

# Foreword

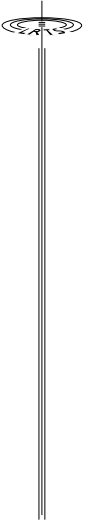
## **Radiocommunication and Signal Processing Laboratory**

The Radiocommunication and Signal Processing Laboratory (LRTS) has for objective to coordinate efforts and to integrate research projects in the vast field of radiocommunications and signal processing. This has lead to the development of a successful research group, counting more than twenty graduate students and researchers supported by an able core of six professors (M. Lecours, D. Angers, G.-Y. Delisle, P. Fortier, D. Grenier, T.H. Huynh). The laboratory enjoys the benefit of collaborating with a number of external institutions. The laboratory counts one Adjunct Professor, Dr. Éloi Bossé, Defence Research Establishment, Valcartier.

The present main themes of research at the laboratory are digital personal and mobile communications, communications and signal processing, microwave circuit and antenna array technology (NSERC Tehnological Partnership Grant with Davicom Technologies Inc., Nortel grant), outdoor-indoor channel interface in personal communication systems (PCS), radar signal processing and systems, data fusion (NSERC Collaborative Project with Lockheed Martin Canada). The laboratory and/or its members members are funded by FCAR and NSERC, the Quebec and Canadian Government granting agencies for academic research and participate in the Canadian Institute of Telecommunication Research (CITR), one of the federally funded National Centres of Excellence networks.

The research program in “Data Fusion” focuses on “multi-sensor and multi-platform” fusion of data coming from different sensors and different sensor types. The NSERC collaborative project with Lockheed Martin Canada focuses specifically on the Fusion of imaging and non-imaging sensors. Important progress has been made this year on three fronts: the development of an identification method using the utility measure of the identity declarations in the Dempster-Shafer algorithm, the development of a data base and of neural network based identification techniques for merchant ships, and the implementation of a software package facilitating the conceptual exploration of data fusion methods and algorithms.

The research project in antenna arrays funded by the NSERC Technology Partnership Program with Davicom Technologies aims at developing a switched beam antenna for satellite mobile communication. Functional prototypes have been implemented this year and work is being pursued to optimize performance and to design the antenna array controler. The laboratory benefits from a grant from Nortel to strengthen ongoing activities at Laval University in the general field of microcellular communications, and specifically for microwave and millimeter wave antennas, antenna arrays and components.



The laboratory endeavours to maintain a strong experimental and/or application-oriented research program while staying at the forefront in fundamental research, where the themes of research have often their root in problems encountered in the more practically-oriented projects. These activities are highly motivating for many graduate students. The laboratory has a successful history of industrial collaboration.

The laboratory is also in good position to collaborate with colleagues and fellow researchers in signal processing and microwave instrumentation, as well as in the neighbouring fields of photonics and VLSI.

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