

CURRICULUM VITAE – Dr. Rafael Aguilar

CURRENT POSITION:

Full Professor
Department of Engineering- Civil Engineering Division
Pontifical Catholic University of Peru (PUCP)
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EDUCATION:

Ph.D., 2010 Civil Engineering (Structural Eng.), University of Minho, Portugal, International Graduate Program on Historical and Masonry Structures

M.S.C.E., 2006 Civil Engineering (Structural Eng.), Pontifical Catholic University of Peru, Peru

B.S.C.E., 2002 Civil Engineering, National University of Saint Anthony the Abbot in Cuzco, Peru

ACADEMIC EXPERIENCE:

Academic Positions:

2018 - Present: Full Professor, Department of Engineering - Civil Engineering Division, Pontifical Catholic University of Peru (*tenured*)
2012 - 2017: Associate Professor, Department of Engineering - Civil Engineering Division, Pontifical Catholic University of Peru (*tenured*)
2011 - 2012: Assistant Professor, Department of Engineering - Civil Engineering Division, Pontifical Catholic University of Peru (*tenure-track*)
April 2017: Visiting Research Scholar, Department of Civil Engineering, UNC Charlotte
Fall Semester 2014: Visiting Professor, Department of Mechanical Engineering, University of Rochester, USA
2006 – 2007: Graduate Research Assistant, Department of Engineering - Civil Engineering Division, Pontifical Catholic University of Peru
2005 – 2007: Teaching Assistant, Department of Engineering - Civil Engineering Division, Pontifical Catholic University of Peru

Research Positions at PUCP:

2014 – Present: Founder and Director of the interdisciplinary research center on Advanced Engineering Analysis and Monitoring of Historical Buildings; Pontifical Catholic University of Peru
(web: <https://www.pucp.edu.pe/engineeringandheritage/>)
2014 – 2017: Director of Research, Department of Engineering - Civil Engineering Division, Pontifical Catholic University of Peru

RESEARCH INTERESTS: Structural health monitoring; Nondestructive testing; Vibration control; Structural analysis and preservation of architectural heritage; Experimental and numerical modelling of masonry structures; Seismic vulnerability assessment; Earthquake engineering; Structural and materials innovation (e.g., geopolymers, new earthen construction, 3D printing).

PUBLICATIONS:

Summary:

108 publications (*): 22-refereed SCI journal papers, 5 peer reviewed journal papers, 74 refereed conference proceedings papers, 3 thesis and dissertations.

(*) The publications have received 661 external citations (Google Scholar; Oct. 2020).

Scopus *h* index: 9

Main areas of publication: Structural health monitoring, vibration monitoring, materials characterization, seismic vulnerability assessment, structural analysis of historical constructions.

Most recent publications:

1. Silva, G.; Kim, S.; Bertolotti, B.; Nakamatsu, J.; (2020). Aguilar, R.; Optimization of a reinforced geopolymer composite using natural fibers and construction wastes; *Construction and Building Materials*, 2020, 258, 119697
2. Castañeda, D.; Silva, G.; Salirrosas, J.; Nakamatsu, J.; Aguilar, R.; (2020) Production of a lightweight masonry block using alkaline activated natural pozzolana and natural fibers; *Construction and Building Materials*, 253, 119143
3. Silva, G.; Kim, S.; Aguilar, R.; Nakamatsu, J.; (2020). Natural fibers as reinforcement additives for geopolymers – A review of potential eco-friendly applications to the construction industry; *Sustainable Materials and Technologies*, 23, e00132
4. Liz M. Zanchetta, Marco Quattrone, Rafael Aguilar, Henrique Kahn, Antonio C. V. Coelhod, Vanderley M. John; (2020). Microstructure of bricks and mortars from Huaca de la Luna, Peru; *International Journal of Architectural Heritage*; 14(2), pp. 256-273
5. Zonno, G.; Aguilar, R.; Boroshek, R. Lourenco, P.B. (2019). Environmental and Ambient Vibration Monitoring of Historical Adobe Buildings: Applications in Emblematic Andean Churches. *Engineering Structures*. *International Journal of Architectural Heritage*; <https://doi.org/10.1080/15583058.2019.1653402>
6. Zonno, G.; Aguilar, R.; Boroshek, R. Lourenco, P.B. (2019). Analysis of the long and short-term effects of temperature and humidity on the structural properties of adobe buildings using continuous monitoring. *Engineering Structures*. *Engineering Structures* 196(2019):1-21, DOI: 10.1016/j.engstruct.2019.109299
7. Aguilar, R.; Zonno, G.; Boroshek, R. Lourenco, P.B. (2019). Vibration-Based Damage Detection in Historical Adobe Structures: Laboratory and Field Applications. *International Journal of Architectural Heritage*, <https://doi.org/10.1080/15583058.2019.1632974>
8. Silva, G. I.; Castañeda, D.; Kim, S.; Castañeda, A.; Bertolotti, B.; Ortega, L.; Nakamatsu, J. Aguilar, R. (2019). Analysis of the production conditions of geopolymer matrices from natural pozzolana and fired clay brick wastes. *Construction and building materials* , 215, pp. 633-643, <https://doi.org/10.1016/j.conbuildmat.2019.04.247>
9. Zonno, G.; Aguilar, R.; Boroshek, R. Lourenco, P.B. (2019). Experimental analysis of the thermohygro-metric effects on the dynamic behavior of adobe systems. *Construction and Building Materials* , 208, pp. 158-174, <https://doi.org/10.1016/j.conbuildmat.2019.02.140>
10. Aguilar, R.; Noel, M. F., Ramos, L. F. (2019). Integration of reverse engineering and non-linear numerical analysis for the seismic assessment of historical adobe buildings. *Automation in Construction* , 98, pp. 1-15, <https://doi.org/10.1016/j.autcon.2018.11.010>

SERVICE ACTIVITIES:

- Chair of the Engineering Department (2021-2023).
- Chair of the Civil Engineering (C.E) Program (2017-2020).
- Director of Research of C.E (2014-2017).
- Director of the Research Center on Advanced Engineering Analysis of Heritage Constructions – Engineering & Heritage PUCP (2014 – present)
- Chair of the 11th International Conference on Structural Analysis of Historical Structures SAHC in Peru, 2018.
- Member of the editorial board of the *International Journal of Architectural Heritage*.
- Reviewer for different journals such as: *International Journal of Architectural Heritage*, *Journal of Civil Engineering and Architecture*, *Journal of Shock and vibration*, *Journal of Concrete Structures and Materials*, *Journal of Construction and Building Materials*, *Journal of Engineering Structures*.