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Scottish registered charity number
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PhD Studentship:

Secure and spoofing/jamming resilient PNT receivers

Microwaves and Antenna Engineering Group

https://microwaves.site.hw.ac.uk

PhD Studentship

In Microwave and Antenna Engineering Group
Heriot-Watt University, Edinburgh, Scotland, UK, EH14 4AS

Secure and spoofing/jamming resilient PNT receivers

Project Description

The increasingly dependent on GNSS-enabled positioning, navigation, and timing (PNT) in both military and civil applications demands more robust GNSS receivers which are resilient to both unintentional and intentional interference.

In collaboration with Spirent, which leads the global market for GNSS test equipment and emulation software (SimGNSS), we aim to develop both hardware- and software-enabled security approaches to PNT services. This includes 1) exploiting minute and unique radio frequency (RF) frontend differences as unclonable ID for genuine GNSS satellites to combat spoofing attack; 2) developing array-based autonomous beamforming designs, and associated efficient signal sensing and processing capabilities to reject potential malicious jamming and spoofing parties; and 3) integrate and prototyping security-enhanced GNSS receivers for practical demonstration.

It is importance to mention that these GNSS system challenges are recently documented in the ESA ITT (see the links below), highlighting the urgent needs in defence sectors.

https://esastar-publication-ext.sso.esa.int/ESATenderActions/details/140407
https://esastar-publication-ext.sso.esa.int/ESATenderActions/details/89700
https://esastar-publication-ext.sso.esa.int/ESATenderActions/details/159629

Duration: 42 Months
Scholarship: £31,000 annual stipend (tax-free) plus tuition fees waived
Deadline: 31/01/2026 - 12:00

Supervision Team:
To apply please send your motivation letter, CV, and recommendation letters (optional) to g.goussetis@hw.ac.uk.
Prof. George Goussetis with expertise in Microwave Engineering and Satellite Communications will work with student on hardware and algorithm design for resilient PNT receivers;
Prof. John Thompson from University of Edinburgh will work with student on algorithm design.

Candidate:
MSc degree or equivalent in electrical engineering with a focus on RF/microwave engineering, electromagnetics, antenna theory, and communication theory.
For further information please refer this link
Secure and spoofing/jamming resilient PNT receivers | School of Engineering.