Post-doctoral OFFER

Study of Systems and Self-alignment Algorithms for Point to Point Microwave Links

Context:

Nowadays point-to-point or point-to-multipoint microwave links allow to extend telecommunication networks quickly and with great flexibility. Thanks to new frequency bands and high gain antennas, data rates can be extremely important while having very low noise levels. In such networks, antenna alignment for line-of-sight radio links is currently performed manually (for installation by operators and during the life of the product if realignment is necessary).

For future 5G networks, new self-aligning techniques must be implemented not only to ease installation of these new radio-frequency full outdoor units, but also during the operational phase. Consequently steerable antenna beams and frequency channel allocation will require dynamic management of these microwave links for better efficiency. Self-alignment issues concern both passive antennas - oriented electromechanically - and active antennas - where an array of n × m radiating elements is electronically controlled.

IETR (www.ietr.fr) and RFS (http://www.rfsworld.com/), a world leader global designer and manufacturer of antenna systems, propose jointly a post-doctoral research project dealing with the Systems and Self-alignment Algorithms for Point to Point Microwave Links.

Description of work: the project is organized into six phases:

1. Bibliography study of different topologies of antenna systems with self-alignment capabilities, and study of localization algorithms and their associated dynamic settings.
2. Critical comparison of these topologies based on different criteria (like feasibility and technological readiness, implementation complexity, potential costs, etc.).
3. If necessary, proposals for changing existing technologies and / or suggestion of new system topologies, as well as their associated algorithms.
4. Selection of the most promising topologies, system-level theoretical study and simulations.
5. Implementation of proof of concept: development of a demonstrator, operational test in realistic conditions
6. Comparative and final evaluation.

Requested skills: The candidate should hold a PhD degree or be an expert with significant experience in the fields of signal processing and telecoms, and / or antennas. A good level of spoken and written English is required.

Start date: June 2016   **Duration:** 1 year

Place: IETR - la Roche-sur-Yon site, with frequently travels to IETR (Rennes site) and RFS (Trignac site).

How to apply? Applicants should contact :

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Please send a detailed CV, a covering/motivation letter, and at last one recommendation letter.