## **CRV SLAM Workshop 2010**

Simultaneous Localization and Mapping (SLAM) is a probabilistic technique that attempts to accurately localize a vehicle (without the aid of GPS) while generating a map of its environment. Unique environmental features (landmarks) are extracted from sensor data (laser scanner, LIDAR, video CCD, for example) and are tracked across time and used as constraints to improve a robot's pose estimate. This improved pose estimate is, in turn, used to improve the estimated pose/position of the unique landmarks. SLAM has been actively investigated in the robotics industry for the last 15 years.

A full day workshop exploring Simultaneous Localization and Mapping (SLAM) will be held in conjunction with the *Seventh Canadian Conference on Robot Vision* (CRV 2010). The workshop will explore concepts related to SLAM including basic formulation through to current state of the art techniques. Math is to be kept to a minimum with the focus on practical examples and key concepts. Goals of the workshop are to familiarize researchers with the core concepts of SLAM, to generate interest in academia for the SLAM problem, and to bring together Canadian SLAM researchers to explore possible collaborations.

We are inviting your attendance and participation in the SLAM CRV workshop either as an attendee or speaker. If you wish to present in one of the areas listed below or have suggestions for other SLAM related topics, please contact Jack Collier at jack.collier@drdc-rddc.gc.ca.

## **CRV SLAM Workshop Topics**

- Probability Theory
- Basic SLAM formulation (EKF)
- Feature Detection
- Advanced Data Association Techniques
- Particle Filter SLAM (FastSLAM)
- Loop Closing techniques
- Sub-mapping/hybrid mapping techniques
- Vision Based SLAM
- Appearance Only SLAM
- Cooperative SLAM
- SLAM in the field (Practical Considerations)
- Future Research Directions