

UNIVERSITY OF MANITOBA

Institute for Technological Development
University of Manitoba
Winnipeg, Manitoba
R3T 2N2

Contact: Ray Hoemsen, P.Eng., Director
Tel: (204) 474-6200 **Fax:** (204) 261-3475

Capabilities: The University of Manitoba has several research centres involved in space-related research and development, and actively seeks industrial collaboration.

The **Geophysical Imaging Laboratory** has the capability of developing software and processing a variety of airborne and satellite-borne geophysical and remote sensing data. The lab also has complete processing and imaging capability for conventional and high resolution seismic data for earth subsurface tomography, with applications in non-renewable resource exploration and studies of cold regions and potential nuclear waste disposal sites. Researchers are also developing new spatial artificial intelligence/expert systems for integration/imaging of large volume spatial information, such as global satellite data.

The Department of **Mechanical and Industrial Engineering** has expertise in the areas of aerospace materials, microgravitational processes and mechanisms (kinematics, robotics, manipulator systems). Materials research focuses on material testing and evaluation, failure analysis, fault detection process design, and special heat treating methods. Research into microgravitational processes includes investigations into material processes, heat transfer, fluid flow and microelectronic system cooling.

The Department of **Electrical and Computer Engineering**, has a major research focus on telecommunication, specifically antennas and electromagnetics. Research investigates electromagnetic/material interaction in space, electromagnetic theory, transient analysis of electromagnetics and inverse problems in electromagnetics. It also performs research and development relating to ultra large scale integrated circuits (ULSI).

The **Institute of Industrial Mathematical Sciences** on experts in applied mathematics, astronomy, and statistics to offer research and consulting services to the aerospace industry.

Keywords: Antenna, electromagnetic, Materials, Microgravity, Remote Sensing, Robotics, Solar Wind, Telecommunication, ULSI.

Major Clients: Government of Canada, Government of Manitoba, Swedish State Power Board, Atomic Energy of Canada Limited, Radarsat Project Office (CCRS), NSERC.