Xavier das Neves Romão

Curriculum Vitae

Associate Professor, Faculty of Engineering, University of Porto (FEUP) · July 2026

IDENTIFICATION

Name: Xavier das Neves Romão **Nationality:** Portuguese

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EDUCATION

2012 — PhD in Civil Engineering (specialization in Earthquake Engineering), Faculty of Engineering, University of Porto

2002 — MSc in Structural Engineering, Faculty of Engineering, University of Porto

1999 — Civil Engineering degree, Faculty of Sciences and Technology, University of Coimbra

PROFESSIONAL ACTIVITY

General overview

Associate Professor of Structural Engineering at the Faculty of Engineering of the University of Porto (FEUP), working on the risk and safety assessment and management of existing constructions. Core research addresses earthquake engineering and seismic risk, from structural-level assessment to regional-scale seismic risk analysis supporting Civil Protection planning and emergency response, and extends into a line that focusses on multi-hazard risk to cultural heritage, including cultural-value assessment and disaster-loss modelling. Recent work has involved machine learning to reliability, vulnerability and risk analysis of critical infrastructure, and integrates risk management with sustainability objectives such as those of the Sendai Framework for Disaster Risk Reduction and the Sustainable Development Goals framework.

Current position

Associate Professor, Structural Division, Dept. of Civil Engineering and Georesources, FEUP.

Vice-President, ICOMOS-ICORP — International Scientific Committee on Risk Preparedness of ICOMOS.

Member, Board of Administration, Portuguese Society for Earthquake Engineering.

Member, Structural Extreme Events Reconnaissance (StEER) Network.

FEUP representative, European Facilities for Earthquake Hazard and Risk (EFEHR), integrated in the European Plate Observing System (EPOS).

Teaching activity

Lecturer of undergraduate courses (FEUP, since 2002): Computer Programming, Statics, Dynamics, Structural Analysis, Reinforced Concrete Design.

Lecturer of postgraduate MSc/PhD courses (FEUP, since 2012): Seismic Engineering, Uncertainty Analysis, Uncertainty Modelling and Risk Analysis, Performance Assessment of Existing Structures.

Supervisor of numerous MSc and PhD dissertations since 2012 (see Scientific activity).

Selected international lecturing: ICCROM-READY – Safeguarding Cultural Heritage from Disasters, Extreme Weather Events and Complex Emergencies (2026); UNESCO Climate-Resilience training, Ohrid, North Macedonia (2022); ICCROM/ICOMOS “First Aid to Cultural Heritage” workshop, Kathmandu, Nepal (2015); World Bank / Ministry of Education technical-assistance workshops, Cape Verde and Angola (2021); PROCULTHER-NET Capacity Building Programme, Volterra, Italy (2023); Operational Forces for Cultural Heritage Protection training, Zagreb, Croatia (2024); “Lisbon in Motion” workshop, 12th World Conference on Earthquake Engineering, Lisbon (2012).

Selected national training: “Risk Management in Museums” courses, Portuguese Museum Network (2024–2026); “Assessment of Post-Earthquake Damage in Buildings”, National Platform for Disaster Risk Reduction, Lisbon (2023); Sustainable Rehabilitation of Buildings course, Institute for Sustainable Construction, Porto (multiple editions, 2020–2026).

Scientific activity

Research projects — as leader / Principal Investigator (selected)

DESign2LAST — Defining Earthquake Safety aligned with Loss Averse Sustainable Thinking. FCT, COMPETE2030-FEDER-00683500.

RESILIACT — Cross-regional action for enhanced impact forecasting, early warning and resilient governance. European Commission, HORIZON-CL3-2025-01-DRS-01.

TOGETHER — Towards enhanced coordination of disaster risk management and governance through a holistic framework for multi-level interaction and communication. European Commission, HORIZON-CL3-2024-DRS-01-02.

AHEAD — Advanced disaster damage and loss data information system for enHancEd impAct-baseD knowledge. DG ECHO.

PROCULTHER-NET 2 — Protecting Cultural Heritage from the Consequences of Disasters-Network 2. DG ECHO.

PROCULTHER-NET — Protecting Cultural Heritage from the Consequences of Disasters-Network. DG ECHO.

LODE — Loss Data Enhancement for DRR and CCA Management. DG ECHO.

RIACT — Risk Indicators for the Analysis of Cultural Heritage under Threat. FCT, POCI-01-0145-FEDER-030469.

RESABER — Recovery of Knowledge and Good Engineering Practices for Conservation and Restoration of Built Cultural Heritage. ON.2 – O Novo Norte.

Research projects — as team member (selected)

SAVERACK — Sustainable, advanced and economical retrofitting strategies for reducing the seismic vulnerability and risk of steel storage pallet racks. EC, RFCS-2023.

SAFENET — Seismic risk assessment in transport networks. FCT, 2022.07628.PTDC.

MitRisk — Framework for seismic risk reduction resorting to cost-effective retrofitting solutions. FCT, POCI-01-0145-FEDER-031865.

SERA — Seismology and Earthquake Engineering Research Infrastructure Alliance for Europe. EC, H2020-INFRAIA-2016-1.

LIQUEFACT — Assessment and mitigation of liquefaction potential across Europe. EC, H2020-DRS-2015.

LESSLOSS — Risk Mitigation for Earthquakes and Landslides. EC, FP6.

ASPASSI — Safety evaluation and retrofitting of infill masonry enclosure walls for seismic demands. FCT, PTDC/ECM-EST/3790/2014.

PRISE — Earthquake loss assessment of the Portuguese building stock. FCT, PTDC/ECM-EST/3062/2012.

Development and calibration of methodologies for assessing the seismic safety of existing buildings provided for in Eurocode 8 – Part 3. FCT, PTDC/ECM/108098/2008.

Seismic safety assessment and reinforcement of bridges. FCT, PTDC/ECM/72596/2006.

+ 8 additional national and EU-funded research projects as team member (1999–2023).

PhD dissertation supervision — finished

Sant'Anna Andrade, M. (co-sup., 2026) — Structural evaluation of RC bridges in service without design data. Univ. Viçosa, Brazil.

Navia Miranda, F. (co-sup., 2026) — Robustness of critical infrastructure assessment using AI and structural monitoring. FEUP.

Flores Salazar, L.G. (2024) — Multi-hazard risk indicators for immovable cultural heritage. FEUP.

Skoulidou, D. (2020) — Performance-based seismic analysis of RC buildings accounting for the angle of seismic incidence. FEUP.

Rodriquez, C. (co-sup., 2020) — Resilience assessment based on sustainable development indicators. IUSS Pavia, Italy.

Pereira, N. (2019) — Seismic safety assessment of existing RC buildings. FEUP.

Mohamed, H. (2017) — Seismic risk assessment of RC frames with masonry infills. FEUP.

PhD dissertation supervision — ongoing

Pecapedra Souza, C.F. — Seismic performance modelling of RC buildings with planar and flanged walls. FEUP.

Santos, R.R. (co-sup.) — Risk-based inspection of special works of art supported by digital processes. Univ. São Paulo / FEUP.

Paupério Vila Pouca, E. — Strategies for risk assessment in immovable and movable cultural heritage. FEUP.

Also: external examiner in 18 PhD defenses (2014–2026), including at IUSS Pavia, Instituto Superior Técnico, University of Minho, University of Aveiro, NTNU and La Sapienza University of Rome.

Earthquake reconnaissance missions

2023 — Türkiye: Portuguese technical mission to areas affected by the Türkiye–Syria seismic sequence.

2021 — Croatia: FEUP technical mission to areas affected by the 2020 Croatia earthquakes.

2015 — Nepal: Joint ICOMOS-ICORP / ICCROM / Smithsonian Institution mission to Kathmandu after the Kathmandu earthquake sequence.

2012 — Italy: Joint FEUP / University of Aveiro mission to Emilia-Romagna after the Emilia-Romagna earthquake sequence.

2011 — Spain: Joint FEUP / University of Aveiro mission to Lorca after the Lorca earthquake.

2009 — Italy: Joint FEUP / University of Aveiro mission to Abruzzo after the L'Aquila earthquake.

Technical workgroups (selected)

IABSE Task Group 5.10 — Earthquake Emergency Response Team (since 2024).

fib Task Group 2.7 "Seismic Design" (since 2019).

CEN/TC 346, WG17 — Management and monitoring of built heritage (since 2024).

European Commission expert group, CERIS — Community for European Research and Innovation for Security (since 2022).

JRC Working Group "Disaster Loss Data in the EU" / Disaster Risk Management Knowledge Centre, European Commission (2014–2019).

Sub-Committee, National Platform for Disaster Risk Reduction — WG2, Training of specialists in post-earthquake structural damage assessment (since 2016).

CT 115 (national technical committee for standards) – Structural Eurocodes (since 2013).

SCIENTIFIC PUBLICATIONS

Book editions (selected)

Rouhani, B., Romão, X. (Eds.) (2023) Managing Disaster Risks to Cultural Heritage: From Risk Preparedness to Recovery for Immovable Heritage. Routledge.

Costa, A., Arêde, A., Paupério, E., Romão, X. (Eds.) (2014) Reabilitação estrutural — Casos práticos de intervenção em estruturas patrimoniais. Instituto da Construção, Porto.

+ 3 additional edited volumes.

Book chapters

28 chapters in international edited books and 14 in national edited books, principally on seismic assessment of existing structures, disaster risk assessment for cultural heritage, and NDT-based concrete strength assessment (full list available on request).

Selected articles in international journals indexed in WoS

Mita, M., Costa, C., Silva, V., Gomes, T., Romão, X. (2026) Seismic Multi-Hazard Assessment of Earthquake-Induced Ground Failures in South-Central Portugal. Soil Dynamics and Earthquake Engineering, *submitted*.

Ozsarac, V., Pereira, N., Mohamed, H., Romão, X., O'Reilly, G. (2025) The Built Environment Data Framework for Simulated Design and Vulnerability Modelling in Earthquake Engineering. Earthquake Engineering and Structural Dynamics, 54(11), 2651-2670.

Miranda, F., Mata, J., Santos, J.P., Romão, X. (2025) Structural characterization of a suspension bridge by mapping the temperature effects on strain response based on neural network models. Journal of Civil Structural Health Monitoring, 15, 1117–1137.

Nobile, E., Figueiredo, R., Arrighi, C., Romão, X., Martina, M. (2025) Flood Risk Assessment of Cultural Heritage Across Countries and Spatial Scales. International Journal of Disaster Risk Reduction, 118, 105236.

Pereira, N., Skoulidou, D., Romão, X. (2024) Closed-form expressions for partial safety factors used in the seismic assessment of existing RC buildings. Bulletin of Earthquake Engineering, 22(3), 997-1032.

Pavel, F., Crowley, H., Romão, X., Vladut, R., Pereira, N., Ozsarac, V. (2024) Evolution of national codes for the design of RC structures in Romania. Bulletin of Earthquake Engineering, 22(3), 911-949.

Mohamed, H., Skoulidou, D., Romão, X. (2023) Quantification of the effects of different uncertainty sources on the seismic fragility functions of masonry-infilled RC frames. Structures, 50, 1069-1088.

Skoulidou, D., Mohamed, H., Romão, X. (2023) Probabilistic models for 3D structural demand considering the ground motion group size and the angle of seismic incidence. Soil Dynamics and Earthquake Engineering, 164, 107530.

Viana da Fonseca, A., Millen, M., Quintero, J., Sargin, S., Rios, S., Romão, X., Pereira, N., Panico, F., Oztoprak, S., Kelesoglu, M. K. (2023) Macromechanism Approach for Vulnerability Assessment of Buildings on Shallow Foundations in Liquefied Soils. Journal of Geotechnical and Geoenvironmental Engineering, 149(3), 04023003.

Romão, X., Bertolin, C. (2022) Risk protection for cultural heritage and historic centres: Current knowledge and further research needs. International Journal of Disaster Risk Reduction, 67, 102652.

Figueiredo, R., Romão, X., Paupério, E. (2021) Component-based flood vulnerability modelling for cultural heritage buildings. International Journal of Disaster Risk Reduction, 61, 102323.

Skoulidou, D., Romão, X. (2021) Are seismic losses affected by the angle of seismic incidence? Bulletin of Earthquake Engineering, 19(15), 6271-6302.

Crowley, H., Despotaki, V., Silva, V., Dabbeek, J., Romão, X., Pereira, N., Castro, J.M., Daniell, J., Veliu, E., Bilgin, H., Adam, C., Deyanova, M., Ademović, N., Atalic, J., Riga, E., Karatzetzou, A., Bessason, B., Shendova, V., Tiganescu, A., Toma-Danila, D., Zugic, Z., Akkar, S., Hancilar, U. (2021) Model of seismic design lateral force levels for the existing reinforced concrete European building stock. Bulletin of Earthquake Engineering, 19(7), 2839–2865.

Mohamed, H., Romão, X. (2021) Robust calibration of macro-models for the in-plane behavior of masonry infilled RC frames. Journal of Earthquake Engineering, 25(3), 407-433.

Skoulidou, D., Romão, X., Franchin, P. (2019) How is collapse risk of RC buildings affected by the angle of seismic incidence? Earthquake Engineering and Structural Dynamics, 48(14), 1575-1594.

Mohamed, H., Romão, X. (2018) Performance analysis of a detailed FE modelling strategy to simulate the behaviour of masonry-infilled RC frames under cyclic loading. Earthquakes and Structures, 14(6), 551-565.

Skoulidou, D., Romão, X. (2017) Critical orientation of earthquake loading for building performance assessment using lateral force analysis. Bulletin of Earthquake Engineering, 15(12), 5217-5246.

Romão, X., Paupério, E., Pereira, N. (2016) A framework for the simplified risk analysis of cultural heritage assets. Journal of Cultural Heritage, 20, 696-708.

Romão, X., Paupério, E. (2016) A framework to assess quality and uncertainty in disaster loss data. Natural Hazards, 83(2), 1077-1102.

Romão, X., Delgado, R., Costa, A. (2014) Probabilistic performance analysis of existing buildings under earthquake loading. Journal of Earthquake Engineering, 18(8), 1241-1265.

Romão, X., Costa, A.A., Paupério, E., Rodrigues, H., Vicente, R., Varum, H., Costa, A. (2013) Field observations and interpretation of the structural performance of constructions after the 11 May 2011 Lorca earthquake. Engineering Failure Analysis, 34, 670-692.

Romão, X., Delgado, R., Costa, A. (2013) Alternative closed-form solutions for the mean rate of exceedance of structural limit states. Earthquake Engineering and Structural Dynamics, 42(12), 1827-1845.

Romão, X., Delgado, R., Guedes, J., Costa, A. (2010) A comparative application of different EC8-3 procedures for the seismic safety assessment of existing structures. Bulletin of Earthquake Engineering, 8(1), 91-118.

Costa, A., Romão, X., Oliveira, C.S. (2010) A methodology for the probabilistic assessment of behaviour factors. Bulletin of Earthquake Engineering, 8(1), 47-64.

Romão, X., Costa, A., Delgado, R. (2012) Statistical characterization of structural demand under earthquake loading. Part 1: Robust estimation of the central value of the data. Journal of Earthquake Engineering, 16(5), 686-718.

Romão, X., Gonçalves, R., Costa, A., Delgado, R. (2012) Evaluation of the EC8-3 confidence factors for the characterization of concrete strength in existing structures. Materials and Structures, 45(11), 1737-1758.

Full list of 69 WoS-indexed journal articles (1999–2026) available via ORCID / Scopus or on request.

Editorial activity

Editorial Board: International Journal of Disaster Risk Reduction (Elsevier); Journal of Cultural Heritage (Elsevier); Discover Hazards (Springer); Journal of Safety Science and Resilience (Elsevier); Buildings (MDPI).

Associate Editor: Earthquake Engineering section, Frontiers in Built Environment; Social Science – Disaster Risk Management section, Heliyon (Cell Press).

Guest Editor, Special Issues: "Seismic Safety Assessment of Existing Constructions" (Buildings, 2023); "Risk protection for cultural heritage and historic centres" (Int. J. of Disaster Risk Reduction, 2021); "Historic Timber Structures" (Journal of Cultural Heritage, 2024); "Risk and resilience in practice: Cultural Heritage Buildings" (Int. J. of Architectural Heritage, 2021).

Peer review

Reviewer for 60+ international journals since 2011, including Bulletin of Earthquake Engineering, Earthquake Engineering and Structural Dynamics, Earthquake Spectra, International Journal of Disaster Risk Reduction and Journal of Cultural Heritage. (full list available on request).

Publications related to technical consultancy activities

Author/co-author of 45+ technical reports (1999–2024) on structural inspection, seismic vulnerability assessment and rehabilitation of buildings, bridges and cultural heritage assets, for clients including REFER, GALP, the World Bank, UNESCO, and Portuguese municipal and heritage authorities (full list available on request).