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

2018 - Present **Postdoctoral research associate**, *Impact Engineering Composite Materials for Aerospace Applications*, University of Oxford.

- Building micro-mechanical model to analyse strength and failure mechanisms in 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 - Present **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 - Present **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 to run 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.

2003 1st Place in high school among 140 graduates.

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. *Towards a strain rate and water ageing sensitive constitutive modelling: Effects of strain rate and water uptake upon the properties of E-glass fibre reinforced epoxy*, in 5^{th} International Conference on Mechanics of Composites, 1-4 July 2019. Lisbon, Portugal.

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, F. De Cola, V. Tagarielli, N. Petrinic. *Exploring the application of sound measurements to assess the structural integrity of fibre bundles*, in *25^{th} International Conference-Fracture and Structural Integrity*, 12-14 June 2019. Catania, Italy.

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

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.

Other activities

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

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