

Dr Gustavo Quino

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Education

- 2013 - 2018 **DPhil in Engineering Science**, *University of Oxford*, United Kingdom.
Topics: mechanics of materials, composites, characterisation, ageing, constitutive modelling.
- 2011 - 2013 **MSc in Mechanical Engineering**, *King Abdullah University of Science and Technology*, Saudi Arabia, *GPA: 3.88/4*.
Strengths: continuum mechanics, solid mechanics, fracture mechanics, composite materials.
- 2005 - 2009 **BSc in Mechanical Engineering**, *Universidad Nacional de Ingeniería*, Peru, *Top one student*.

Experience

Research

- 2021 - Present **Research associate**, *NEXT GENERATION FIBRE-REINFORCED COMPOSITES*, University of Bristol.
- Design and conduct innovative experimental methods to characterise novel advanced composite materials with improved compression absolute performance.
- 2018 - 2021 **Postdoctoral research associate**, *IMPACT ENGINEERING COMPOSITE MATERIALS FOR AEROSPACE APPLICATIONS*, University of Oxford.
- Built micro-mechanical model to predict behaviour of pristine and aged composites.
 - Designed and performed experimental campaign to study the effects of strain rate, humidity, temperature and fatigue on advanced aerospace composite materials.
 - Designed and built thermal chambers with controlled temperature (-55°C – 90°C).
 - Obtained quotations and commissioned new equipment for the laboratory.
- 2013 - 2018 **Doctoral researcher**, *HYDROTHERMAL AGING AND STRAIN RATE DEPENDENCY OF FIBRE REINFORCED COMPOSITES*, University of Oxford.
- Thesis title: *Effects of water absorption on the strain rate sensitive properties of glass fibre reinforced polymers.*
- Supervisor: Prof. Nik Petrinic and Dr. Vito L. Tagarielli
- Designed and implemented experimental campaigns to assess the effects of water exposure and strain rate on epoxy resin, glass fibres, and composites. Performed and analysed quasi-static and dynamic mechanical tests.
 - Developed a novel technique named *Sound Measurements* applied to fibres and granular materials.
 - Collaborated with other academics to execute dynamic experiments on foams and ceramics.
- 2011 - 2013 **Master Student**, *HYGROTHERMAL AGING OF POLYMER-BASED COMPOSITES*, King Abdullah University of Science and Technology, Saudi Arabia.
- Thesis title: *Fracture toughness characterization of hygrothermally aged epoxy resin.*
- Supervisor: Prof. Gilles Lubineau
- Developed a methodology to characterise fracture toughness of a hygrothermally aged resin.
 - Designed rigs for compact tension fracture toughness tests.

- 2009 - 2011 **Research Assistant**, *CHASQUI I, 1ST PERUVIAN NANOSATELLITE*, Universidad Nacional de Ingeniería, Peru.
- Designed and 3D sketched the entire nanosatellite. Manufactured some mechanical parts.
 - Designed, manufactured and instrumented an electrodynamic shaker for random vibration testing.

Teaching

- 2015 - 2021 **Departmental tutor and laboratory demonstrator**, *Engineering Science Department*, University of Oxford, UK.
- Gave tutorials and classes on Materials Science. Set and marked questions.
 - Conducted lab sessions: Mechanical Lab, Design, Solid mechanics and Turbomachinery.
 - Created new content for the Solid Mechanics laboratory: Digital Image Correlation (DIC) experiment.
- 2017 **Student co-supervisor**, *Engineering Science Department*, University of Oxford, UK.
- Co-supervised the work of a final year student from the Department of Engineering Science.
 - Discussed with other co-supervisors the progress and directions of the project.
- 2016 **Mentor**, Mentor Peru.
- Volunteered to **mentor** a high school student from Peru for 6 months, as part of the program *Mentor Peru*.
 - Gave a Q&A session to a group of 50 selected students about the results of the program.
- 2008 - 2009 **Course organiser and instructor**, Universidad Nacional de Ingeniería, Peru.
- Organised and taught courses for first and second year students: CAD/CAE and programming.

Admin

- 2019 - 2020 **Laboratory coordinator**, *Impact Engineering Laboratory*, University of Oxford.
- Run weekly meetings to plan the efficient use of equipment, solve conflicts, plan and assign activities to improve the facilities.
 - Implemented a system to plan and optimise the use of lab equipment.
- 2017 - 2018 **Founder**, *Meer-e-Karwan*, Blog/podcast platform on topics such as environment, education, women in society, *etc.*
- 2017 - 2018 **Founder**, *Oxford AR & VR Oxford Hub*, A network of researchers and enthusiasts on Virtual and Augmented reality, University of Oxford.
- Awarded £22k funding to start the project and run Summer School.
 - Organised talks, seminars around the university, with internal and external speakers.
 - Met and gathered around 200 researchers and entrepreneurs to create links and promote knowledge transfer.
- 2016 **Founding President**, *Oxford Peruvian Society*, University of Oxford.
- Lead the student organisation to organise academic and cultural events.
 - Represented the organisation in meetings with the University and with the Embassy of Peru.
- 2008 - 2017 **Organiser of engineering talks and symposiums**, Lima, Peru.
- Approached potential speakers to invite them to take part on the events.
 - Scheduled and moderated over 20 talks.
- 2006 - Present **Organiser of cultural and artistic events**, *Lima and Oxford*.
- Organised live music performances and cultural events in the university and city.
 - Head Organiser of a folkloric dance competition with over 200 contestants and more than 800 attendees (Peru, 2009).

Industry

- 2009 - 2010 **Short-term engineering design projects for several companies**, Peru.
- Drew plans and made quantity estimates of steel structures.
 - Gave assistance in the design of: movie theatres, roofs, scraper, a mini plant for processing of minerals and a *mototaxi* (a three wheeled vehicle).
 - Gave assistance in the structural design of a telecommunications tower, platforms for fans and other structures using specialised FEM software.
- 2009 **Summer Intern, Design/Project Engineer**, D.G.C. Contratistas, Peru.
- Drew plans and supervised implementation strategy for bridge crane project.
 - Created 3D model of a bridge crane, roofs, and other steel structures.

Awards

- 2020 Recognition Award, Department of Engineering Science, University of Oxford.
- 2018 1st place OxTALENT 2018, Innovation Challenges Students, University of Oxford.
- 2018 £7000 funding for the *Summer School on Immersive Technologies*. University of Oxford.
- 2017 £15000 funding from the IT Services Innovation Challenge to develop the *AR & VR Oxford Hub*. University of Oxford.
- 2017 Poster award in the conference II Sinapsis, Berlin.
- 2013 Departmental Studentship. Department of Engineering Science, University of Oxford.
- 2013 Peruvian-Russian prize for innovative projects of young scientists. CTIC, Peru.
- 2011 KAUST Fellowship and Provost Award, Saudi Arabia.
- 2011 Opportunity Grant Award, provided by Fulbright Commission.
- 2010 1st Place. The best thesis project related to *Chasqui I* among 20 entries.
- 2009 2nd Place in the Project Competition of the National Congress of Students of Mechanical and Electrical Engineering among 150 projects across Peru.
- 2005 - 2009 1st in class during 5 consecutive years of undergraduate studies (1/28).
- 2005 2nd place in the entrance exam to Universidad Nacional de Ingeniería among 4500 applicants.

Selected publications

Articles.

G. Quino*, Y. Chen, K. R. Ramakrishnan, F. Martínez-Hergueta, G. Zumpano, A. Pellegrino, N. Petrinic. *Speckle patterns for DIC in challenging scenarios: rapid application and impact endurance*. Meas. Sci. Technol., vol. 32, no. 1, p. 015203, Jan. 2021.

G. Quino, V. L. Tagarielli*, N. Petrinic. *Effects of water absorption on the mechanical properties of GFRPs*. Compos. Sci. Technol., vol. 199, p. 108316, Oct. 2020.

D. Thomson*, G. Quino, H. Cui, A. Pellegrino, B. Erice, and N. Petrinic. *Strain-rate and off-axis loading effects on the fibre compression strength of CFRP laminates: Experiments and constitutive modelling*. Compos. Sci. Technol., vol. 195, p. 108210, Jul. 2020.

G. Quino*, F. De Cola, V. L. Tagarielli, and N. Petrinic. *Exploring the application of sound measurements to assess the structural integrity of fibre bundles*. Procedia Struct. Integr., vol. 18, pp. 507–515, Sep. 2019.

F. De Cola, G. Quino*, K. Dragnevski, N. Petrinic. *An extended in-situ method to improve the understanding of fracture mechanics of granular materials using sound measurements*. Eur. J. Mech. - A/Solids, vol. 76, pp. 1–12, Jul. 2019.

G. Quino, V. L. Tagarielli*, N. Petrinic. *Measurements of the effects of pure and salt water absorption on the rate-dependent response of an epoxy matrix*. Comp. Part B, vol. 146, pp. 213–221, Aug. 2018.

G. Quino, J. El Yagoubi, and G. Lubineau*. *Characterizing the toughness of an epoxy resin after wet aging using compact tension specimens with non-uniform moisture content*. Polym. Degrad. Stab., vol.109, pp.319–326, Nov. 2014.

Conferences.

G. Quino, A. Pellegrino, N. Petrinic. *Composites in extreme environments: Effects of high strain rate, humidity and temperature*, in International Conference on Defence Technology, 26-29 October 2020. Nanjing, China.

G. Quino, V. Tagarielli, N. Petrinic. *Water ageing effects upon the mechanical properties of E-glass fibre reinforced epoxy and its constituents*, in Engineering Mechanics Institute Conference, 18-21 June 2019. Pasadena, USA.

G. Quino, V. Tagarielli, N. Petrinic. *Glass fibre bundles in extreme environments: high strain rates and water exposure*, in 55th Annual Technical Meeting of the Society of Engineering Science, 10-12 October 2018. Madrid, Spain.

G. Quino, F. De Cola, K. Dragnevsky, N. Petrinic. *Quartz grain mechanics: in-situ testing and sound measurements*, in Microscience Microscopy Congress, 3-6 July 2017. Manchester, UK.

G. Quino, V. Tagarielli, N. Petrinic. *Degradation of composite materials under extreme conditions*, in I Sinapsis, 11-13 July 2016. Paris, France.

G. Quino, V. Tagarielli, N. Petrinic. *Effects of strain rate and water ageing upon the properties of epoxy resin matrix for composites*, in 18th International Conference of Composite Structures, 15-18 June 2015. Lisbon, Portugal.

Posters.

G. Quino, F. De Cola, K. Dragnevsky, N. Petrinic. *In-situ testing of sand grains and sound measurements*, in II Sinapsis, 5-7 October 2017. Berlin, Germany.

Technical skills

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| Experimental mechanics | Digital image correlation. Microscopy. SEM. In-Situ testing. Quasi-static and dynamic characterisation of materials. High speed photography. Micro-mechanical testing. Mechanical design. Strain gauges. Instrumentation. |
| CAD, CAE | Proficient skills Abaqus implicit/explicit (subroutines), COMSOL, AutoCAD, SolidWorks, Catia, SAP 2000. |
| Programming | Capable in creating and editing code in Python, Matlab, Fortran, C++ and HTML. Created my own plotting library and scripts to analyse mechanical tests. |

Languages

English	Full professional proficiency.	Spanish	Mother tongue.
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Other activities

Professional musician. Quena (Peruvian flute), charango and guitar player.

Website designer and administrator using Joomla, WordPress, Blogger and Gatsby.