

Curriculum vitae

Fabio Freddi

Lecturer in Structural Design

Department of Civil, Environmental & Geomatic Engineering (CEGE)
University College London
 Chadwick Building 1.15, Gower Street, London, WC1E 6BT, United Kingdom

<https://www.cege.ucl.ac.uk/>
<https://www.ucl.ac.uk/epicentre>

Academic Qualification

FHEA	Fellow of the Higher Education Academy, 2018
PhD	Doctorate in Structural and Infrastructural Engineering, Marche Polytechnic University, 2013
MSc	Civil Engineering, cum laude (highest grade), Marche Polytechnic University, 2008
BEng	Civil Engineering, Marche Polytechnic University, 2005

Professional Qualification

CEng	Chartered Engineer, 2009
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Research Areas and Specialization

Performance-based seismic design and assessment of structures
 Large-scale structural testing
 Steel Structures
 Novel resilient minimal-damage seismic-resistant steel frames
 Self-centering post-tensioned steel connections
 Passive dampers
 Seismic retrofit of reinforced concrete frames
 Seismic risk and life cycle cost analysis
 Progressive collapse of steel-concrete composite structures
 Pounding of structures

Education

2013–2014	Post-Doctoral Researcher. Department of Civil, Environmental and Mechanical Engineering (DICEA), Faculty of Engineering, University of Trento, Trento, Italy. Supervisor: Prof. Riccardo Zandonini
2009–2012	Ph.D. in Structural and Infrastructural Engineering. Department of Civil Engineering, Buildings and Architecture (DICEA), Faculty of Engineering, Marche Polytechnic University, Ancona, Italy. Degree Thesis: <i>“Local Engineering demand parameters for seismic risk evaluation of low ductility reinforced concrete buildings”</i> . Advisor: Prof. Luigino Dezi
2005–2008	Master degree cum Magna Laude in Civil Engineering. Faculty of Engineering, Marche Polytechnic University, Ancona, Italy. Degree Thesis: <i>“Design Criteria for retrofitting of moment resisting frame structures by means of buckling restrained braces”</i> (in Italian). Advisor: Prof. Andrea Dall’Asta
2002–2005	Bachelor degree in Civil Engineering, Faculty of Engineering, Marche Polytechnic University, Ancona, Italy. Degree Thesis: <i>“Optimization of the design of pile foundation in sand”</i> (in Italian). Advisor: Prof. Erio Pasqualini

Academic appointments

- 09/2017–Now **Lecturer (Assistant Professor) in Structural Design**, Department of Civil, Environmental & Geomatic Engineering at University College London (UCL), London, WC1E 6BT, UK.
- 03/2018–Now **Visiting Professor in Earthquake Engineering**, Dept. Civil & Env. Eng. at University of Ancona, Ancona, Italy.
- 2015–2017 **Marie Skłodowska-Curie Research Fellow**, School of Engineering, University of Warwick, Coventry, CV47AL, UK (September 2015 - September 2017).
- 2013–2014 **Post-Doctoral Researcher**. Department of Civil, Environmental and Mechanical Engineering, Faculty of Engineering – University of Trento, Trento, Italy.
- 2012–2013 **Research Fellow**. School of Architecture and Design E. Vittoria, University of Camerino, Ascoli Piceno, Italy.
- 2010–2011 **Visiting Scholar**. Department of Civil and Environmental Engineering, Rice University, Houston, Texas, USA. Collaboration with Prof. Jamie Ellen Padgett. (December 2010 – September 2011).
- 2009–2013 **Research Assistant/Teaching Assistant**. Faculty of Engineering, University of Ancona, Ancona, Italy.

Other appointments

- 03/2019 **Member of the British Eurocode committee B/525/8 Panel 1 & Panel 2**
- 11/2018 **Review for Research projects for PRIN 2017.**
- 08/2018 **Review for Research projects for Young Researcher Rita Levi Montalcini.**
- 07/2018–Now **Review Editor of the Editorial Board** of Frontiers in Built Environment - Earthquake Engineering.
- 05/2018–Now **Member of the Scientific Committee** of ISI (Italian Society for Seismic Engineering).
- 04/2018–Now **Member of the Management Committee** of EEFIT (The Earthquake Engineering Field Investigation Team).
- 03/2018–Now **IStructE Student Liaison Officer (SLO)** at UCL.
- 2017–Now **Associate** at Terre.it (<http://www.terresrl.it/en/>).
- 2014–Now **Scientific Consultant** for Tecnostrutture (<http://www.tecnostrutture.eu/eng/>).
- 2012–Now **Scientific Consultant** for the Italian Society of Earthquake Engineering (<http://www.ingegneriasismicaitaliana.com>).

Honors & Awards

- 2013 - 2014 **Research Fellowship**. “*Robust impact design of steel and composite building structures*”. Faculty of Engineering, University of Trento, Trento (TN), Italy (€ 39,600).
- 2012 **Research Fellowship**. “*Improvement of seismic performance of structures by using dissipative systems*”. School of Architecture and Design E. Vittoria, University of Camerino, (€ 13,000).
- 2009 - 2012 **Research Fellowship**. Faculty of Engineering, University of Ancona, Ancona, Italy (€ 40,915).

Grants

- 2019 - Now **Principal Investigator (PI). SPARC (Scheme for Promotion of Academic and Research Collaboration)**. Project “*Improved Community Performance from Seismically Resilient Strategic Infrastructure Facilities*”. Supported by the Government of India under the Global initiative for Academic Networks (GIAN) programme (£ 41,700) (March 2019).
- 2019 - Now **Principal Investigator (PI)**. Project “*Earthquake-Resilient Hybrid Steel-Concrete Shear Walls*” (SHEAR). Supported by Tecnostrutture S.r.l. (£ 24,400) (January 2019).

- 2018 - Now **Principal Investigator (PI). Department of Civil, Environmental & Geomatic Engineering (CEGE) Scholarships.** Student: Luis Fernando Gutiérrez Urzúa. Project “*Dual-Systems: Dissipative Seismic Resilient Frames*” (DUALFRAMES). (about £ 40,000 including Tuition fees (£ 5,792/year × 3 years), Student stipend (£ 6,217/year × 3 years) & additional research costs (£ 1,200/year × 3 years). (October 2018 – October 2021).
- 2018 - Now **Principal Investigator (PI). CONACYT-ALIANZA FiiDEM Scholarships (Consejo Nacional de Ciencia y Tecnología).** Student: Luis Fernando Gutiérrez Urzúa. Project “*Dual-Systems: Dissipative Seismic Resilient Frames*” (DUALFRAMES). (£ 64,608 including Tuition fees (£ 10,826/year × 3 years), Student stipend (£ 10,560/year × 3 years) & annual medical insurance (£ 150/year × 3 years). (October 2018 – October 2021).
- 2018 - Now **Principal Investigator (PI). UCL Graduate Research Scholarships (UCL GRS).** Student: Francesco Morfuni. Project “*Resilience & Sustainability of Existing Structures: Integrated Retrofit for Seismic Safety and Energy Efficiency*” (£ 69,111 including Tuition fees (£ 5,060/year × 3 years), Student stipend (£ 16,777/year × 3 years) & additional research costs (£ 1,200/year × 3 years) (October 2018 – October 2021).
- 2018 - Now **Principal Investigator (PI). UGC (University Grants Commission) - UKIERI (UK-India Education and Research Initiative).** Project “*Seismic Design and Fragility Assessment of Retrofitted Structures: Influence of Aftershocks and Uncertainty Quantification*”. Supported by the University Grants Commission and the British Council (£ 49,834) (March 2018).
- 2015 - 2017 **Principal Investigator (PI). Marie Skłodowska-Curie Research Individual Fellowships (IF).** Project “*Earthquake-resilient self-centering steel frame*” (EQRESFRAME). Supported by the European Union Commission Horizon 2020 program). (€ 183,454.8).

Collaboration in Research Project

- 2018 - Now **Principal Investigator (PI). Seismology and Earthquake Engineering Research Infrastructure Alliance for Europe (SERA).** Project “*Hybrid Testing of an Existing Steel FRAME with Infills under Multiple EarthquakeS*” (HITFRAMES). Funded by the EU call H2020-INFRAIA-01-2016-2017 Research Infrastructure for Earthquake Hazard (April 2018).
- 2013 – 2016 **Project Member. Research Fund for Coal and Steel (RFSR-CT-2012-00029).** Project “*Robust impact design of steel and composite building structures*” (ROBUSTIMPACT). (PI: Prof. Ulrike Kuhlmann, Stuttgart Univ., Germany) (€ 1,493,344).
- 2011 – 2015 **Project Member. Research Found for the George E. Brown, Jr. Network for Earthquake Engineering Simulation.** Project “*Innovative Seismic Retrofits for Resilient Reinforced Concrete Buildings*” (NEESR-CR). (<http://neesrcr.gatech.edu/>) (PI: Prof. Reginald DesRoches, Georgia Tech Univ. USA) (\$ 1,197,055).
- 2009 – 2010 **Project Member. Research Fund for Coal and Steel (RFSR-CT-2007-00038).** Project “*Prefabricated steel structures for low-rise buildings in seismic areas*” (PRECASTEEL). (PI: Prof. Aurelio Braconi, ILVA S.P.A.) (€ 1,216,196).

Consulting Activity / Practical Experience

- 2017 - 2018 **Project Coordinator** for the Italian Society of Earthquake Engineering. Project “*Seismic requalification in Italy: tax breaks, retrofit methods and manual of available technologies for seismic risk reduction*”. Supported by Cresme.
- 2016 **Project Coordinator** for the Italian Society of Earthquake Engineering. Project “*Seismic vulnerability evaluation of the property of the Italian agency for public residential building and retrofit methods*”. Supported by Federcasa.
- 2015 **Project Coordinator** for the Italian Society of Earthquake Engineering. Project “*Seismic vulnerability evaluation of the property of the Italian agency for public residential building: Preliminary Analysis*”. Supported by Federcasa.
- 2015 **Engineer-Consultant:** Seismic vulnerability evaluation and retrofit design of the industrial building Ex-Saipem of Matelica’s council.

- 2012 **Engineer-Consultant:** Seismic Vulnerability evaluation and retrofit design of the dorm E. Mattei of University of Camerino.
- 2012 **Engineer-Consultant:** Seismic Vulnerability evaluation and retrofit design of the dorm Granelli of University of Camerino.
- 2010 **Teaching assistant** in updating course for engineers on Italian code NTC2008. Professional Order of Engineers of Macerata, Italy.
- 2010 **Teaching assistant** in updating course for engineers on Italian code NTC2008. Professional Order of Engineers of Rimini, Italy.
- 2009 – Now **License (Chartered Civil Engineer)** to practice civil engineering in Italy (10 October 2009). Design consultant to a large number of steel and reinforced concrete building design projects.

Organization of Conferences

- 2018 **Co-Organizer.** Conference “*Tax breaks, seismic retrofit methods and manual of innovative technologies for seismic risk reduction*” Organized for Italian Society of Earthquake Engineering & CRESME, 3 Events, Modena (6 February 2018), Rome (21 February 2018), Macerata (18 April 2018).
- 2017 **Co-Organizer.** Conference “*Building stock and seismic risk. perspective, experiences and management.* ” (In Italian). Organized for Italian Society of Earthquake Engineering within SISMO Expo 2017, Ferrara, (22 September 2017).
- 2017 **Co-Organizer.** Conference “*Building stock and seismic risk. Need of knowledge and retrofit of public residential buildings.* ” (In Italian). Organized for Italian Society of Earthquake Engineering & Federcasa, Norcia, (29 June 2017).
- 2016 **Co-Organizer.** Conference “*Seismic vulnerability classification of buildings. An instrument for the seismic risk reduction*” (In Italian). Organized for Italian Society of Earthquake Engineering within the SAIE 2016, Bologna, (21 October 2016).
- 2015 **Co-Organizer.** Conference “*Seismic safety of public residential buildings*” (In Italian). Organized for Italian Society of Earthquake Engineering in collaboration with Federcasa, Roma, Italy (8 July 2015).
- 2015 **Co-Organizer.** Conference “*Seismic requalification: retrofit or reconstruction?*” (In Italian). Organized for Italian Society of Earthquake Engineering within the MADEexpo 2015, Milano, Italy (20 March 2015).
- 2015 **Co-Organizer.** Conference “*The new technical code: the point of view of the software houses*” (In Italian). Organized for Italian Society of Earthquake Engineering within the MADEexpo 2015, Milano, Italy (18 March 2015).
- 2014 **Co-Organizer.** Conference “*Earthquakes and non-structural elements. Approaches, limit states and performance requirements*” (In Italian). Organized for Italian Society of Earthquake Engineering within the SAIE 2014, Bologna, Italy (24 October 2014).
- 2013 **Co-Organizer.** Conference “*Seismic classification of buildings*” (In Italian). Organized for Italian Society of Earthquake Engineering in collaboration with Federcasa within the SAIE 2013, Bologna, Italy (18 October 2013).
- 2012 **Co-Organizer.** Conference “*Smart structure: seismic resistant, sustainable and based on the conceptual design*” (In Italian). Organized for Italian Society of Earthquake Engineering within the MADEexpo 2012, Milano, Italy (18 October 2012).

Reviewer for Scientific Journals

Journal of Bridge Engineering (ASCE)
 Journal of Structural Engineering (ASCE)
 Engineering Structures
 Soil Dynamics and Earthquake Engineering
 Journal of Earthquake Engineering
 Bulletin of Earthquake Engineering

Earthquakes and Structures
 Advances in Structural Engineering
 The Open Civil Engineering Journal
 International Journal of Earthquake and Impact Engineering (IJEIE)

Invited and Plenary Talks

- 2018 *Rocking damage-free steel column base with friction devices: design procedure, numerical evaluation and experimentation.* Indian Institute of Technology Bombay, India. **Invited Talk.** (November 2018).
- 2018 *Tax breaks, seismic retrofit methods and manual of innovative technologies for seismic risk reduction.* CRESME Conference, Macerata, Italy. **Invited Talk.** (April 2018).
- 2017 *Seismic risk assessment of public residential buildings. Extended evaluation on a large building stock. Digital & BIM Italia/By SAIE 2017.* Conference "Digitalizzazione e protezione eco-sismica: progetto di adeguamento". Bologna. **Invited Talk.** (October 2017).
- 2017 *Report Federcasa-ISI: Awareness of Earthquake Risk in Italy.* SISMOexpo 2017. Conference "Patrimonio edilizio e rischio sismico: prospettive, esperienze, politiche virtuose." Ferrara. **Invited Talk.** (September 2017).
- 2017 *Seismic vulnerability evaluation of the property of the Italian agency for public residential buildings.* Conference "Patrimonio edilizio e rischio sismico. Necessità di conoscenza, possibilità d'intervento." Norcia. **Invited Talk.** (June 2017)
- 2017 *Rocking damage-free steel column base with friction devices: design procedure, numerical evaluation and experimentation.* Civil & Environmental Engineering, University of Strathclyde. **Invited Talk.** (May 2017)
- 2017 *Seismic vulnerability evaluation of the property of the Italian agency for public residential buildings.* Department of Civil, Chemical and Environmental Engineering, University of Genoa. **Invited Talk.** (March 2017)
- 2017 *Rocking damage-free steel column base with friction devices: design procedure, numerical evaluation and experimentation.* School of Civil Engineering and Geosciences, Newcastle University. **Invited Talk.** (February 2017)
- 2015 *Local Engineering Demand Parameters for seismic risk evaluation of low ductility reinforced concrete buildings.* School of Engineering, Warwick University. **Invited Talk.** (June 2015).
- 2015 *The seismic safety of the public residential buildings.* Federcasa, ATER Roma. **Invited Talk.** (July 2015).

Memberships

Earthquake and People Interaction Centre (EPICentre)
 Italian Society for Seismic Engineering (ISI) – Member of the Scientific Committee
 The Earthquake Engineering Field Investigation Team (EEFIT) – Member of the Management Committee
 The Institute of Structural Engineers (IStructE)
 British Society for Earthquake and Civil Engineering Dynamics (SECED)
 European Association of Earthquake Engineering (EAEE)
 Association of Italian Scientists in the UK (AISUK)
 Italian Society of Chartered Engineers (Chartered Engineer)
 Marie Curie Alumni Association

Research Supervision

PhD & MPhil Examiner

- 2019 Giovanni Ferrante Cavallaro
 PhD at Dept. Civil Eng., University of Salerno (Supervisor: Prof. G. Rizzano)
- 2019 Biao Song

MPhil at Dept. Civil, Env. & Geomatic Eng., University College London (Supervisor: Dr. C. Galasso)

- 2018 Fabrizio Scozzese
PhD at Dept. Civil & Env. Eng., University of Ancona (Supervisor: Prof. A. Dall'Asta)
- 2018 Zhou Linghui
MPhil at Dept. Civil, Env. & Geomatic Eng., University College London (Supervisor: Prof. D. D'Ayala)

PhD

- 2018 - Now Luis Fernando Gutiérrez Urzúa (First Supervisor)
Department of Civil, Environmental & Geomatic Engineering, University College London
- 2019 - Now Biao Song (Supervisor)
Department of Civil, Environmental & Geomatic Engineering, University College London
- 2018 - Now Matthew John Poulton (Supervisor)
Department of Civil, Environmental & Geomatic Engineering, University College London
- 2015 - 2016 Xiameng Huang (Co-Supervisor)
School of Engineering, Warwick University (Supervisor: Prof. TL Karavasilis)
- 2015-2016 Nicholas Bae (Co-Supervisor)
School of Engineering, Warwick University (Supervisor: Prof. TL Karavasilis)

MSc-MEng-Masters

- 2018 Luca Ciman (Co-Supervisor)
MSc in Civil Engineering, University of Trento (Supervisor: Prof. Nicola Tondini)
- 2018 Elena Elettore (Co-Supervisor)
MSc in Building Engineering, University of Salerno (Supervisor: Prof. Gianvittorio Rizzano)
- 2018 Diego Nardelli (Co-Supervisor)
MSc in Civil Engineering, University of Padua (Supervisor: Prof. Roberto Scotta)
- 2018 Francesco Morfuni (Supervisor)
MSc in Earthquake Engineering with Disaster Management, University College London
- 2018 Zhou Yaozheng (Supervisor)
MSc in Earthquake Engineering with Disaster Management, University College London
- 2018 Marwan El Chami (Supervisor)
MSc in Civil Engineering, University College London
- 2018 Decarli Bianca (Supervisor)
MSc in Civil Engineering, University College London
- 2018 Yash Ravikumar (Supervisor)
MSc in Civil Engineering, University College London
- 2018 Wang Yuelin (Supervisor)
MSc in Civil Engineering, University College London
- 2012 - 2013 Luca Tassotti (Co-Supervisor)
MEng in Civil Engineering, University of Ancona (Supervisor: Prof. A Dall'Asta)
- 2011 - 2012 Adelina Mancini (Co-Supervisor)
MEng in Civil Engineering, University of Ancona (Supervisor: Prof. A Dall'Asta)
- 2010 - 2011 Andrea Ricci (Co-Supervisor)
MEng in Civil Engineering, University of Ancona (Supervisor: Prof. A Dall'Asta)
- 2010 - 2011 Andrea Di Risio (Co-Supervisor)
MEng in Civil Engineering, University of Ancona (Supervisor: Prof. A Dall'Asta)
- 2009 - 2010 Pietro Cerboni (Co-Supervisor)
MEng in Civil Engineering, University of Ancona (Supervisor: Prof. A Dall'Asta)
- 2009 - 2010 Giuseppe Stefania (Co-Supervisor)
MEng in Civil Engineering, University of Ancona (Supervisor: Prof. A Dall'Asta)

Teaching

University College of London, UK

- 2018 Materials, Mechanics & Making. MEng Engineering and Architectural Design (BARC0006) **(Module Coordinator)**
- 2018 Structural & Foundation Analysis. MEng Engineering and Architectural Design (BARC0132) **(Module Coordinator)**
- 2018 Design Practice 1. MEng Engineering and Architectural Design (BARC0131) **(CEGE Structures Coordinator)**
- 2017 Materials, Mechanics & Making: Structural Mechanics. MEng Engineering and Architectural Design (BACE1006) **(Lecturer)**
- 2017-Now Advanced Seismic Design. MSc Earthquake Engineering and Disaster Management **(Co-Lecturer)**

University of Ancona, Italy

- 2017-Now Fundamentals of Structural & Earthquake Engineering. International MSc Environmental Engineering **(Lecturer)**
- 2009 – 2013 Design of Reinforced Concrete Structures **(Teaching Assistant;** Instructor: Prof. Luigino Dezi)
- 2010 – 2012 Design of Steel Structures **(Teaching Assistant;** Instructor: Prof. Laura Ragni)
- 2009 – 2011 Special Structures **(Teaching Assistant;** Instructor: Prof. Andrea Dall'Asta)
- 2010 – 2012 Seismic Design **(Teaching Assistant;** Instructor: Prof. Laura Ragni)

University of Warwick, UK

- 2016 ES2B0: Mechanics and Thermofluids: Static and Elasticity **(Lecturer)**
- 2016 ES4E2: Performance-based seismic design and nonlinear structural analysis for steel buildings **(Co-Lecturer** with Prof. T.L. Karavasilis)