

# Nicholas Lan

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British • Date of Birth: 7<sup>th</sup> April 1979

## Professional Experience

- Apr 2007-present      Systems Engineer: Ursa Minor Space & Navigation B.V., Delft (NL)**
- Galileo Search and Rescue Test Beacon (SAR-TB) development under ESA contract in systems engineering, testing, documentation and project management.
  - Continuing responsibility in SAR Verification Test Bench (SARVTB) under contract to CNES. SAR-TB updated and integrated with SARVTB
  - Requirements development, design and implementation of commercial products and services including a GNSS RF signal simulator
  - Drove efforts with various partners toward development of technologies relating to aerobots for extraterrestrial exploration
  - Led company contribution to ESA study on telecommunications market evolution (ARTES 1 ESA AO/1-5508/07/NL/CLP)
  - Interference detection and localisation algorithm design in GALMONET project under Dutch national funding for GNSS RF monitoring grid
  - Responsibility for company role in at all technical levels of FP6 project MTTs, demonstrating potential integrated application using Galileo capabilities.
  - Consortium building and proposal coordination for ESA, EC and national funding programmes
  - Software development including Matlab, LabVIEW and Java
- Sep 2011–Jan 2012      Lecturer, Fachhochschule Gelsenkirchen, Bocholt (DE)**
- Design and teaching of undergraduate course, 'Biomimetics & Space Engineering'
  - Subjects covered include Matlab, LaTeX, space systems engineering, biomimetic case studies, biomimetic methodology, technical writing
- Jun 2005–May 2006      Young Graduate Trainee: Advanced Concepts Team (ACT), European Space Agency, Noordwijk (NL)**
- Support of Ariadna programme, for collaboration with academia in small, efficient studies on emerging topics with relevance to space:
    - Involvement in programme management and evolution, including software management, support to the administration of individual studies, actions to streamline processes and development of research objectives
    - Critical evaluation of study topics, at all stages from conception to completion, leading to a working understanding of research across the broad range of Ariadna activity
  - Systems level study of various novel concepts in relation to potential Ariadna study and personal research and publications, particularly relating to robotics for exploration
  - Involvement in CDF study (SPAESS) into alternative energy storage technologies in technical support of study manager
  - Contributed to ACT and ESA objectives in areas such as ACT approach to involvement in new media including collaboratively authored databases and General Studies Programme external review
- Jun 2004–Aug 2004      Volunteer Consultant: Cranfield Trust, Cranfield (UK)**
- Preliminary project planning for Driving Home, a disabled driven expedition from UK to South Africa aiming to raise in the region of £1 million
  - Areas of concern included comprehensive identification of travel, costing, risk analysis and contingency planning issues
- various dates      Other Work Experience: Various Companies and Organisations, Several UK locations**
- Campus Representative for graduate recruitment company, WCN. Responsible for autonomously raising company profile and increasing membership on campus.
  - Customer facing –Also includes work as bar and venue staff and shop assistant. Worked for employers including Ayr Racecourse and Edinburgh Students' Association during the Edinburgh Festival
  - Volunteer Consultant, Cranfield Trust. Preliminary project planning for Driving Home, a disabled driven expedition from UK to South Africa aiming to raise in the region of £1 million
  - Administrative – Includes 3 months employment as a clerk at Standard Life Assurance Company
  - Other – Includes volunteer work for the charity 'Trees for Life' in the form of a residential week restoring native Scottish forests

## Education

### 2002-2003 Cranfield University (UK): MSc - Astronautics and Space Engineering

- Courses included: Astrodynamics, Software Engineering, Control Engineering, Space Communications, Launch and Re-entry Aerodynamics, Space Propulsion and Introduction to Space Structures
- Group project title: 'Yes2: The Second Young Engineers Satellite – Mission Analysis and Trajectories' Collaborated with other members of the group in an iterative process of vehicle optimisation to produce a baseline design for this ESA funded project (launch 2007). Provided initial mission analysis and identification of safety issues from deployment to recovery of an inherently safe, inflatable sample return vehicle
- Thesis title: 'Mathematical Analysis of Dust Devils' – Analysis of suitability of mathematical models for representation of dust devils with particular focus on Mars. Code was written in C to fit theoretical model to experimental data and simulations of particle movement in dust devils were implemented in Matlab\Simulink using equations of motion derived from selected force equation

### 1997-2001 University of Edinburgh (UK): 2(ii) BSc (Hons) – Astrophysics

- Final year project - "Erratic Variability in Quasars". Developed C code to perform statistical analysis of x-ray data from a bright, high redshift galaxy. Tested potential theoretical models for the variation
- Final year team review project - "The origin of the initial stellar mass function"
- Final year modules included: Electromagnetism, Thermodynamics, Atomic and Particle Physics, Astrophysical Cosmology, General Relativity, Stellar Evolution and a practical electronics module.

### 1991-1997 Belmont Academy, Ayr (UK)

- Sixth Year Studies – 2 passes at grade A in Physics and Chemistry
- Higher Grades – 5 passes at grade A including Maths, Biology, and Chemistry and 1 pass at grade B
- Standard Grades – 7 passes at grade 1 including Maths, Computing and French

### 2010 London School of Economics, London, (UK)

- Summer School in Environmental Economics and Sustainable Development, grade A-.

## Selected Publications

- N. Lan and C. Menon, *Discrete Event Robots*, ch. Smart bioinspired technologies for the development of a miniaturized legged robotic system, iConcept Press, 2012. (accepted)
- B. Peeters, *et. al.*, "The Galileo search and rescue test beacon: Final implementation challenges and future work," in ENC-GNSS 2009 , (Naples, Italy), 3-6 May 2009.
- N. Lan, *et. al.*, A Multi-modal Tracking and Tracing System Integrating Both Existing GNSS Infrastructure and Future Galileo Capabilities, Space Applications Days 2008, Toulouse
- Menon, C.; Lan, N.; Sameoto, D.. "Towards a methodical approach to implement biomimetic paradigms in the design of robotic systems for space applications" Applied Bionics and Biomechanics 6.1 (2009). 19 Jun. 2009

Full list: [www.Nicholas-Lan.me.uk/publications.htm](http://www.Nicholas-Lan.me.uk/publications.htm)

## IT and Language Skills

- Software development experience including LabVIEW, Matlab, Java, C, SQL and Maple
- Working knowledge of many software packages including Microsoft Office, DOORS, STK, LaTeX, Dreamweaver and Photoshop
- Hardware skills in computer assembly and some practical electronics experience
- French and Dutch – Intermediate

## Other Interests and Activities

- Professional - Member of the Institute of Physics since 1997, currently an associate member. Collaboration in producing scientific publications in my spare time. Certified LabVIEW Associate Developer. Attended Netherlands Planetary Society Autumn School in planetary sciences in 2010.
- Travel - Including a sponsored charity rally across 14 countries and 13000km.
- Sport - Enjoy physical activities and have played a number of sports regularly including football, squash and rugby. Formerly captain of my indoor football team.
- Music and Art - active member of Fresh Air FM while attending Edinburgh University as DJ, promoter and a part of the music department, providing feedback to music promoters about new music. On-air during four, month-long broadcasts and involved in seven broadcasts. Ongoing interest in eclectic new music, always interested in finding new artists. Enthusiastic violinist and self-taught guitarist. Keen photographer
- Other - Member and regular campaigner for the WWF and Amnesty International. PADI qualified Open Water scuba diver. Full clean UK driving license

References available on request