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Preview

Post Doctoral Position on GNSS Signal Processing, Universitat Autonoma de Barcelona

The Signal Processing for Communications and Navigation Group (SPCOMNAV), Universitat Autònoma de Barcelona, seeks a post doctoral researcher to contribute to the activities of the group related to GNSS (GPS, Galileo) signal processing. These activities cover a broad range of topics: techniques for high-sensitivity applications, computationally efficient algorithms for snapshot architectures, signal-level integrity, software receiver for high-order BOC signals, etc. The researcher will be able to assume the leadership in some topics and s/he will supervise a small team (1-2) of PhD students. The researcher will be expected to make contributions both at fundamental and applied levels, while the focus on one or the other can be modulated depending on the background of the candidate. The position will allow the researcher to be in close contact with some of the main European institutions in the area of GNSS R+D.

Information about the group can be found at http://spcomnav.uab.es.

Description

The researcher will be involved in the development of techniques for different aspects of GNSS signal processing.

The position is established from the ICREA Academia Award (http://www.icrea.cat/) received by Prof. Seco-Granados and from the project "HISENS – Techniques for High-Sensitivity GNSS Receivers" of the European Space Agency.

During the first half of the contract, s/he will participate in the HISENS project. SPCOMNAV is a partner of the project, together with some European companies, and we have the leading role in the research of advanced techniques for high-sensitivity applications. In particular, we will work on:
• Statistical characterization of non-coherent, differential and generalized correlations.
• Detection and mitigation of the near-far effect.
• Detection of multipath and combination of multipath rays to enhance sensitivity.
• Adaptation of algorithms for robust tracking from on-going ESA projects where the group also participates (ROCAT – Techniques for Robust Carrier Phase Tracking under High Dynamic, Strong Fading and Scintillation Conditions; ADAPT – Adaptive Tracking Techniques for Navigation Signals) to near-future space receivers.

The researcher is expected to contribute both with fundamental research results and with performance analyses to each of the topics above. All developments are done with Matlab.

Afterwards, the researcher will further develop our available software for GNSS signal acquisition and tracking, which covers at present the GPS signals. The objective is to extend it to the Galileo signals, including some advanced aspects as CBOC compatibility, subcarrier ambiguity mitigation in high-order BOC signals, etc. The researcher will have at his/her disposal state-of-the-art laboratory infrastructure to perform tests with real signals. The laboratory includes equipment to develop multiple-antenna GNSS receiver since we have the devices to precisely synchronize several USRP.

Furthermore, we provide an open working environment where the interaction and collaboration among all members of the groups is encouraged. Therefore, the researcher will be able to gain knowledge and also contribute to other projects and on-going initiatives in the group, such as the EC-funded "IGNSSRx – Integrity GNSS Receivers" or the Marie Curie ITN Multi-POS.

SPCOMNAV is one of the leading academic research groups in GNSS signal processing in Europe. Universitat Autonoma de Barcelona is in the 9th position of the ranking "50 under 50" (http://www.topuniversities.com/top-50-under-50/) and it is the 1st university in Spain.

Other job details

Job ID
33945334

Type of Contract
Temporary

Status
Full-time

Hours Per Week
37.5

Company/Institute
Universitat Autonoma de Barcelona

Country
SPAIN

State/Province
Barcelona

City
Cerdanyola del Valles

Postal Code
08193

Street
Campus UAB - Bellaterra

EU Research Framework Programme

Is the job funded through the EU Research Framework Programme?
No

Company/Institute

Universitat Autonoma de Barcelona
Department of Telecommunications and Systems Engeering
Academic
Campus UAB - Bellaterra
08193 - Cerdanyola del Valles
Barcelona - SPAIN
email
gonzalo.seco@uab.eshttp://sp

Application details

Envisaged Job Starting Date
15/10/2014

Application Deadline
30/09/2014

Application e-mail
gonzalo.seco@uab.es

Research Fields

Engineering - Electrical engineering

Career Stage

Experienced researcher or 4-10 yrs (Post-Doc)

Research Profile

Recognised Researcher (R2)

Benefits

Contract duration is 12 months. The initial salary will range from 28,000€ to 30,000€/year (gross), depending on the experience of the candidate. Performance-based incentives can be negotiated. Other benefits (vacations, etc.) will follow the Spanish regulations.

The researcher will receive funding to cover any number of journal publications and the attendance of two conferences per year (up to one non-European conference). The recruited fellow will have the possibility of making patent applications if innovative techniques with industrial interest are developed.

Renewal of the contract may be possible based on the researcher's and the group's interests after the first year.

Researchers interested in a 6-month stay will also be considered.

Comment/web site for additional job details

Applications should include a full CV (with publication list and participation in projects), a very concise statement of research interest and motivation, and the contact data of at least two recognized individuals willing to serve as references. Applications should be sent by email to gonzalo.seco@uab.es with subject: "[Post-Doc] Name of Applicant".

The selection will be carried out immediately as applications are being received. Each application will be evaluated on its own merits, and the position will be offered to the candidates assessed satisfactorily as soon as they appear.

The starting date is flexible but our interest is that the selected candidate joins the group in September or October.

The researcher will be part of the academic staff of the university and hence s/he will be able to participate in academic activities (seminars, language courses, etc.). In particular, if it is of interest to the researcher, s/he will be able to supervise the projects of BSc and MSc students and to teach a flexible number of hours in selected courses.

Questions related to the position can be made by email.

Requirements

Required Education Level

Degree	PhD or equivalent
Degree Field	Engineering

Required Research Experiences

Main Research Field	Engineering
Research Sub Field	Electrical engineering
Years of Research Experience	4

Required Languages

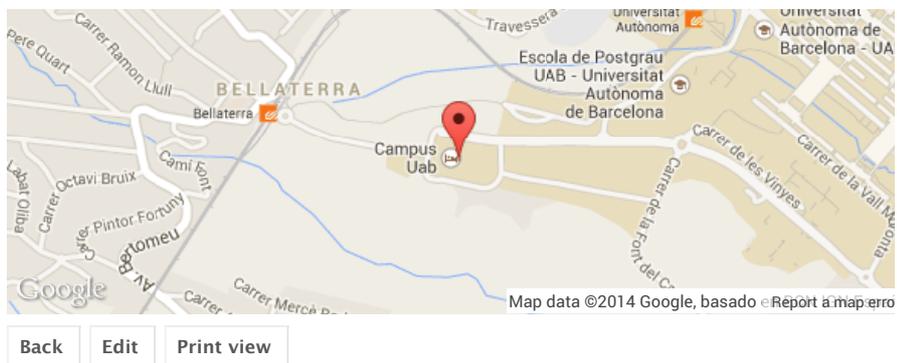| Language	ENGLISH
Language Level	Excellent

Additional Requirements

The researcher must have proven experience in GNSS signal processing besides a good knowledge of general digital signal processing, detection and estimation theory. In particular, the desired candidate must be skilled in processing samples of GNSS signals (e.g. captured with an USRP or similar devices) with Matlab in order to acquire and track the satellite signals.

Practical knowledge on some of the following topics: multipath mitigation, extended coherent and non-coherent integrations for high-sensitivity, FFT-based correlation, advanced tracking loops, is strongly recommended.

We are looking for a highly motivated and enthusiastic researcher. S/he will report to the Director of the group, Prof. Gonzalo Seco-Granados, and the researcher must have the capability to work with light supervision toward the conception of new solutions to the presented problems.

Excellent research skills and analytical abilities are required, fluency in English (both spoken and written), proactive communication skills and problem solving as part of a team, strong record keeping, great work ethic and initiative are essential characteristics.

Candidates may be of any nationality.

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