

ANNEX II. PROPOSTA D'OFERTA EN PRÀCTIQUES EN EL MARC DE LA CONVOCATÒRIA D'AJUTS PER IMPULSAR LA SELECCIÓ D'ESTUDIANTS PER A LA REALITZACIÓ DE PRÀCTIQUES EN EMPRESES I CENTRES DE RECERCA EN PROJECTES EN L'ÀMBIT NEWSPACE

TÍTOL DE L'OFERTA: Smart Beam Control and Cell Mapping

DESCRIPCIÓ EMPRESA/ENTITAT (250 paraules

màx.)

Sateliot is a Barcelona-based Startup in the New Space sector, becoming the first satellite telecommunications operator that will provide global and continuous connectivity to all the elements that will make up the massive Internet of Things (IoT) universe under the 5G protocol. In order to do so, Sateliot is launching a constellation of last generation nanosatellites, located at low altitude that act as mobile towers. Sateliot is the perfect complement for large telecommunications companies by providing them with the necessary infrastructure where terrestrial technologies do not arrive.

DESCRIPCIÓ DE L'OFERTA (500 paraules màx.):

Data Analysis & Preparation

- Collect and process logs (RRC/PHY/MAC), RSSI/RSRP/RSRQ, GNSS, and payload telemetry.
- Synchronize and clean datasets for LEO/MEO scenarios.

Cell Mapping

- Build coverage/cell maps (heatmaps, Voronoi/hexbin, isocontours).
- Detect not-spots, overlaps, and handover boundaries.

Smart Beam Control (Applied R&D)

- Design heuristics or controllers (e.g., rule-based, multi-armed bandits, lightweight RL) for beam selection and power control.
- Evaluate latency, SNR/RSRP, connection probability, and energy consumption.

Simulation & Experimentation

- Run scenarios in ns-3/Matlab/Python, plus potential hardware-in-the-loop tests.
- Define synthetic datasets and key performance metrics (coverage precision/recall, BLER, drop rate).

Visualization & Reporting

- Create dashboards (Plotly/Matplotlib) with KPIs and A/B comparisons.
- Deliver bi-weekly executive readouts with actionable insights.

Documentation & Knowledge Transfer

- Maintain README, experiment logs, reproducibility guides, and recommendations.

REQUISITS DE PARTICIPACIÓ I CRITERIS DE SELECCIÓ:

- Bachelor/Master's in Telecom, Electrical Engineering, or Computer Science.
- Solid foundation in signals & systems, digital communications, and basic 5G/NR-NTN concepts (cell/beam, SSB, handovers).
- Proficiency in Python (pandas, numpy) for data and visualization.
- Technical English and clear documentation skills.
- Hands-on, analytical mindset with ownership.

CONDICIONS:

- Dedicació horària: 20/35 hores setmanals
- Durada conveni màxim: 300/1000 hores.
- Àrea: ex. NewSpace
- Data d'inici (**haurà de ser posterior a l'adjudicació de l'ajut**): 01/10/2025
- Ubicació: [Ctra. del Prat, 8, Distrito de Sants-Montjuïc, 08038 Barcelona](#)
- Jornada: Parcial/Completa
- Especificació de l'horari: 08:00h - 14:00h
- Adreça electrònica per enviar el CV: daniel.gallardo@sateliot.com