Rúben Santos

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Nationality: Portuguese   **Date of Birth:** 18/10/1987

EDUCATION

Ph.D in Civil Engineering, 09/2014 – Present
Instituto Superior Técnico (IST), Portugal
- Portuguese ECTS classification of Advanced Studies Diplomas: 16 (0-20 scale) ; European ECTS classification: B (A-E scale),
- Acquired Skills: Sustainable construction, energy efficiency, Building Information Modelling (BIM), Life Cycle Assessment (LCA), Big Data.

Postgraduate in Occupational Health and Safety, 10/2013 – 10/2014
Instituto Superior de Engenharia de Lisboa (ISEL), Portugal
- Portuguese ECTS classification: 18 (0-20 scale) ; European ECTS classification: A (A-E scale),
- Acquired Skills: Organization management; Analysis of work arrangements (Physic and Psychological working conditions); Statistics; Legislation.

MEng (Masters in Civil Engineering), 10/2009 – 03/2012
University of Évora, Portugal
- Portuguese ECTS classification: 16 (0-20 scale) ; European ECTS classification: B (A-E scale),
- Masters Dissertation: "Seismic behaviour of structures of improved ductility in the context of EC8", Supervisor: Professor Carlos Sousa Oliveira / Co-Supervisor: Professor João Estêvão,
- Acquired Skills: Direction, Coordination and Supervision of works; Quality management in construction; Planning, Design and Structural Design; Development of projects and of geotechnical works.

BEng (Bachelours in Civil Engineering), 09/2005 – 07/2009
University of Algarve, Portugal
- Portuguese ECTS classification: 14 (0-20 scale) ; European ECTS classification: C (A-E scale),
- Acquired Skills: Structural design, Development of projects and of geotechnical works, Thermal and Acoustic insulation design, Waters waste and sewerage design, Construction works process Surveyor, Construction control and management.

PROFESSIONAL EXPERIENCE

Instituto Superior Técnico (IST), Lisboa, Portugal
06/2015 – Present - Research Assistant of Project 4279 – Siemens scholarship
Responsible for:
- Research project design and implementation on BIM, Energy Efficiency, LCA, Big Data,
- Development of multi-objective optimization model based on BIM models and in IFC format,
- Development of interoperable framework for data exchange between BIM and Smart Buildings.

CT BIM 197
03/2015 – Present – Secretary of Technical Committee of BIM in Portugal

National Laboratory for Civil Engineering (LNEC), Lisbon, Portugal
02/2013 – 04/2015 – Research Assistant
Responsible for:
- Execution of the instrumentation of the models,
- Calibration of the instruments (accelerometers, linear variable differential transformer and load cells),
- Assisting the senior researchers analyse the obtained data,
- Designing and analysing structures dynamic behaviour using a software developed at LNEC, LNEC-SPA,
- Reviewing and defining the seismic hazard and seismic categorization of seismic scenarios for City municipalities (PRISE Project)

RAIZ, Tavira, Portugal
09/2012 – 01/2013 – Intern
- Focused on structural design,
- Worked with: AutoCAD, SAP 2000, Autodesk Robot.

Aleck Associates Ltd., London, United Kingdom
11/2011 – 03/2012 – Structural Engineer
- Worked as a Structural Engineer,
- Learned how to design structural masonry, timber, steel and reinforced concrete with the British Standards,
- Worked with: Autocad2010, Prokon, Scale.

RAIZ, Tavira, Portugal
06/2009 – 09/2009 – Intern
- Structural design and water sewage networks,
- Worked with: AutoCAD.

RESEARCH EXPERIENCE

Instituto Superior Técnico (IST), Lisboa, Portugal
06/2015 – Present - Research Assistant of Project 4279 – Siemens scholarship
Responsible for:
- Research project design and implementation on BIM, Energy Efficiency and LCA,
- Development of multi-objective optimization model based on BIM models and in IFC format,
- Development of interoperable framework for data exchange between BIM and Smart Buildings.

National Laboratory for Civil Engineering (LNEC), Lisbon, Portugal
02/2013 – 04/2015 – Research Assistant
Responsible for:
- Execution of the instrumentation of the models,
- Calibration of the instruments (accelerometers, linear variable differential transformer and load cells),
- Assisting the senior researchers analyse the obtained data,
- Designing and analysing structures dynamic behaviour using a software developed at LNEC, LNEC-SPA,
- Reviewing and defining the seismic hazard and seismic categorization of seismic scenarios for City municipalities (PRISE Project)

Example of projects that I have been involved:
- SERIES project – Analyse the seismic performance of a timber building. Three kind of timber housing system were taken into account: platform frame system (PFS), log house system (LHS), cross laminated system (CLT). LNEC worked according to Universitá degli Studi di Trento guidelines,
- ALVEST project – Development of structural masonry solutions in seismic regions, taking into consideration technical and economic benefits comparatively to traditional solutions,
- SERIES TA: Wienerberger project – Analyse the seismic performance of a structure with hollow clay brick masonry, using unidirectional and bi-directional signals. LNEC worked with the University of Liège,
- HiLoTec Project – Dynamic behavior of sustainable constructions, as well as low-cost, in developing countries,
- REABEPA Project –Study of seismic reinforcement techniques for walls of "Pombalinos" buildings (old masonry buildings with timber structure from Lisbon downtown),
- EPICIDADE Project – Study of dynamic behaviour of a concrete frame, with a plan of hollow clay brick masonry, using unidirectional signal.
- 9IMC Project – A project in partnership with University of Minho, Portugal. Three different types of tests in the premises of LNEC were performed. The first two were related to two masonry buildings, one made of clay brick and other of stone bricks. These models were tested on the shaking table and their seismic behavior was analyzed. I was responsible for the third type of test, which consisted of a standard compression test on several wallets (clay and stone bricks), in order to obtain the compressive strength of masonry and shear strength of the mortar.

University of Évora, Portugal
MEng Dissertation, 10/2009 – 03/2012
- "Seismic behaviour of structures of improved ductility in the context of EC8" – Concerning the design of a structure adopting DCL and DCM rules and non linear analysis (Method N2) of a portal frame,
- Structural and Numerical analysis software: SAP2000, Seismostruct and Scilab (similar to Matlab).

RESEARCH INTERESTS

- BIM, LCA, Energy efficiency, Big Data, new technologies, Seismic Engineering, Structural Design, Mathematics and Soils mechanics.

SKILLS & QUALIFICATIONS

- Structural Design and Seismic Engineering,
- BIM and Sustainable Construction,
- Proficient in AutoCAD, SAP2000, Autodesk Robot, Revit, Microsoft Project, Seismostruct, Prokon, Scale, Scilab (similar to Matlab), LNEC-SPA, EnergyPlus
- Portuguese (Native), English (C2), Spanish (B1), French (A1),
- Member of Order of the Engineers,
- Member of Portuguese Society of Earthquake Engineering (SPES).

OTHER ACTIVITIES

"CT 197" – Keynote speaker, "BIM International Conference 2015", Porto, Portugal
12/2015

Submission of scientific article "BIM conceptual framework for LCA/LCEA analysis: Application to multi-family house and single-family house comparison" for CIB WBC16 conference, Tampere, Finland
12/2015

Submission of scientific article "Building Information Modelling: A Literature Review" in the Journal "Advanced Engineering Informatics" – waiting for reply.
12/2015

Secretary of Technical Committee of BIM - CT BIM 197
Since 03/2015

Executive Committee - "9º National Congress of Seismology and Seismic Engineering"; "National Conference of Structural Concrete"; "5ª Portuguese Congress of Structural Engineering", Lisboa, Portugal
11/2014

"BIM research in the last decade", "BIM International Conference 2014", Lisboa, Portugal
10/2014

Participated in "Test Methods for Inspection of Structures", Lisboa, Portugal
02/2014

LINGUAGEST, Lisbon, Portugal
04/2013 – 07/2013
- French Course – Level A1

Finchley CSCS Test Centre, London, U.K.
02/2012
- CSCS Card (Construction Skills Certification Scheme) – Health, Safety and Environment test

"Sismica2010 – 8º National Congress of Seismology and Seismic Engineering" at Aveiro, Portugal
10/2010

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