Alejandro Jiménez Rios

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Research interests

I have experience working in the fields of structural engineering, modern and traditional construction materials, conservation of historical buildings and sustainability.

Education

2016-October	PhD in Civil, Structural and Environmental Engineering
2019:	Trinity College Dublin, Ireland.
	Conservation of earthen vernacular architecture in Ireland. Study of the
	mechanical properties and the structural behaviour of cob. Studentship Award
	holder.
2017-2018:	Postgraduate Certificate in Statistics
	Trinity College Dublin, Ireland.
	Base module, introduction to regression and design of experiments.
2015-2016:	Advanced Master in Structural Analysis of Monuments and Historical
	Constructions (SAHC)
	Czech Technical University, Czech Republic, and Polytechnic University of
	Catalonia, Spain.
	Final dissertation project on the simulation of masonry structural behaviour using
	Discrete Element Method. Erasmus + scholarship holder. GPA 86.0/100.
2009-2014:	Civil Engineering Degree
	University of Guadalajara, Mexico.
	Structural Engineering specialization path. GPA 94.2/100.
	Research experience
Mav-June	Researcher
2018:	University of Cantabria, Spain.
	International research collaboration to design the experimental campaign on the
	use of minor-destructive tests to determine the mechanical properties of cob.
	Journal's Reviewer
2019-Present	Construction and Building Materials
	An international journal dedicated to the investigation and innovative use of
	materials in construction and repair. IF = 4.046 (2019).
Journal Papers	
20	Jiménez, A. R., & O'Dwyer, D. (Under review). Experimental validation of the
	application of the flat jack in cob walls. Construction and building materials.
	Jiménez, A. R., & O'Dwyer, D. (Under review). Cob cylinders drying monitoring
	and compressive strength test data. Data in brief.

	Jiménez, A. R., & O'Dwyer, D. (Under review). Cob wallettes consolidation
	dataset. Data in brief.
	Jiménez, A. R., & O'Dwyer, D. (Under review). Data collected from the
	application of single flat jack tests in cob walls. Data in brief.
	Jiménez, A. R., & O'Dwyer, D. (Under review). Flat jack test adapted for its
	application in cob walls. MethodsX.
	Jiménez, A. R., & O'Dwyer, D. (Under review). Data collected from the
	application of double flat jack tests in cob walls. Data in brief.
	Jiménez, A. R., & O'Dwyer, D. W. (In preparation). <i>Learning from the past:</i>
	parametric analysis of cob walls. International Journal of Architectural Heritage.
2019:	Jiménez, A. R., & O'Dwyer, D. (2019). Numerical modelling of cob's non-linear
	monotonic structural behaviour. International Journal of Computational
	Methods. P.1940013. DOI: 10.1142/S0219876219400139.
	Conference Papers
20	

- 20-- Jiménez, A. R., Grimes, M. & O'Dwyer, D. W. (Under review). Experimental campaign on the use of the flat jack test in cob walls. Paper submitted to the 12th International Conference on Structural Analysis of Historical Constructions.
 2019 Jiménez, A. R., & O'Dwyer, D. W. (2019). External post-tensioning system for the strengthening of historical stone masonry bridges. Paper presented at the 11th International Conference on Structural Analysis of Historical Constructions, Cuzco, Peru.
- Jiménez, A. R., & O'Dwyer, D. (2018). *Earthen buildings in Ireland*. Paper presented at the 6th International Congress on Construction History, Brussels, Belgium. Shortlisted within the top 10 best papers presented by PhD Students. Jiménez, A. R., & O'Dwyer, D. (2018). *FEM non-linear modelling of cob using ANSYS*. Paper presented at the 9th International Conference on Computational Methods, Rome, Italy.

Dissertations

2019	Jiménez, A. R. (2019). Conservation of earthen vernacular architecture in
	Ireland. Study of the mechanical properties and the structural behaviour of cob.
	PhD thesis. Trinity College Dublin.
2016:	Jiménez, A. R. (2016). Simulation of structural behavior of masonry using
	discrete element modeling. Master thesis. Polytechnic University of Catalonia,
	Spain.
2014:	Jiménez, A. R. (2014). Comparative analysis of plane frames' structural
	behaviour taking into account the effect of end length offsets. Bachelor thesis.
	University of Guadalajara, Mexico.

Other publications:

 Jiménez, A. R. (2019). Proposal for the sustainable reuse and redevelopment of Newtownbutler's Lanesborough Hotel and former Market House. Poster presented at the Ulster Architectural Heritage & Irish Georgian Society Summer School. Jiménez, A. R. (2019), Cob wallettes' consolidation data, Mendeley Data, v1 http://dx.doi.org/10.17632/twbf86wxtx.1 Jiménez, A. R. (2019), Cob cylinder's data, Mendeley Data, v1 http://dx.doi.org/10.17632/h8ksd6mvkj.1

Teaching experience

2019: Assessment Assistant

Trinity College Dublin.

Support of Trinity Assessment Fellows to map and analyse assessment practices within Schools across the University. Digital badge on programme-focused assessment.

2016-2019: Teaching Assistant

Trinity College Dublin.

Teaching assistant at several engineering courses of the Department of Civil, Structural and Environmental Engineering and Mechanical Engineering:

- 2E4 Solids and structures.
- 2E8 Materials.
- 2E9 Engineering design.
- 3A2 Structural design.
- 3B3 Mechanics of solids.
- 3E4 Innovation and entrepreneurship for engineers.
- 4A6 Advanced design of structures.
- 2018-2019: **Cob Workshops**

Trinity College Dublin.

Organization and facilitation of three one-day workshops on conservation, vernacular architecture, earthen construction techniques and sustainability.

Other education

2019:	Certified Peer Reviewer Course
	Researcher Academy, Elsevier
2018:	Reflective Teaching Assistantship Course
	Trinity College Dublin.
	Introduction to current learning theories and teaching practices within higher education. Practical application during an undergraduate lab demonstration.
August 2018:	BASEhabitat International Summer School on Earthen and Bamboo Construction <i>University of Linz, Austria.</i>
	Practical workshops in building with earth and bamboo, theory classes on sustainable architecture and networking with people from all around the globe.
2017:	Academic Skills for Successful Learning Course
	Trinity College Dublin, Ireland.
	Leadership, time management, business presentations, communication skills.
2016:	CAPSL Postgraduate Teaching Assistant Course.
	Trinity College Dublin.
	Workshop 1: How students learn. Workshop 2: Session planning.
2015:	Certificate on the Analysis and Design of Post-Tensioned Buildings
	ADAPT Professional Training Institute
2012-2013:	International Academic Exchange
	National Institute of Applied Sciences Lyon, France.
	Scholarship holder MEXFITEC (México-Francia-Ingenieros-Tecnología).
MOOCS:	Machine learning
	University of Sandford, USA
	The ancient Greeks

Wesleyan University Rome University of Reading Cultural heritage in transformation RWTH Aachen University, Germany Arts and heritage management Bocconi University, Italy The art of structures. Polytechnic University of Lausanne (EPFL). Future smart cities. Polytechnic University of Zurich (ETH). Next generation infrastructures. Delft Technical University (TUDelft).

Professional affiliations

2019-Present	IABMAS
	International Association for Bridge Maintenance and Safety
2019-Present	EAHN
	European Architectural History Network
2019-Present	INTBAU
	International Network for Traditional Building, Architecture and Urbanism
2018-Present	EBUKI
	Earth Building UK and Ireland
2017-Present	Engineers Ireland
	Professional body for engineers and engineering in Ireland.

Knowledge and skills

Engineering:	 Knowledge of natural materials and construction techniques such as: adobe, rammed earth, cob, bamboo.
	 Knowledge of inspection, diagnosis, analysis, design, strengthening and monitoring of monuments and historical constructions.
	 Knowledge of ICOMOS charters and conservation philosophy.
	 Knowledge of the modelling, analysis, design and detailing of modern steel, concrete and masonry structures.
	• Knowledge of building codes: ASCE, ACI, AISC, Eurocodes, CFE and RCDF.
Software:	 Skills with engineering software: SAP2000, ETABS, SAFE, ANSYS, ABAQUS, AutoCAD, SeismoSignal.
	• Skills with statistical software: Minitab.
	 Skills with programing software: MATLAB.
	 Skills with other software: Word, Excel, PowerPoint, Outlook, Project, Visio, Survey Monkey, Prezi, EndNote, LaTex.
Languages:	• Spanish: Mother tongue.
	• English: Advanced.
	French: Intermediate.
	Professional practice experience

2016-Present **Conservation Engineer** *Freelancer* Consulting on the conservation of monuments and historical constructions.

2014-2015:	Structural Engineer <i>ALBA Proyecto Estructural.</i> Modelling, analysing, designing and detailing of steel, concrete and masonry buildings. Working in and coordinating teams, liaising with architects and clients to ansure the completion and success of projects on time and within budget	
2006-2009:	Mason Freelancer	
	3 years of experience in the construction of masonry houses. I worked as a mason and I also carried out some simple electric and hydraulic installations jobs.	
Volunteering		
2017-2018:	Postgraduate Research Representative Department of Civil, Structural and Environmental Engineering, Trinity College Dublin.	
2016:	Graduate Students Union (GSU) Trinity College Dublin.	
2013:	Builder TECHO, Mexico.	

Referees

Maria Nogal

Assistant Professor Faculty of Civil Engineering and Geosciences. Department of Materials, Mechanics, Management and Design (M3d) TU Delft. Email: m.nogal@tudelft.nl Phone: +31 685 155 984 Website: https://www.tudelft.nl/en/ceg/about-faculty/departments/materials-mechanicsmanagement-design-3md/

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Dermot O'Dwyer

Associate Professor and PhD Supervisor Department of Civil, Structural and Environmental Engineering. Trinity College Dublin. Email: dwodwyer@tcd.ie Phone: +353 1896 2532 Website: https://www.tcd.ie/civileng/people/dwodwyer/

Sara Pavia

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