Andre Munoz

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Personal Statement

An individual with a scientific background who is seeking to apply skills to a suitable role. Transferable skills include the ability to learn quickly, innovative thinking and problem-solving. Such skills are demonstrated below and can be suited for a wide range of jobs. Willing to relocate for a promising permanent full-time job role.

Work Experience

Jan 2020 - Present **Freelance Photographer/Videographer, Aerial Andre, U.K**

• Travelling and capturing the moment through digital photography and videography. Captured content is then monetised on various platforms, including stock photography/videography agencies.
• Providing photography and videography services for my YouTube cooking channel Eversotasty.

May 2019 - Jan 2020 **Threat Detection Physicist, Dstl, Porton Down, U.K**

• Worked on classified government projects researching, modifying and testing various X-ray imaging machines to detect threat material.
• Provided support in scoring threat detection capabilities of X-ray screening machines, such as the SureScan x1000 to determine if they meet the European Civil Aviation Conference (ECAC) standards. This involved safely working with real explosives at the EPC-UK secure test facility on Bramble Island in Harwich Essex.

Jan 2015 - Dec 2018 **Graduate Researcher, Cranfield Forensic Institute, Shrivenham, U.K**

• Taking theoretical concepts to production by designing, constructing, testing and evaluating a prototype near-field 160 kV X-ray backscatter imaging system using coded masks. This included in-depth research into X-ray 'optics' and photonics for defence and security applications. The role also involved fault finding and trouble shooting.
• Applied innovative thinking through rapid prototyping to provide a low-cost alternative to coded mask imaging for X and γ rays. This could eventually find applications in medical radiography, industry and defence.

May 2013 - Sep 2013 **Internship, University College London, London, U.K**

• Assisted in novel research designing, testing and installing a fiber optic spectrometer to a telescope, eliminating unwanted imaging effects from the flexure of a CCD extension tube.
• Involved as part of a team planning, organising and cataloguing literature. The project took place at University London Observatory in Mill Hill with the purpose of creating a library to assist students in their studies and research.

Education

Jan 2015 - May 2019 **Ph.D in Applied Physics, Cranfield University, Shrivenham, U.K**

• **Thesis Title:** 'Imaging Near-Field Backscattered X-Rays using Pinhole and Coded Masks'
• **Project:** Worked on a classified government-funded (dstl) project investigating coded mask 'optics' for X-ray backscatter imaging at the Defence Academy of the United Kingdom.

Sep 2009 - Jul 2014 **BSc. (Hons) Astrophysics, [2:1], Aberystwyth University, Wales, U.K**

• **Thesis Title:** 'Impact Flashes on the Moon: Cosmic Ray Analysis'
• **Modules:**, Electromagnetism, Mathematical Physics, Experimental Physics, Quantum Mechanics, Thermal Physics, Probing Atoms & Molecules, Data Handling & Statistics, Condensed Matter, Cosmology, Planetary Atmospheres and Solar Interior.

Transferable Skills

- **Problem Solving** Introduced 3D printing and cold casting to manufacture coded masks with self-supporting structures. This provided an economic and more effective solution to coded mask imaging. Also, developed a material characteristic .exe program for staff at dstl. This was used to characterise simulant threat material onsite without the need for travelling to other sites that were more equipped. Some examples can be found via links to published material at www.andremunoz.me.
- **Project Management** Aided the direction of a government-sponsored Ph.D project which included, time management, experimental planning and supervising students at different levels.
- **Communication** Authored technical papers and presented at an international conference to an audience of approximately 30-40 people. Experienced in communicating non-technical work to a sponsor/client by presenting regular deliverables in the form of reports and power-point slides. See www.andremunoz.me for further details and examples of communications.
- **Self-Motivation** Had to adopt self motivation as part of Ph.D, due to the uncertainties involved. Also, self taught the follwing in my own time; photo/video editing, coding, 3D printing, technical drawing and engineering.
- **Adaptability & Learning** Adapted to and worked in different environments, which includes academia, industry, military; as well as being self-employed. Also, had to learn skills in technical drawing, workshop engineering, alloy casting, chemistry and coding.
- **IT** Confident user in Microsoft Windows, MacOS and Linux which includes a complete installation from scratch. Additionally, experience in using Microsoft Word and excel to create advance documents and to perform complex calculations. Examples can be found on www.andremunoz.me.
- **Data Analysing** Experienced in analysing X-ray images (which are essentially 2D arrays of intensity values) to characterise materials. Additionally, used data analysis for signal processing and evaluation by using cross-correlation.

Technical Skills

- **Laboratory Skills** Experienced in working in radiation cells, chemistry labs and within a forensic environment. Also, this includes working in highly secure military bases with firing ranges and explosive test sites. Additionally, experienced with the following X-ray machines (but no limited to); SureScan X1000 and Hi-Scan 6046si X-ray baggage scanners, Nuctech LS1516 CT scanner and a prototype AS&E X-ray backscatter imaging system. Also, trained in assessing risks and writing assessments.
- **Coding** Experienced in using MATLAB to write image processing algorithms and python to write calculation scripts. Also a confident user of LaTeX to write large technical documents. Lastly, used HTML and CSS to design my website from scratch (See www.andremunoz.me).
- **Engineering** Experienced in 3D printing and rapid prototyping high density X-ray 'optics' along with manufacturing tertiary alloys. Also experienced designing various components for X-ray imaging systems using SOLIDWORKDS.
- **Trouble Shooting & Maintenance** Trouble shooting and equipment maintenance was routine, having designed an X-ray imaging system from scratch. Results were achieved through systematic tests or novel means of manufacturing custom parts from our in house workshop. Trouble Shooting also was a major role at dstl, as strict security measures would not allow engineers from some manufacturers or countries on MoD sites.

Extracurricular Activities & Interests

- **Achievements** Full clean car and motorcycle license.
- **Interests** Keen recreational drone pilot, photographer and videographer. Travelling is my other passion with destinations to mainland Spain, Majorca, Canary Islands, Portugal, Italy, Morocco, Thailand, Cuba, Jamaica, Iceland, U.S.A, Canada and within the UK. Lastly, cooking is another passion of mine and evidence of this can be seen from links on my website www.andremunoz.me.