

Intern in Engineering Studies and Experimentation of Methods for Characterizing the RF Chain of GNSS Receivers

End-of-studies internship in the Engineering Cycle

Recognized throughout the world, Syntony GNSS is a Toulouse-based brand, labeled FrenchTech, focused on technological innovation in the field of GNSS.

Our goal? Pushing the limits!

Specializing in radio navigation and embedded systems, we are the world leaders in our field and present in many high-growth markets.

We have developed a range of products (simulators, receivers and indoor/outdoor location systems) that meet the growing needs of the aeronautics and space industries, but also those of public transport, rail and mining, or the rise of IoT (Internet Of Things).

Our customer base comprises industry leaders (such as Airbus, OneWeb, Airbus Safran Launchers, Thales Alenia Space, Honeywell, Rockwell, Stockholm, New York, Toronto metros, and many others...). Our solutions are constantly evolving to anticipate their future needs to strengthen our leadership and meet new challenges.

Thus, Syntony GNSS vibrates around three fundamental values:

- **Innovation as a guide**, to design the products and tools of tomorrow, in line with the real and evolving needs of our customers
- **The dynamism of our teams**, to adapt our strengths and talent to the quality of our solutions
- **Open-mindedness and inclusion**, to remain attentive to our customers, partners, and collaborators, to promote Humanism, equality, and the richness of multiculturalism.

From students to qualified professionals, help shape the future of boating with us. Work with experts, in a caring environment where your ideas can fly and your contributions fuel the synergy of the company.

In an international dimension, you participate in the challenges of today and tomorrow.

The Context

As part of several of these products, Syntony has developed various GNSS receivers, as well as a GNSS signal simulator, based on an SDR (Software Defined Radio) architecture.

Mastery of the pre-correlation RF chain (Amplification, Filtering and Digitization) is essential to achieve the high levels of performance required by certain applications. The objective of this internship is to propose and experiment (at least in part depending on the availability of the necessary instrumentation) methods for characterizing a GNSS receiver RF chain, and potentially in terms of:

- Group Delay and Differential Group Delay.
- Frequency response: Gain and Phase.

- Clock signal quality from its production to its distribution to the various RF channels.

What you'll accomplish with Syntony GNSS

You will join the R&D Innovation team and your internship subject will aim to propose and experiment (at least in part depending on the availability of the necessary instrumentation) methods for characterizing a GNSS receiver RF chain.

The objective is to define an initial approach to characterize the RF chains developed by SYNTONY for its receivers and to carry out, using these approaches, the characterization of certain receivers among the SYNTONY product range (ORION, FOX, AQUILA, ...).

To this end, various studies have been initiated within Syntony's R&D innovation division. In addition, Syntony has several means of measurement and advanced simulation (CONSTELLATOR GNSS signal simulator). They will be used for the development and testing of the approach.

The realization of the experimental characterization of the RF chain of at least one SYNTONY receiver is also part of the expectations of this internship.

The subject of the internship may evolve according to the themes depending on the candidate and the duration of the internship.

The technical skills we are looking for:

- Data analysis.
- Signal processing/estimation method.
- Python / Octave / Matlab.
- Knowledge of Navigation, GNSS System (GNSS receiver, positioning, orbitography, etc.) is a plus.
- Knowledge of Radio Frequencies and instrumentation of tests and measurements (Oscilloscope, Spectrum Analyzer)
- Technical curiosity, desire to learn, team spirit.
- Fluency in technical English and good writing skills in English/French
- A taste for experimentation and analysis of real data (critical thinking, autonomy, writing).

About you

Currently in the last year of the Aeronautics, Space, Embedded Systems, Electronics Engineering... or at the end of a Master's degree (with a specialization in space systems, GNSS, telecommunications, signal processing, electronics, RF, etc.), you are looking for an end-of-studies internship in the field of radio navigation and signal processing.

You have a solid foundation in mathematics and a strong appetite for theoretical studies with experimental application.

Your technical curiosity, your desire to learn and your team spirit will be the assets necessary for the success of your mission.

Are you interested in this topic? Apply and join a company that promotes innovation in the development of its unique products to design the products of tomorrow, dynamism, and open-mindedness in listening to and respecting its customers and employees.



Address to apply under reference ENG-636-FR: jobs@syntony.fr

Or on our website [Job Offers Archive - Syntony](#)