Ulises Jurado | MSc, PhD

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Lead Design Engineer with seven years between professional experience and research and development experience leading variety of projects in broad engineering fields as renewable energy, robotic underwater marine sensing systems product design and MEMS. Seeking a new challenge to exploit my interdisciplinary skills and push my boundaries, developing and applying innovative cutting edge technologies. Capable of lead and deliver novel projects on time, quality, independently or teamwork collaboration.

CAREER SUMMARY

APRIL 2024 – PRESENT

Lead Design Engineer

- APRIL 2023 – APRIL 2024

Senior Design Engineer

- AUGUST 2022 – APRIL 2023

Design Engineer

Dyson, UK

- Research design & development (RDD) in new product innovation (NPI), team & project lead and coaching young engineers
- Product & prototype design on NX & Finite element analysis (FEA) in Ansys
- Rig building, integration & testing (Arduino, raspberry pi, python, electronics, sensors, DC & BLDC motors, 3D printing, etc.)

NOVEMBER 2020 – JULY 2022

KTP Associate – Project Engineer (UK RI Innovate UK)

SEAMAP Ltd and University of Bath, UK

- Marine Sensing System Design – Research & Development of a robotic underwater localization system for marine seismic air guns. Employing sensor fusion algorithm using ROS & ROS2 (EKF, UR3 & XY linear robot, IMUs, Acoustic modems, GPS, Depth sensors, etc.), and 3D printed acoustic IDs.
- Management & planning of project tasks, demos & presentations to interdisciplinary teams, budget, development, testing and implementation of the Marine Seismic Sensing System Design project.

SEPTEMBER 2016 – OCTOBER 2020

Doctoral Researcher

University of Southampton, UK

- Research project development & management on FEA, fabrication, optimization and characterization of novel triboelectric nanogenerators (TENG) and hybrid nanogenerators employing solid-solid and liquid-solid contact electrification for breaking water wave impact energy harvesting at a broad frequency range between 0.7 Hz to 300 Hz.
- Integration of grid of TENG with power management control circuit (PMCC) for self-powered applications.
- E-textile technology materials and applications research.

SEPTEMBER 2015 – SEPTEMBER 2016

Mechanical Engineer

Bombardier Recreational Products (BRP), MEX

- Management of manufacturing process improvements by Kaizen, problem-solving techniques, Safety and ROI (Return of Investment) projects.
- Modelling, development, implementation and validation of new technological equipment for the final assembly process of Can-am off-road vehicles as Maverick X3, Maverick sport, Defender and Commander.
- Mechanical design expertise using 3D software and modelling as Catia and SolidWorks.
- Design & implementation of SMED and POKA-YOKE for reducing the changeover and elimination of defects in the manufacturing process of the off-road vehicles.

MARCH 2014 – DECEMBER 2014

MEMS Lab Researcher (Photovoltaics (PV))

The University of Texas at San Antonio, US

- Research project management & development on the synthesis of CdTe quantum dots (QDs), fabrication and characterization of luminescent down shifting nanostructures based on CdTe QDs/PMMA and their integration in c-Silicon solar cells.
- MEMS fabrication processes (Thin films deposition through thermal evaporation, ALD or auto sputter coater (Heat process), doping semiconductors, Micro and nanotexturization processes, etc.)
- FEA modelling of photovoltaic devices in Comsol Multiphysics and Matlab.

EDUCATION

SEPTEMBER 2016 – OCTOBER 2020

Doctor of Philosophy in Engineering and the Environment

University of Southampton, UK

- Doctoral thesis: Triboelectric nanogenerators for breaking water wave impact energy harvesting for self-powered applications.
- Research groups: Smart Electronic Materials and Systems, and Mechatronics.

FEBRUARY 2013 – JANUARY 2015

MSc Material Science

Universidad de Guadalajara, MEX

- Focused on Micro and Nanomaterials – Micro-electromechanical systems (MEMS), Material optics and Semiconductors.
- Master's thesis: Modelling synthesis and characterization of luminescent down shifting nanostructures based on cadmium telluride quantum dots applied to crystalline silicon solar cells.
- Courses: Material structure ad characterization, Mathematics of material, Material properties I and II, Semiconductor device design and modelling, Material optics and Process technology in semiconductors.

AUGUST 2006 – DECEMBER 2011

BSc Mechanical Engineer

Instituto Tecnológico de Ciudad Juárez, MEX

- Bachelor's thesis: Membrane Structural Optimization for Barometric Capacitive Capsule.
- Courses: Automation projects, Programmable logic controllers, Microcontrollers, Process manufacturing, Hydraulic and pneumatic circuit design, Instrumentation, Electronics, Digital Systems, Thermal machinery and equipment, Industrial safety, Property of materials, Fluid mechanics, Physics, Thermodynamics, Mechatronics, Thermal plants among others.

SKILLS

- CAD (NX, CATIA, SolidWorks)
- Modelling in COMSOL & ANSYS Multiphysics
- Renewable energy (Marine & Solar)
- Project, budget & time/work packages management
- Python, MATLAB, Simulink
- Finite Element Analysis (FEA)
- Power electronics & Self-powered systems
- Research and Development (R&D)
- Microcontrollers programming ARM & Arduino
- Robot Operating System (ROS, ROS2), GAZEBO
- 3D printing
- Data Science & Machine learning
- Raspberry pi & Internet of things (IoT)
- Universal robot (UR3e)
- Material characterization
- Design of Experiments (DOE)
- Electronics, Sensors, Sensor fusion Drives & Motors
- Mechatronics & Electromechanical Egineering
- MEMS, Optical Materials & Semiconductors
- Problem solving & Analytical
- Linux
- Drone engineering (Ardupilot, Mission Planner, Hardware, etc.)
- Excel, Word and PowerPoint
- Engineering & Physics

CERTIFICATES

- Develop with Python for AI and Machine Learning (Learning path) – LinkedIn, Aug 2024
- Blockchain: Understanding Its Uses and Implications – EdX – Mar 2024
- P3O® Foundation Certificate in Portfolio, Programme and Project Offices – AXELOS, May 2023 – May 2026 (Credential ID GR645008584UT)
- Knowledge Transfer Partnerships (KTP) Associate Certificate – Innovate UK, Jun 2022
- Programming for Everybody – Python – University of Michigan, Jul 2022
- Storytelling for business – Impact Factory, Jan 2022
- KTP Management and Leadership Study Programme – Ashorne Hill Management College, Aug 2021
- Advance Your Skills in Python (Learning path) – LinkedIn, Aug 2020

LANGUAGES

English
Full Professional Proficiency

Spanish
Native

PROFESSIONAL MEMBERSHIPS

- CMI Member

PUBLICATIONS

1. “Underwater localization system for marine seismic air gun array” Ulises Tronco Jurado, Peter Wilson, Philippe Blodel, Adrew Bartin, Greg Walker-Doyle. IEEE SENSORS Journal, 2024. (Under review)
2. “E-Textile Technology Review–From Materials to Application.” Abiodun Komolafe, Bahareh Zaghari, Russel Torah, Alex S Weddell, Hamideh Khanbareh, Zois Michail Tsikriteas, Mark Vousden, Mahmoud Wagih, Ulises Tronco Jurado, Junjie Shi, Shen Yong, Sasikumar Arumugam, Yi Li, Kai Yang, Guillaume Savelli, Neil M White, Steve Beeby, Publisher: IEEE Access, July 2021, https://ieeexplore.ieee.org/document/9471836
3. “Wave impact energy harvesting through water-dielectric triboelectrification with single-electrode triboelectric nanogenerators for battery-less systems.” Ulises Tronco Jurado, Suan Hui Pu, and Neil M. White. Nano Energy Journal/Elsevier (2020), https://doi.org/10.1016/j.nanoen.2020.105204.
4. “Grid of hybrid nanogenerators for improving ocean wave impact energy harvesting self-powered applications.” Ulises Tronco Jurado, Suan Hui Pu, and Neil M. White. Nano Energy Journal/Elsevier (2020), https://doi.org/10.1016/j.nanoen.2020.104701.
5. “Dielectric-metal triboelectric nanogenerators for ocean wave impact self-powered applications.” Ulises Tronco Jurado, Suan Hui Pu, and Neil M. White. IEEE Sensors Journal (2019), https://doi.org/10.1109/JSEN.2019.2912070.
6. “Water-Dielectric Single Electrode Mode Triboelectric Nanogenerators for Ocean Wave Impact Energy Harvesting.” Ulises Tronco Jurado, Suan Hui Pu, and Neil M. White. Multidisciplinary Digital Publishing Institute Proceedings. Vol. 2. No. 13, https://doi.org/10.3390/proceedings2130714.
7. “A contact-separation mode triboelectric nanogenerator for ocean wave impact energy harvesting.” Ulises Tronco Jurado, Suan Hui Pu, and Neil M. White. 2017 IEEE SENSORS. IEEE, 2017, https://doi.org/10.1109/ICSENS.2017.8234198.
8. “Synergistic effects of nanotexturization and down shifting CdTe quantum dots in solar cell performance.” Ulises Tronco-Jurado, et al. Microsystem Technologies 23.9 (2017): 3945-3953, https://doi.org/10.1007/s00542-015-2748-4.
9. "Influence of nanotexturization, nanoparticles and CdTe quantum dots in the power conversion efficiency of solar cells." Ulises Tronco-Jurado, et al. 2015 Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS (DTIP), IEEE, 2015, https://doi.org/10.1109/DTIP.2015.7160997.
10. “Efficiency improvement employing CdTe quantum dots and Ag/Au nanoalloys on c-silicon solar cells.” Ayon, A. U. Tronco Jurado, et al. 2015 IEEE 42nd Photovoltaic Specialist Conference (PVSC). IEEE, 2015, https://doi.org/10.1109/PVSC.2015.7355756.
11. “Influence of Au/Ag nanostars and CdTe quantum dots on photon manipulation.” Ayon, A. U. Tronco Jurado, et al. 2015 Transducers-2015 18th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS). IEEE, 2015, https://doi.org/10.1109/TRANSDUCERS.2015.7181204.

PATENT

- “Compositions for uv sequestration and methods of use. " Ayon, A.A., Tronco-Jurado, U., Delgado, R.L., Raynaud, A.Z., CEJA, J.E.P., Valenzuela, H.H., Mendoza, D.B. and Carrazco, A.R., University of Texas System, 2018. (patent/US20180374975A1).

CONFERENCES & COURSES

1. PowerMEMS 2019, Dec 2 - Dec 6, Kraków, Poland: Oral presentation titled "Grid of hybrid nanogenerators for improving ocean wave impact energy harvesting self-powered applications".
2. EUROSENSORS 2018, Sep 9 - Sep 12, Graz, Austria: Oral presentation titled "Water-Dielectric Single Electrode Mode Triboelectric Nanogenerators for Ocean Wave Impact Energy Harvesting".
3. IEEE SENSORS 2017, Oct 29 - Nov 1, Glasgow, Scotland, UK: Poster presentation titled "contact-separation mode triboelectric nanogenerator for ocean wave impact energy harvesting".
4. Introduction to Teaching Skills for PGRS – Demonstrators, University of Southampton, 14 Oct 2016.
5. Research Methodology for Scientists & Engineers, University of Southampton, 28 Nov 2016.
6. Technical Writing Skills for FPSE & FEE, University of Southampton, 7 Dec 2016.
7. Presenting your research, University of Southampton, 10 Nov 2016.
8. Introduction to Micro and Nanotechnology (MEMS & NEMS), The University of Texas at San Antonio, College of Sciences, June 2014.