

# Andres Muniz

[cv@c4ad.eu](mailto:cv@c4ad.eu) +44(0) 7722 6035 80

## Profile

Industrial engineer with experience in nano-materials, prototyping, and laboratory management.

## Experience

2017 – Present: Director, [C<sup>4</sup>AD](#) CIC: The technological Community Interest Company: Making and Testing prototypes, from electronic assembly to IT procedures.

2014 - Present: Director, [Ham United Group](#) CIC

- Founder of [Richmond Makerlabs](#) a community workshop and co-working space. Activities include technical support, technical training, and prototype manufacturing. Existing equipment: electronics station, CNC Machine, Laser cutter, 3D printer, Lathe, sewing machine, and web server amongst other equipment.

2014-2016: Facilities manager and Higher Research Scientist, [National Physical Laboratory \(NPL\)](#)

- Design of novel thermoelectric device testing facility including vacuum chamber, heating and cooling systems, as well as uncertainty analysis. Coordinated purchase, delivery and installation. New system enables better understanding for industry on the power output of these devices.
- Computer aided design and delivery coordination of a first of it's kind synchrotron beam line sample enclosure. This included vacuum component design, clearance for X-ray diffraction, optical view ports for interferometer measurements, and stable working conditions in all three axis of rotation. It involved the coordination of five teams in four different nations. System enabled, for the first time, comparative measurements of piezoelectric materials from nanoscale to macroscale.
- Laboratory management: overall responsibility for quality, training and H&S for the atomic force microscopy suite.
- Research in III-V semiconductor multi-junction solar cells using atomic force microscopy in ultra high vacuum developing new measurement techniques, sample holders and optical setups to enable an improvement in the price-to-performance ratio of these devices.

2007-2014: Facilities Manager and Research Scientist, NPL Management Ltd.

- Computer aided innovative design and finite element analysis of a Nano scratch tester to work inside the vacuum of a scanning electron microscope. System is used to study friction, lubrication and wear.
- Sample enclosure and peripheral systems for atomic force microscopy such as nanoampere charge amplifier to measure resistance at the nanometre scale.
- Designed and setup of a two wavelength laser system to stimulate organic photovoltaic materials while scanning the system for electrical properties in the nanoscale.
- Designed and ran simulations of a micro electrical mechanical system used to characterize piezoelectric materials.
- Established a novel facility for microfluidic and microparticle image velocimetry measurements.
- Sample preparation by spin coating, lithography, etching and metallization for micro electrical tests.
- Pioneered an ISO quality Cleanroom facility from inception for use across divisions, visiting SMEs and universities. As Lab Manager I was responsible for quality, training and H&S.

2006-2007: Joint Placement between [University of Navarra](#) and NPL Management Ltd.

- Design, finite element analysis and building of a Nano Mechanical Tensile tester for use inside the vacuum of a scanning electron microscope. Main component is a unique wire-eroded 3-D flexible hinge assembly for a non-linear load cell.

2006: Summer placement Data analyst, [CEIT](#), Spain

- Data analysis of magnetic signals using Matlab.

1995: Summer camp counselor, [Science Camp Watonka](#), USA

- Supervision of four preteen campers. Managed science, craft and sport activities.

## Professional development

- Health and safety training on electrical, workshop, fire, pressured materials, chemicals, and laser. Risk assessment procedure training.
- Soft skills training on presentation skills, facilitation skills, communicating and influencing, science ambassador, and digital champion.
- Python coding for data analysis

Skills:

- Advanced use of Solidworks computer aided design. As well as other 3D software.
- Basic understanding of breadboard prototyping such as arduino.
- Basic understanding on web technologies and server use including HTML5 typesetting.
- Fluent in Spanish for technical translation.
- Advanced knowledge of atomic force microscopy including Kelvin probe.
- Basic knowledge of scanning electron microscopy, optical microscopy, ellipsometry and similar techniques.
- Intermediate experience in lithography, metal evaporation, wafer saw, wire bonding, wet and dry etching. Also sample preparation such as polishing, cleaving and chemical processes in fume cabinets.
- Basic understanding on MEMS design and manufacturing using L-edit and Coventor
- Basic knowledge of workshop equipment: soldering iron, pillar drill, laser cutter, 3D printer, sewing machine and CNC machining.
- General maintenance of Ultra High Vacuum systems: Rotary, diffusion, turbo and ion pumps
- AAT level 1 accounting.

## Education

Master's Degree in [Industrial Engineering University of Navarra](#) in Spain.

- Created a 3D printed webcam enclosure.
- Teacher assistant on production organization practical lectures.

## Other

- Kick-started a visible LGBT+ staff engagement and consequently spearheaded the action group to influence management into joining [Stonewall](#) as Diversity Champions. As a consequence, we contributed to procedure change in the company producing happier, more productive employees.
- Promoted the high profile [Erasmus Plus](#) program in Spain, securing 12 good placements over four years.
- Memberships: [Institute of Physics](#), [Engineering Charter](#) in Spain, [Free Software Foundation](#), [STEM ambassador](#).
- 11 co-authored [papers](#) pushed on peer-reviewed Journals.
- British and European Driving license
- Up to date CRB check