

# CTFG Workshop 2011

## Technical Program

CANADIAN TRACKING AND FUSION GROUP WORKSHOP 2011 AT DRDC OTTAWA

3701 Carling Ave, Ottawa

Contact: **Tony Ponsford**, *Raytheon Canada*, [tony\\_ponsford@raytheon.com](mailto:tony_ponsford@raytheon.com)

**Jack Ding**, *DRDC Ottawa*, [zhen.ding@drdc-rddc.gc.ca](mailto:zhen.ding@drdc-rddc.gc.ca)

### 9 March 2011, DAY 1 (Tracking)

08:00 - 08:45 Registration

08:45 - 08:55 ANNOUNCEMENTS: **Jack Ding**, *DRDC Ottawa*

08:55 - 09:15 OPENING REMARKS: **Doreen Dyck**, *DRDC Ottawa*

09:15 - 10:15 INVITED LECTURER: **Fred Daum**, *Raytheon US*  
Industrial Strength Nonlinear Filters

10:15 - 10:40 Coffee Break, Refreshments provided by DRDC Ottawa

**Session Chair: Garfield Mellema**

10:40 - 11:00 PRESENTATION: **Thia Kirubarajan**, *McMaster University*  
Some Current Research Topics in Tracking and Fusion

11:00 - 11:20 PRESENTATION: **Derek Yee**, *Raytheon Canada*  
Tracking Through Extreme Manoeuvres That Last Less Than One or Two Sampling Intervals

11:20 - 11:40 PRESENTATION: **Abhijit Sinha**, *A.U.G.*  
Fault Tolerant State Estimation

11:40 - 12:00 PRESENTATION: **Xin Chen, R. Tharmarasa, Michael Pelletier and T. Kirubarajan**,  
*McMaster University / ICx Technologies*  
Integrated Clutter Estimation and Target Tracking Using JIPDA/MHT Tracker

12:00 - 12:10 GROUP PICTURE

12:10 - 13:00 Lunch: Executive Dining Room, CRC Cafeteria (not provided)

# CTFG Workshop 2011

## Technical Program

CANADIAN TRACKING AND FUSION GROUP WORKSHOP 2011 AT DRDC OTTAWA

9 March 2011, DAY 1 Continued (Tracking)

### Session Chair: Thia Kiruba

- 13:00 - 13:40 INVITED LECTURER: **Erik Blasch and Guna Seetharaman**, *AFRL/RI, AFRL/RILG*  
Performance Evaluation of Seismic and Acoustic Track and Identification Fusion
- 13:40 - 14:00 PRESENTATION: **Jack Ding**, *DRDC Ottawa*  
Illustration of Radar Resource Management Problems, Solutions and Evaluations through a Phased Array Radar Simulator
- 14:00 - 14:20 PRESENTATION: **Vikram Krishnamurthy**, *UBC*  
Stochastic Scheduling of Radars to Maximize Mutual Information
- 14:20 - 14:40 PRESENTATION: **Alain Gosselin and Yongkui Wang**, *RMC*  
Scheduling of Multi-Function Radars Based on Multicriteria Optimization
- 14:40 - 15:00 PRESENTATION: **Vikram Krishnamurthy**, *UBC*  
Stochastic Context Free Grammar Models for Meta-level Tracking and Intent Inference
- 15:00 - 15:20 Coffee Break, Sponsor: Larus Technologies

### Session Chair: Erik Blasch

- 15:20 - 15:40 PRESENTATION: **Garfield Mellema**, *DRDC Atlantic*  
Sonar Tracking from a Radar Perspective
- 15:40 - 16:00 PRESENTATION: **Chunsheng Liu**, *DRDC Atlantic*  
Multi-sensor Bearings-Only Tracking of a Manoeuvring Target
- 16:00 - 16:20 PRESENTATION: **Deniz Üstebay, Mark Coates and Michael Rabbat**, *McGill University*  
Distributed Auxiliary Particle Filters Using Selective Gossip
- 16:20 - 16:40 PRESENTATION: **Frederic Thouin and Mark Coates**, *McGill University*  
Radio-Tomographic Multi-Target Tracking
- 16:40 - 17:00 Panel Discussion: Fred Daum, Garfield Mellema, Thia Kiruba, Erik Blasch, Doreen Dyck
- 18:00 - 22:00 No-Host Dinner: Cocktails 18:00 – 18:30 and Dinner 18:30 – 22:00.

# CTFG Workshop 2011

## Technical Program

CANADIAN TRACKING AND FUSION GROUP WORKSHOP 2011 AT DRDC OTTAWA

10 March 2011, DAY 2 (Fusion)

08:45 - 09:00 Registration

09:00 - 09:15 ANNOUNCEMENTS: **Jack Ding**, *DRDC Ottawa*

09:15 - 10:15 INVITED LECTURER: **Pierre Valin**, *DRDC Valcartier*  
High Level Information Fusion Developments, Issues, and Grand Challenges

10:15 - 10:40 Coffee Break, Sponsor: Raytheon Canada Limited

**Session Chair: Rami Abielmona**

10:40 - 11:00 PRESENTATION: **Bhashyam Balaji**, *DRDC Ottawa*  
Overview of DRDC Ottawa's Airborne Surveillance Radar R&D Activities

11:00 - 11:20 PRESENTATION: **Jack Ding, Bhashyam Balaji, Pascale Sevigny, and Shen Chiu**, *DRDC Ottawa*  
Opportunities of Using Real Data: Defence Research and Development Canada - Ottawa (DRDC Ottawa) Perspective

11:20 - 11:40 PRESENTATION: **Pierre Valin, Adel Guitouni, Eloi Bossé, Hans Wehn and Jens Happe**, *DRDC Valcartier*  
High-Level Information Fusion and Resource Management: Experiments within INFORM Lab

11:40 - 12:00 PRESENTATION: **Elisa Shahbazian**, *OODA*  
High Level Information Fusion, Requirements, Capabilities, Issues

12:00 - 13:00 Lunch: Executive Dining Room, CRC Cafeteria (not provided)

**Session Chair: Pierre Valin**

13:00 - 13:40 INVITED LECTURER: **Tony Ponsford**, *Raytheon Canada*  
Effective Maritime Domain Awareness Based on Appropriate Layered Surveillance and a Multilevel Decision Support System

13:40 - 14:00 PRESENTATION: **Dan Peters**, *DRDC Atlantic*  
Flexible Association / ID-Aided Tracking

14:00 - 14:20 PRESENTATION: **R. Tharmarasa, Mike McDonald and T. Kirubarajan**,  
*McMaster University /DRDC Ottawa*  
Tracking and Fusion Algorithms for Passive and Active Multistatic Sensor Networks

14:20 - 14:40 PRESENTATION: **Rami Abielmona**, *Larus Technologies*  
Intelligent Territorial Security Using Sensor Networking and Data Source Fusion

14:40 - 15:00 PRESENTATION: **Michel Pelletier and Pierre Poitevin**, *ICx Technologies*  
Validation of Detection and Tracking Performance for Perimeter Surveillance Radars

15:00 - 15:20 Coffee Break, Sponsor: Raytheon Canada Limited

# CTFG Workshop 2011

## Technical Program

CANADIAN TRACKING AND FUSION GROUP WORKSHOP 2011 AT DRDC OTTAWA

### 10 March 2011, DAY 2 Continued (Fusion)

#### Session Chair: Elisa Shahbazian

- 15:20 - 15:40 PRESENTATION: **Yifeng Zhou**, *CRC*  
Mobile Beacon Based Localization Approaches for Wireless Sensor Network Applications
- 15:40 - 16:00 PRESENTATION: **Eric Blasch and Zheng Liu**, *AFRL/RI, NRC*  
Image Fusion Performance Assessment for the Night Vision Application
- 16:00 - 16:20 PRESENTATION: **Eric Meger**, *ExactEarth*  
Global Satellite AIS Detection for Maritime Domain Awareness
- 16:20 - 16:40 PRESENTATION: **Mike McDonald**, *DRDC Ottawa*  
Application of Track Before Detect Against Fast Incoming Attack Craft (FIACs)
- 16:40 - 17:20 Panel Discussion: Pierre Valin, Rami Abielmona, Tony Ponsford, Elisa Shahbazian, Jack Ding

### 11 March 2011, DAY 3 (Demonstration)

- 08:30 - 08:45 Registration
- 08:45 - 09:00 ANNOUNCEMENTS: **Jack Ding**, *DRDC Ottawa*
- 09:00 - 10:00 INVITED LECTURER: *Raytheon IIS*  
DCGS - the next 5-years
- 10:00 - 11:40 DEMONSTRATION:  
Distributed Common Ground System
- 11:40 - 12:00 Coffee Break, Sponsor: Raytheon Canada Limited
- 12:00 - 12:40 DEMONSTRATION: **Rami Abielmona**, *Larus Technologies*  
Larus: Nexus Fusion Engine
- 12:40 - 13:40 DEMONSTRATION: **Thia Kiruba**, *McMaster University*  
High Performance Multitarget Tracker and Tracking/Fusion Testbed
- 13:40 - 14:20 Organizing Committee      Wrap up sessions