: https://www.tandfonline.com/doi/full/10.1080/13632469.2024.2314169.

[7] G. J. O'Reilly 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. [Online]. Available: https://onlinelibrary.wiley.com/doi/10.1002/eqe.4066.

[8] G. J. O'Reilly et al., "Risk-aware navigation in industrial plants at risk of NaTech accidents," *International Journal of Disaster Risk Reduction*, vol. 88, p. 103 620, Apr. 2023. DOI: 10.1016/j.ijdrr.2023.103620. [Online]. Available: https://doi.org/10.1016%2Fj.ijdrr.2023.103620.

[9] D. Shahnazaryan, G. J. O'Reilly, and R. Monteiro, "On the seismic loss estimation of integrated performance-based designed buildings," *Earthquake Engineering & Structural Dynamics*, vol. 51, no. 8, pp. 1794–1818, Mar. 2022. DOI: 10.1002/eqe.3638. [Online]. Available: https://doi.org/10.1002%2Feqe.3638.

[10] D. Shahnazaryan, G. J. O'Reilly, and R. Monteiro, "Story loss functions for seismic design and assessment: Development of tools and application," *Earthquake Spectra*, vol. 37, no. 4, pp. 2813–2839, Jul. 2021. DOI: 10.1177/87552930211023523. [Online]. Available: https://doi.org/10.1177%2F87552930211023523.

[11] D. Shahnazaryan and G. J. O'Reilly, "Integrating expected loss and collapse risk in performance-based seismic design of structures," *Bulletin of Earthquake Engineering*, vol. 19, no. 2, pp. 987–1025, Jan. 2021. DOI: 10.1007/s10518-020-01003-x. [Online]. Available: https://doi.org/10.1007%2Fs10518-020-01003-x.

Theses

[1] D. Shahnazaryan, "Integrated performance-based seismic design: Traversing affordances for practical implementation," Ph.D. Thesis, University School for Advanced Studies - IUSS Pavia, Nov. 2021. DOI: 10.13140/RG.2.2.23702.01605. [Online]. Available: https://www.researchgate.net/publication/359218817_Integrated_Performance-Based_Seismic_Design_Traversing_Affordances_for_Practical_Implementation.

[2] D. Shahnazaryan, "Comparison of earthquake-induced losses of reinforced concrete and steel frame buildings," M.S. thesis, 2018.

[3] D. Shahnazaryan, "Wave propagation in periodic structures: bragg- and fano- like band gaps in monodimensional chains," M.S. thesis, 2015.

Conference Papers

[1] D. Shahnazaryan, V. Ozsarac, and G. J. O'Reilly, "Bridging the Gap: a software tool for efficient ground motion record selection in earthquake engineering," in *3CroCEE - 3rd Croatian Conference on Earthquake Engineering*, Split, Croatia, 2025. DOI: 10.5592/CO/3CroCEE.2025.30.

[2] D. Shahnazaryan and G. J. O'Reilly, "Enhancing functional recovery estimations through storey loss functions," in *3CroCEE - 3rd Croatian Conference on Earthquake Engineering*, Split, Croatia, 2025. DOI: 10.5592/CO/3CroCEE.2025.31.

[3] G. J. O'Reilly et al., "Advancing Seismic Design and Assessment through Experimental Testing: Insights from the ERIES Project," in *3CroCEE - 3rd Croatian Conference on Earthquake Engineering*, Split, Croatia, 2025. DOI: 10.5592/CO/3CroCEE.2025.33.

[4] 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.

[5] 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.

[6] D. Shahnazaryan and G. J. O'Reilly, "Fitting improved hazard models for SAC/FEMA-compatible seismic analysis," in *ICASP14 - 14th International Conference on Applications of Statistics and Probability in Civil Engineering*, Dublin, Ireland, 2023.

[8] D. Shahnazaryan and G. J. O'Reilly, "Current and Contemporary Seismic Design Methods: a Comparative Review," in *3ECEES - Third European Conference on Earthquake Engineering and Seismology*, 2022.

[9] D. Shahnazaryan et al., "Integrating Multiple Risks to Aid the Navigation of Industrial Plant Workers During Seismic Events," in *3ECEES - Third European Conference on Earthquake Engineering and Seismology*, 2022.

[10] G. J. O'Reilly et al., "Utilization of a sensor array for the risk-aware navigation in industrial plants at risk of natech accidents," in *Proceedings of the ASME 2022 Pressure Vessels & Piping Conference PVP2022*, Las Vegas, Nevada, USA, 2022.

[11] D. Shahnazaryan, G. J. O'Reilly, and R. Monteiro, "Development of a Python-Based Storey Loss Function Generator," in *COMPDYN 2021 - 8th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, 2021. DOI: 10.7712/120121.8659.18567.

[12] D. Shahnazaryan, M. J. Castro, and R. Monteiro, "Comparison of Earthquake-Induced Losses in Reinforced Concrete and Steel Frame Buildings," in *17th World Conference on Earthquake Engineering*, Sendai, Japan, 2020.

[13] D. Shahnazaryan, G. J. O'Reilly, and R. Monteiro, "Using Direct Economic Losses and Collapse Risk for Seismic Design of RC Buildings," in *COMPDYN 2019 - 7th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, 2019. DOI: 10.7712/120119.7281.19516.