

DC13

Individual Research Project title – **Mid-band channel characterization for joint communication and sensing**

Lead beneficiary (place of employment) – **LUNDS UNIVERSITET (LU)**, PARADISGATAN 5c, LUND 22100, Sweden

Secondment at – **UNIVERSIDAD CARLOS III DE MADRID (UC3M)**, CALLE MADRID 126, 28903 GETAFE (MADRID), Spain and **ERICSSON AB (ERS)**, TORSHAMNSGATAN 23, STOCKHOLM, 164 80, Sweden

Supervisory team - Academic: Prof. Fredrik Tufvesson (ULUND); Indutry: Dr. Gerhard Steinböck (ERS); Mentor: Prof. M. Julia Fernández-Getino García (UC3)

Project tasks and objectives - The Researcher will work on a multilink system for joint communication, mono- and bi-static channel characterization. It will enable real-time low-level link characterization between user equipment and distributed antenna elements, and between distributed antenna elements in the UmMIMO array itself, thus enabling real-time characterization of the propagation environment. Results, based on current propagation conditions, will be used both for providing radar-type services with sub-meter accuracy and for enhanced dynamic resource assignments in the wireless network itself.

Expected Results - Dynamic channel characteristics for joint communication and sensing. Mid-band channel model for joint communication and sensing. Positioning and sensing algorithms for high resolution environmental awareness.

Planned secondment(s) objectives - to characterize and model mono and bi-static scattering behavior in the propagation channel for large and distributed antenna elements and create/integrate it into simulation tools. And to evaluate the performance of the waveforms being proposed at UC3 with the characterized channel.

Eligibility - University master's degree and be eligible to enroll in a PhD program. Knowledge in fields related to Telecommunications (or closely related disciplines) is appreciated. A high level of English language is required. International experience is appreciated. Research experience and good communication skills are appreciated. Not have resided or carried out their main activity (work, studies, etc.) in Poland for more than 12 months in the 36 months immediately before the recruitment date. Non EU-candidates should have preferably an EU working permit.

Evaluated criteria –

- Study records, including Bachelor and Master
- Work & research experience
- Motivation
- Letters of recommendation
- Positive attitude, previous mobility experience, good communication skills
- English proficiency and other languages

Preferred starting date- June 2024 (as soon as possible)

Trial period – 6 months

Target degree - PhD degree from – **LUNDS UNIVERSITET**

Approximate gross salary –

The gross salary includes monthly allowances of EUR 3.400 (living), EUR 600 (mobility) and EUR 660 (family, if applicable), in agreement with the MSCA Doctoral Network financial regulations. These allowances are subject to compulsory deductions under national law, such as employer and employee social security contributions and direct taxes and also a country correction coefficient applies to the living allowance in order to ensure equal treatment and purchasing power parity for all researchers. Please check the applicable deductions in the respective country of the beneficiary

Working and living conditions –

Detailed information about Sweden: <https://www.oecdbetterlifeindex.org/countries/sweden/>

Detailed information about Spain: <https://www.oecdbetterlifeindex.org/countries/spain/>

LUNDS UNIVERSITET was founded in 1666. There are about 45,000 students and more than 8,000 employees in Lund, Helsingborg, Malmö and Ljungbyhed. We are united in our quest to understand, explain and improve our world and the human condition. Lund University is regularly ranked as one of the world's leading universities. Lund is one of the country's most attractive study locations, and have one of Scandinavia's broadest educational offerings based on boundary-crossing and leading research. Turnover amounts to SEK 9.9 billion, of which two-thirds goes to research and one-third to education. The university has a clear international profile with partner universities in around 75 countries.

Website: <https://www.lu.se/start>

UNIVERSIDAD CARLOS III DE MADRID: It is ranked 35th in the world and 12th in Europe in the QS ranking of the 50 best universities in the world under 50 years old and is included in THE academic ranking of universities. The UC3M also stands out for the high employability of graduates, which reaches 90.6%

Webpage: <https://www.uc3m.es/home>

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