


Anna Garcia-Teruel

+ 34 942 20 16 16


anna.garcia@unican.es

www.linkedin.com/in/anna-garcia-teruel 

CURRENT POSITION since 04/2022

E4F Post-doctoral MSCA Fellow and Research Engineer, Marine Energy and Offshore Engineering Group, IH Cantabria & Iberdrola Renovables (IR), Spain
Assessing alternative mooring solutions for floating offshore wind farms at very deep-water sites: towards low-cost, low-impact and efficient mooring technologies.

CITATION ANALYSIS

 0000-0002-2121-9250 

From Google Scholar :

Publications: 20

Index h: 8

Index i10: 5

EDUCATION

01/2016 – 03/2020 **Ph.D. in Energy Systems**, School of Engineering, University of Edinburgh (UoE), United Kingdom (UK)

PhD Thesis: *Geometry Optimisation of Wave Energy Converters* 

04/2013 – 09/2015 **Masters in Mechanical Engineering (M.Sc.)**, Technical University of Munich (TUM), Germany
Specialization: Energy Technology and Process Engineering with focus on Environmentally Sustainable Energy Systems and Fluid Process Engineering (1.6; A-)

Master Thesis, German Aerospace Center (DLR), Stuttgart, Germany

Perspectives of the Energy Transition: Technology Development and Investments under Uncertainty (1.0; A+)

01/2013 – 06/2013 **Erasmus Semester Abroad**, Lund University, Sweden



10/2009 – 12/2012 **Bachelors in Mechanical Engineering (B.Sc.)**, TUM, Germany

Specialization: Energy Technology and Process Engineering (3.3; B-)

Bachelor Thesis, TUM: *Data Acquisition System for a Very Small Gas Turbine with a Glass Combustion Chamber* (1.3; A)

PROFESSIONAL EXPERIENCE

07/2019 – 02/2022 **Research Associate in Offshore Renewable Energy**, UoE, UK

- **Work package leader & researcher**, FLOTANT project  – 5M€ EU H2020 funded innovative floating offshore wind project with 17 partners from 8 different countries. This involves planning and coordination of partners, the implementation of techno-economic, environmental and socio-economic impact assessment models and the development of commercialisation strategies for innovations introduced in the project.
- **Researcher**, DTOceanPlus project  – 6.7M€ EU H2020 funded project developing a suit of advanced design tools for ocean energy systems innovation, development and deployment. This involves the generation of fundamental relationships for wave energy converter design with the design optimisation tool developed during my Ph.D.
- **Principal Investigator & researcher** in industry-funded projects, where Ph.D. tool was applied to improve power production for a developer's wave energy converter.
- **Supervisor and examiner** of M.Sc. and M.Eng. theses.

01/2016 - 06/2019 **Researcher**, UoE, UK

- Implementation of Wave Energy Converter (WEC) optimisation model with designer-bias free geometry definition based on B-spline surfaces.
- Analysis of the effect of different cost factors with an effect on geometry such as: power production, manufacturability, and reliability
- Research visit, Oregon State University (OSU): *Study of the suitability of different metaheuristic methods for geometry optimisation of WECs*
- Research Collaboration, OSU: *Reliability-Based Geometry Optimisation*

09/2014 – 03/2015 **Visiting Research Scholar**, Maha Fluid Power Research Center, Purdue University, USA

Commissioning of a test rig for the measurement of friction forces at the piston/bushing interface in axial piston machines

04/2014 – 08/2014 **Graduate Assistant**, Institute of Thermodynamics, TUM, Germany

06/2012 – 10/2012 **Intern**, MAN Diesel & Turbo SE-Department for Power turbines, Augsburg, Germany

05/2011 – 07/2011 **Research Assistant**, Institute of Thermodynamics, TUM, Germany

06/2009 – 08/2009 **Manufacturing Intern**, Sinterpres S.L., Spain

AWARDS AND PRIZES

2022	Marie Skłodowska-Curie Actions (MSCA) fellowship co-funded by the Iberdrola Foundation through the E4F programme (100k€)
2021	Early Career Researcher Research Fund for “Industrial secondment for tank testing and validation of optimised wave energy converters”, Supergen ORE Hub (5k€), UK
2020	Young Professionals Green Energy Awards , Academic award finalist
2019	MASTS Numerical & Experimental Hydrodynamics Modelling Forum Small Grant (NHMSG13) (0.5k€) to present Ph.D. research in European Wave and Tidal Energy Conference 2019
2018	Invited poster presentation at Ocean Renewable Energy Conference (OREC) in Portland (Oregon, USA), INORE (1.5k€)
2018	Blue Energy Collaborative Scholarship , INORE (1k€) for overseas research collaboration
2018	Best Presentation , INORE Symposium, UK
2018	Ingenious & Enterprising Women Scotland 2018 Programme (3k€), Scottish Funding Council, UK
2017	Best Presentation , Energy Technology Partnership Conference, UK
2017	Best Tutor in Mechanical Engineering , University of Edinburgh, UK
2017	ETP PECRE scholarship and Principal’s Go Abroad Fund (3.35k€) for research visit at Oregon State University, USA
2014-2015	IAESTE programme (5.4k\$), for research visit as a scholar at Purdue University, USA

PUBLICATIONS

Refereed Journal Articles

1	A. Garcia-Teruel , Y. Scholz, W. Weimer-Jehle, S. Prehofer, K-K. Cao, and F. Borggreffe, “Teaching Power-Sector Models Social and Political Awareness”, <i>Energies</i> , 2022, doi: 10.3390/en15093275	Q2 IF: 3.00 Citations: 0
2	S. Pennock, A. Garcia-Teruel , D. R. Noble, O. Roberts, A. de Andres, C. Cochrane, and H. Jeffrey “Deriving Current Cost Requirements from Future Targets: Case Studies for Emerging Offshore Renewable Energy Technologies”, <i>Energies</i> , 2022, doi: 10.3390/en15051732	Q2 IF: 3.00 Citations: 0
3	A. Garcia-Teruel , G. Rinaldi, P. R. Thies, Lars Johanning, and H. Jeffrey “Life cycle assessment of floating offshore wind farms: An evaluation of operation and maintenance”, <i>Applied Energy</i> , 2022, doi: 10.1016/j.apenergy.2021.118067	Q1 IF: 8.8 Citations: 6

- 4 **A. Garcia-Teruel**, and D.I.M. Forehand, "Manufacturability considerations in design optimisation of wave energy converters", *Renewable Energy*, 2022, doi: 10.1016/j.renene.2021.12.145 **Q1**
IF: 8.65
Citations: 0
- 5 O. Roberts, J. Henderson, **A. Garcia-Teruel**, D.R. Noble, I. Tunga, J. Hodges, and H. Jeffrey, and T. Hurst "Bringing structure to the wave energy innovation process with the development of a techno-economic tool", *Energies*, 2021, doi: 10.3390/en14248201 **Q2**
IF: 3.00
Citations: 1
- 6 I. Tunga, **A. Garcia-Teruel**, D.R. Noble, and J. Henderson, "Addressing European Ocean Energy Challenge: The DTOceanPlus Structured Innovation Tool for Concept Creation and Selection", *Energies*, 2021, 14, 5988. <https://doi.org/10.3390/en14185988> **Q2**
IF: 3.00
Citations: 2
- 7 **A. Garcia-Teruel**, and C.E. Clark, "Reliability-based hull geometry optimisation of a point-absorber wave energy converter with power take-off structural reliability objectives", *IET Renewable Power Generation*, 2021, doi: 10.1049/rpg2.12249 **Q2**
IF: 3.89
Citations: 1
- 8 G. Rinaldi, **A. Garcia-Teruel**, H. Jeffrey, P. R. Thies, and Lars Johanning, "Incorporating stochastic operation and maintenance models into the techno-economic analysis of floating offshore wind farms", *Applied Energy*, 2021, doi: 10.1016/j.apenergy.2021.117420 **Q1**
IF: 8.85
Citations: 14
- 9 **A. Garcia-Teruel**, D.I.M. Forehand, and B. DuPont, "Hull geometry optimization of wave energy converters: On the choice of the objective functions and the optimisation formulation", *Applied Energy*, 2021, doi: 10.1016/j.apenergy.2021.117153 **Q1**
IF: 8.8
Citations: 8
- 10 **A. Garcia-Teruel**, and D.I.M. Forehand, "A review of geometry optimization of wave energy converters", *Renewable and Sustainable Energy Reviews*, 2021, doi: 10.1016/j.rser.2020.110593 **Q1**
IF: 14.98
Citations: 24
- 11 **A. Garcia-Teruel**, D.I.M. Forehand, and B. DuPont, "Hull geometry optimization of wave energy converters: On the choice of the optimization algorithm and the geometry definition", *Applied Energy*, 2020, doi: 10.1016/j.apenergy.2020.115952 **Q1**
IF: 8.8
Citations: 14

Conference Proceedings & Presentations

- 1 **A. Garcia-Teruel**, A. Romero-Filgueira, A. Castro, H. Jeffrey, "How do we assess the impact of innovations? A baseline for floating offshore wind", *Wind Energy Science Conference*, 2021 **Citations: 0**
- 2 **A. Garcia-Teruel**, and H. Jeffrey "The economics of floating offshore wind – A comparison of different methods", In Proc. of *4th Int. Conf. on Renewable Energies Offshore*, 2020. **Citations: 4**
- 4 **A. Garcia-Teruel**, and D.I.M. Forehand "Joint optimisation of geometry and mass distribution of wave energy converters", In Proc. of *4th Int. Conf. on Renewable Energies Offshore*, 2020. **Citations: 1**
- 5 **A. Garcia-Teruel**, D.I.M. Forehand, and H. Jeffrey "Metrics for wave energy converter hull geometry optimization", In Proc. of *13th European Wave and Tidal Energy Conference 2019* **Citations: 13**
- 6 C.E. Clark, **A. Garcia-Teruel**, B. DuPont, and D.I.M. Forehand, "Towards Reliability-Based Geometry Optimization of a Heaving Point-Absorber with PTO Reliability Objectives", In Proc. of *13th European Wave and Tidal Energy Conference 2019* **Citations: 9**
- 7 **A. Garcia-Teruel**, and D.I.M. Forehand "Optimal wave energy converter geometry for different modes of motion", In Proc. of *3rd Int. Conf. on Renewable Energies Offshore*, 2018. **Citations: 26**

- 8 **A. Garcia-Teruel**, D.I.M. Forehand, and H. Jeffrey, “Wave Energy Converter hull design for manufacturability and reduced LCOE”, In Proc. of *7th Int. Conf. on Ocean Energy*, 2018. **Citations: 8**

TEACHING

11/2020 – to date	IDCORE course ↔: The Economics of Innovation , UoE, School of Engineering, UK Preparation, delivery and course assessment
11/2020	Marinet2 online short-course ↔: Reducing uncertainty in techno-economic analysis of ocean energy Preparation and delivery of Topic 2: <i>Learning and Innovation</i> .
2016-2018	Dynamics (4 th year undergraduate), UoE, School of Engineering, UK Tutor - including marking, planning and structuring the course, developing lecture notes and exercise sheets as co-author, and delivering invited lectures in 2017 and 2018.
2017-2018	Sustainable Energy Group Design Project, Thermodynamics (undergraduate), Marine Energy (Masters), UoE, School of Engineering, UK Tutor and laboratory demonstrator
2014	Heat Transfer , Technical University Munich, Faculty of Mechanical Engineering, Germany Tutor

SUPERVISION




2021 – 2022	M.Eng. student, UoE (co-supervisor with Dr Shona Pennock), Project title: <i>Wave energy inputs for energy system models</i>
2021	M.Sc. student, UoE (co-supervisor with Dr Shona Pennock), Project title: <i>The impact of input assumptions on marine energy Life Cycle Assessment (LCA) studies</i> .
2021	M.Sc. student, UoE, (supervisor with Dr Shona Pennock), Project title: <i>Component based learning curves for emerging offshore renewable energy technologies</i> .
2020 – 2021	M.Eng. student, UoE, (supervisor with Dr Shona Pennock, and Henry Jeffrey), Project title: <i>Component based learning curves for emerging offshore renewable energy technologies</i> .
2020 -2021	M.Eng. student, UoE, (co-supervisor with Henry Jeffrey), Project title: <i>Commercialisation strategies for floating offshore wind</i> .
2020	M.Sc. student, UoE, (supervisor), Project title: <i>Gauging the potential of floating offshore wind in the UK</i> .
2020	M.Sc. student, UoE, (supervisor), Project title: <i>Representing Learning and Sources of Learning in Emerging Offshore Renewable Energy Systems</i> .
2019-2020	M.Eng. student, UoE, (supervisor with Dr Donald Noble and Henry Jeffrey), Project title: <i>Scoping Study into the Transferability of DTOceanPlus to Design Floating Offshore Wind Farms</i> .
2019-2020	M.Eng. student, UoE, (supervisor with Henry Jeffrey), Project title: <i>Assessing the effects of Learning and Scale on the Levelised Cost of Offshore Renewable Energy</i> .
2018	Intern, UoE, (supervisor with Dr David Forehand), Project title: <i>Structural Analysis of a floating point absorber WEC for reliability and survivability assessment</i> .
2018	M.Sc. student, UoE, (co-supervisor with Dr David Forehand), Project title: <i>Modelling of a Floating-Point Absorber Wave Energy Converter for the Analysis of Mooring Forces</i> .

SKILLS

IT	Microsoft Office, Catia V5, LabVIEW, Matlab & Simulink, Python WAMIT, Nemoh (Basic)	Language	Spanish, Catalan (Native) German, English (Fluent) Italian (Intermediate) Swedish (Basic)
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OTHER ACTIVITIES

Invited talks

- 10/2021 **OPIN Masterclass** , Ocean Power Innovation Network
Title: *OPEX modelling for marine renewable energy technologies and projects*
- 08/2020 **Invited webinar** , Marine Alliance for Science and Technology for Scotland (MASTS), UK
Title: *Reshaping wave energy – A method for design optimization*
- 03/2020 **Invited online seminar** , Energy in Maths and Engineering group, School of Mathematics, UoE, UK
Title: *Space Ships or Wave Energy Converters? A method for Geometry Optimisation*

Service to profession

- 2022 – to date **Scientific Committee Member of International Conference on Renewable Energies Offshore**, University of Lisbon, Portugal
- 2021 **Merit reviewer for Department of Energy funding calls**, USA
- 2019 – 2022 **Committee member of Molly Fergusson Initiative** , School of Engineering, UoE, UK – Acting vice-chair and external society liaison champion of initiative to improve the visibility and network of people that identify as women in the School of Engineering.
- 2017 – to date **Referee** for Ocean Engineering, IET Renewable Power Generation, Journal of Ocean Engineering and Marine Energy, Journal of Marine Science and Engineering, European Wave and Tidal Energy Conference 2017, 2019 and 2021, International Conference on Ocean Energy 2020, and International Conference on Renewable Energies Offshore 2021 and 2022.
- 10/2018 **Member of organising committee of the 17th International Network in Offshore Renewable Energy (INORE) Symposium**, 50 attendees, UK
- 2016 – 2017 **Institute Representative in the Engineering Graduate Society**, UoE, UK - to enhance collaboration between institutes within the School of Engineering
- 2016 – 2018 **Member of Post Graduate-Research Associate Committee**, Institute for Energy Systems (IES), UoE, UK

Professional membership affiliations

- 2018 – to date **Associate Fellow (AFHEA)**, Higher Education Academy
- 2017 – 2020 **Student Member (SIMarEST)**, IMarEST, UK

Community involvement and outreach

- 2018- 2022 **STEM-Ambassador** – Active member of organisation for outreach in STEM topics in UK schools to encourage and inspire children into science and engineering.
- 03/2018 **Invited talk by IMechE Young Members Panel**, UK
- 2013 – 2014 **Member of Engineers without Borders**, Munich, Germany