

Graduate Profile, Aeronautical Engineering, University of Limerick, Ireland
CONOR O'NEILL

MR. CONOR O'NEILL

**SENIOR RESEARCH ASSOCIATE,
NEWRAIL
NEWCASTLE UNIVERSITY
UK**

www.ncl.ac.uk/newrail



Education and Training

→ B. Eng. (Hons) Aeronautical Eng, University of Limerick, Ireland, 1999

Current Position

Title	Dates	Employer
Senior Research Associate & Rail Vehicles Group Manager	2007-Present	NewRail, Newcastle University, Newcastle upon Tyne, UK

Previous Positions

Title	Dates	Employer
A400M Manufacturing Team Leader	2004-2007	Airbus UK Filton, Bristol, UK
Research Engineer - Composite Wing	2002-2004	
Direct Entry Graduate	1999-2002	

"Home" Town(s)/County(s)

Newcastle upon Tyne; Ballina (Co. Mayo)

Please describe your current job

In my role at NewRail I co-ordinate and work on multiple European and UK projects with a combined value of €10M. My most recent success was in developing a "bomb-proof" train which received worldwide recognition for its ability to reduce the number of injuries and fatalities on metro trains which might result from a terrorist attack - CNN video here: <https://www.youtube.com/watch?v=ZVrCTYgh4WA>
Other areas of focus include adapting lightweight materials so they can be applied in rail vehicle structures. This involves developing new train designs and

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concepts, testing state-of-the-art materials, running dynamic simulations, hands-on manufacturing and A LOT of travelling! Through my work I have developed award winning products from recycled materials, hold two patents for a novel energy absorbing device for trains and for a fully composite crashworthy train.

Please describe your career path since graduating with your B.Eng. Aeronautical Eng.

I graduated from UL with a job at British Aerospace (now Airbus UK) already organised. This was a placement on their Direct Entry Graduate Scheme which allowed me to work in various divisions of the company over a two year period. I worked in Process Assurance, Composite Wing, Customer Support (Toulouse, France) and A380 Project Management.

On leaving the scheme I gained a research position within their Composite Wing department, designing and manufacturing carbon fibre wings for test purposes. I progressed from there to the A400M (military) project, to lead a group of manufacturing engineers to develop an 11m test wingbox as well as co-ordinating the manufacturing activities to deliver two full scale aircraft for testing.

As this programme came to its natural end, I decided that it would be of benefit to my career to experience engineering environments outside the aviation industry. The rail industry is now moving towards the use of lightweight materials for their designs and an opportunity arose at NewRail to develop a new train drivers cab using these materials. My work has broadened to include design, simulation, manufacturing, testing, R&D and project management.

What made you decide to study Aeronautical Engineering at UL?

I have always had an interest in the aviation industry and the course at UL offered a specialism in that field, as well as providing the opportunity to gain practical industrial experience through Co-op.

Are you glad you did?

Yes - it is a fantastic learning environment and the key engineering skills you come away with are applicable not only to the aviation industry, but across all engineering disciplines.

What did you most enjoy about studying at UL - academically, and also non-academically?

The campus style of the university makes for a close knit community of students with a great mix of academic and social life. The facilities are excellent, with a large number of extra-curricular clubs and societies in which you can get involved.

Where did you do your COOP?

I undertook Co-op in Bremen, Germany at Airbus. This was within their research department where I first experienced the wide range of activities that R&D has to offer. It is as a direct result of this work that I am now following a career path that I truly enjoy.

What advice would you give school-goers considering choosing Aeronautical Engineering?

Designing, developing and building aircraft is, for me, the pinnacle of modern technology. The industry is continually pushing the boundaries, looking for new and novel ways to get us all from A to B. And there is nothing like the feeling you get while sitting on an aircraft you helped design, or watching TV and seeing a military transporter you developed safely unload its cargo in a warzone. Aeronautical Engineering is one of the few courses that can open doors into this fantastic and rewarding industry.

What advice would you give future graduates of Aeronautical Engineering?

Be organised, and confident. Jobs in the industry can be scarce and highly sought after, but with your degree AND industrial experience you will already have a head-start on a lot of applicants. This industry is all about networking, so use your contacts within the department or through your Co-op experience to see where the opportunities may lie. Being an Aeronautical Engineer is hard work, but extremely rewarding.



Blast testing a decommissioned metro vehicle.

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Irish engineer's bomb-proof train

TRAIN carriages could be bomb-proofed to protect passengers in the event of a terrorist attack, an Irish engineer predicts.

Conor Neill heads the SecureMetro team at Newcastle University's School of Mechanical and Systems Engineering, which is working on 'low cost and simple solutions' to do just that.

The Mayo man's EU-funded team has been designing surface and underground rail carriages that minimise death and injury in the event of a bomb attack. They are now able to advise rail chiefs on the best design approach.

Mr O'Neill, 35, a graduate of the University of Limerick, said the Madrid bombings in 2004, which killed 191 people, and the 7/7 attack in London the year after, which saw 52 deaths, highlighted how vulnerable trains are to attacks.

His team carried out a controlled explosion on both a decommissioned



Solutions: O'Neill

by JOANNE AHERN

Tube carriage and a prototype carriage, analysing the impact.

Mr O'Neill believes that preventing flying objects is key.

He said: 'Tethering ceiling panels reduced the risk of fatalities and injury from shrapnel and meant the gangways were kept relatively clear of debris, allowing emergency staff quick access to the injured.'

The engineers also investigated dividing carriages with materials that reduce the impact of a blast wave, as well as coating windows to stop glass flying about.

Mr O'Neill said while replacing existing vehicles isn't an option, new technology can be incorporated into existing carriages.

He added: 'These are low-cost solutions which could not only save lives but also reduce the attractiveness of our railways for potential terrorist attacks.'



TRIO-LINISTS: The annual Festival of Youth Orchestras kicks off in the National Concert Hall on February 9 where nine-year-old triplets Elizabeth, Sophie and Katie Ni Mhaoláin from the Julianstown Youth Orchestra will be amongst the more than 500 musicians from all over the country performing on stage. See www.layo.ie for more details
PICTURE: MARK O'SULLIVAN

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Lightweight crashworthy driver's cab - patented.