

Canadian UAS Community



By Wayne Crowe, President, Unmanned Systems Canada

Unmanned Systems Canada is the Canadian association representing the unmanned vehicle systems community. Unmanned Systems Canada was formed in Jan 2010 from the merger of UVS Canada and AUUSI-Canada, creating a single Canadian association. Corporate members of Unmanned Systems Canada are entitled to many benefits such as discounts for conference registration, exhibit fees and advertising and have their company logos and a 250 word description posted on our web site under Member Profiles. As of April 2010 the following Corporate Members had provided information for listing on the Unmanned Systems Canada web site www.unmannedsystems.ca.

Aerospace & Defence Industry Association of Newfoundland and Labrador (ADIANL)



The Aerospace and Defence Industry Association of Newfoundland and Labrador (ADIANL) facilitates the development of business opportunities in the Aerospace and Defence sector and acts as a common forum for all Newfoundland and Labrador aerospace and defence related companies, agencies and other interested stakeholders. ADIANL is focused on facilitating the enhancement of the industry in the following key areas:

1. Building stronger recognition for Newfoundland and Labrador's Aerospace and Defence industry within the Government of Newfoundland and Labrador and the Government of Canada;
2. Enhancing the profile and competitiveness of the provincial Aerospace and Defence industry in global markets;
3. Building strong relations with trade associations in other provinces; and
4. Identifying specific opportunities for the benefit of the industry in the Newfoundland and Labrador.

All ADIANL members have direct business activities in maintenance, manufacturing, training, repair, overhaul, security and/or IT in the Aerospace and Defence industry. www.adianl.ca

Aeryon Labs



Aeryon Labs provides intelligent robotic solutions to real-world problems. Our offering, the Aeryon Scout, is an innovative hovering aerial platform with integrated camera. The design is a small, lightweight system that enables the collection of high resolution digital imagery and real-time digital video from aerial vantage points. With a contained electric propulsion system, the Aeryon Scout is safe, quiet, and ideal for dense urban environments and covert applications. The rugged weather-proof modular design features tool-less assembly for rapid field deployment. The Aeryon Scout is capable of both outdoor and indoor flight. The system is a professional tool capable of fully autonomous map-based navigation through a touch-screen user interface, or intuitive manual control requiring minimal user training. Multiple safety features along with ease of flight allow the user to focus on the task at hand, collecting data. The applications are almost endless including civil, commercial and military; from surveillance, both covert and overt to inspection and data gathering. Aeryon Scout the aerial platform for everyday use. www.aeryon.com

Canadian Centre for Unmanned Vehicle Systems



The Canadian Centre for Unmanned Vehicle Systems (CCUVS) is a federally registered not for profit company, whose purpose is to facilitate sustained, profitable growth in the Canadian unmanned vehicles systems sector. CCUVS is governed by a Board of Directors, drawn from across Canada, representing academia, industry and government and working in air, ground and maritime unmanned systems environments. Head Office staff members are based at Medicine Hat Airport, Alberta, with other staff positions in Ottawa and elsewhere. CCUVS' activities and services include: unmanned systems standards work, influencing research, applications and technology solutions development, expanded learning and skills, provision of facilities (such as access to test ranges and UAS launcher services), publishing studies, consultancy, promoting civil and commercial use of unmanned systems and stimulating Canadian economic growth. www.ccuvs.com

CDL Systems



CDL Systems Ltd. is a world-leader in the development of control software for unmanned vehicle systems. Based in Calgary, CDL Systems has developed the Vehicle Control Station (VCS) software suite - a fully integrated command, control, and information system designed for operating unmanned vehicles for remote surveillance applications. The unmanned vehicle industry is a rapidly growing technology sector. Applications range from autonomous crop-dusting and pipeline surveying to high-altitude, long-endurance military surveillance operations. VCS is in use internationally to control Unmanned Aircraft Systems (UAS), land mine detection ground vehicles, and air/sea target drones. VCS is the exclusive control software for the U.S. Army One System® Ground Control Station. With over 300,000 flight hours controlling the RQ-7 Shadow® 200 and 10,000 hours controlling the MQ-5B Hunter to date, VCS is now the choice for the U.S. Army's MQ-1C Sky Warrior® ER/MP program. VCS provides operators with real-time situational awareness and integrates all control and monitoring functions to achieve mission effectiveness. Operators use VCS to control and manage multiple vehicles, sensor platforms, and data links from as little as one workstation. In an effort to develop a commercial off-the-shelf (COTS) vehicle control solution we have developed VCS-4586, the first NATO STANAG 4586 compatible commercial off-the-shelf vehicle control solution for unmanned applications. VCS-4586 assumes control of vehicles connected to a STANAG 4586 compatible VSM or communicates directly with vehicles that natively support the STANAG 4586 protocol. Driven by the complex and evolving needs of unmanned vehicle operators, CDL Systems is and will continue to be on the leading edge of control software solutions. www.cdlsystems.com

Deep Vision



Deep Vision provides custom UAS solutions in:

- Guidance, Navigation, and Control
- Bandwidth Minimization

- Automatic Target Recognition
- 3D Target Geo-location
- Sense and Avoid / Search and Destroy
- In-situ Refuelling

Deep Vision develops machine perception capability and sensor exploitation systems. Our unique abstraction-based technology enables sensor-dependent systems to detect, recognize, and interpret objects in unconstrained environments. With blazing speed. www.deepvision.ca

Draganfly Innovations



Draganfly Innovations Inc. creates machines that make a difference in the world. With a dynamic range of camera payload options, Draganflyer helicopters are the perfect platforms to provide the big picture for a critical incident, search and rescue, aerial photography or video production. The semi-autonomous, back-packable, electric powered helicopter systems are equipped with a sophisticated autopilot making them easy to operate. Draganfly didn't invent the helicopter but we have made it better. www.draganfly.com

ING Engineering



ING Engineering Inc. is a leader in the provision of comprehensive solutions to intelligence and security problems. Focused in the fields of Intelligence, Surveillance, Reconnaissance (ISR) and Unmanned Vehicle Systems (UVS), ING Engineering Inc. provides expert services in the areas of:

- Unmanned Aircraft System (UAS) Engineering Services
- Capability Engineering
- Information Systems Requirements
- Complex Systems Architectural Design

www.ingengineering.com

InnUvative Systems Inc



InnUvative Systems Inc. is an engineering and software development company specifically targeted at the unmanned vehicles industry. With locations in Ontario and Alberta, InnUvative Systems Inc. utilizes a distributed development environment that allows collaborative development from anywhere.

InnUvative Systems Inc. was founded by three highly accomplished engineers with over 21 years combined unmanned vehicle experience and 9 years military experience. InnUvative Systems Inc. combines the responsiveness of a small company with the experience and proven engineering skills of highly accomplished individuals. InnUvative Systems Inc. offers a complete end-to-end software development capability coupled with extensive knowledge of the unmanned vehicles problem space, including relevant standards such as STANAG 4586 and the Joint Architecture for Unmanned Systems (JAUS). www.innuvativesystems.com

L-3 Communications MAS



L-3 MAS is one of Canada's in-service support leader, dedicated to providing governments and their armed forces unequalled support in maintaining, managing, modernizing and extending the service life of aircraft fleets. Canada and international customers have relied on L-3 MAS for decades of support of major weapons systems, including:

- 20 + years of CF-18 Hornet in-service support
- ISS prime for the CH-148 Cyclone
- 40 + years of UAV heritage

L-3 MAS employs over 900 skilled professionals at operating

centers in Mirabel, Cold Lake, Ottawa, Trenton, Bagotville, Shearwater and Williamstown (Australia), Geilenkirchen (Germany) and Mestre (Italy). L-3 MAS is fully accredited for aircraft airworthiness, maintenance, repair and material management.

L-3 MAS has 40 + years of experience in UAVs:

- Pioneer in the field of UAVs in Canada and NATO
- OEM (under previous ownership) for the CL-89, CL-289, CL-227 and CL-327, with over 700 air vehicles sold worldwide
- Service provider of fielded platforms
- Participated in the definition of test parameters with Canadian Forces Experimentation Center
- Member of Working Groups with TC, DTA and NAV Canada to define operating authority in Commercial Airspace
- Deployed the CL-327 throughout Canada, in Europe, in Australia, in the United States and on ships.
- Provided in-country logistics support for the Pacific Littoral Experimentation (PLIX)

www.l-3com.com/mas

L-3 Wescam



communications
WESCAM

L-3 Wescam is the industry-leader in capturing stabilized; high-magnification images for long-range Intelligence, Surveillance and Reconnaissance (ISR) applications from airborne platforms. Wescam's MX-Series™ is the industry's only modular family of turreted EO/IR/Laser systems. The family includes the MX-10, MX-15, MX-15i, MX-15D, MX-15 True HD, MX-20, MX-20D and MX-20 True HD. Utilizing flight-proven commercial off-the-shelf technology, each turret is configured specifically to our customer's specifications to provide the most advanced multi-spectral detection capabilities for their mission profile. Sensor options include: Electro-Optical, Infrared imaging, Laser illuminators, Rangefinders, and Designators. Technologies include: 24/7 EO imaging, 1080p HD resolution, Enhanced Local Area Processing (ELAP) for Increased standoff range, Improved feature recognition & haze penetration.

New to the MS-Series product line in 2009 is the small, but powerful MX-10: 37 pounds, < 14" tall, high stabilization with 4 active axis, six sensor payload, compatible existing MX-Series command & control, moving map, SLASS & radar interfaces. WESCAM's solutions are utilized by the world's most discerning customers, with over 1,300 fielded systems on over 100 different platforms worldwide. Within an AS9100 and ISO 9001:2000 quality environment, Wescam's products have proven themselves under severe operating conditions ranging from high temperature desert combat environment of Afghanistan and Iraq to frozen Alaskan maritime patrol duties. Wescam continues to invest heavily not only in product development, but also in customer care. From single operator configurations to complex, multi-operational systems, the following support infrastructure is in place to support Wescam's customers: Worldwide Service Centers, 24 hour dispatchable Field Support Representatives, MX-Raid Diagnostic testing.

www.l-3com.com/wescam

Mannarino Systems & Software



Mannarino Systems & Software (MSS) is a research & development engineering firm specializing in safety-critical systems and software for the aerospace, defense and power generation industries. Our engineering expertise includes gas turbine engine controls, avionics, unmanned vehicle systems, ground support equipment software and industrial power generation applications. Founded in 1999, MSS has contributed towards the research and development of safety-critical control systems and software for some of the world's largest aerospace companies including airframe manufacturers, gas turbine

manufacturers, avionics OEMs and UAV companies. Clients include Goodrich Corporation, Honeywell Aerospace, Williams International, Rolls-Royce, Pratt & Whitney Canada, Bell Helicopter Textron, Turbomeca, Cessna, Thales Canada, CMC Electronics (Esterline) and CDL Systems. Our engineering expertise covers a wide range of capabilities from control system configuration/specification/verification, to dynamic analysis and control loop design, to embedded software design and verification for application software as well as operating systems. MSS developed systems/software have achieved certification in Canada (TC), the US (FAA) and France (EASA) and in November 2008 achieved ISO 9001:2008 certification. Through its strong customer focus and professionalism, MSS prides itself on delivering cost-effective, world class engineering. www.mss.ca

Meggitt Training Systems Canada



Meggitt Training Systems Canada (MTSC) provides a complete training package for high quality weapon simulation and training programs to improve the skills of military, law enforcement and security personnel. These training systems include platforms, scoring systems, payloads, simulation and design of specialty systems to meet specific customer requirements. MTSC now has two facilities in Canada. The Targets and Unmanned Vehicle Group in Medicine Hat, Alberta and the Weapons Training Simulation Group (Formerly FATS) in Montreal.

MTSC Medicine Hat has been the Canadian leader in targets and unmanned vehicles for over twenty years. We provide our customers with the most complete and up-to-date line of Targets, Target Systems and Unmanned Vehicles. MTSC is the only Canadian company to offer a full range of air, land, and sea target systems with the associated scoring and data analysis training tools. MTSC has supported DND in meeting their training needs by providing design, development, testing and operation of land, sea and air platforms for over twenty (20) years. Recently MTSC developed a surrogate UAV Trainer for the Canadian Army and conducted UAV Training courses for them. In 2006 MTSC completed development of a new target that replicates the Fast Inshore Attack Craft (FIAC). This system will now allow our Navy to train against one of the major maritime threats, the «SWARM» attack. MTSC's Hammerhead System allows operation of sixteen (16) seaborne platforms simultaneously.

www.meggitttrainingsystems.com

Norleans Technologies Inc



Norleans Technologies Inc. specializes in the delivery of proven mobility and deployment solutions for domestic or international military, emergency response and security operations. Norleans offers the full line of composite, air mobility specialized, PALCONS and Modular Mobility Containers (WILLARDS) designed for 463L pallet use. Norleans provides the outfitted or empty BICON, TRICON, QUADCON and 20 ft family of steel sea containers. Norleans offers the WEW line of fuel and water ISO Tank Sea Containers.

To meet the military construction requirements including Airfield Battle Damage Repair needs Norleans provides the proven HYDREMA line of construction vehicles. This includes armored cabs, a CC130 transportable Mine Clearing Vehicle, off road, high mobility dump trucks with hook cranes for containers and CROPs and the MultiPurpose Vehicles (MPV). For aircraft airlift needs, Norleans offers the AAR Mobility Systems lightweight deployable containers (Airlift Specialized), accessories and shelter systems including ISU® 60 / 70 / 80 / 90 / 96 Containers and air cargo pallets. This line includes a full line of 20 ft. fixed and single and double expandable sea container shelters plus other specialty vehicle shelters.

Other logistics solutions include LoadTamer Cargo Restraint nets, 100 % recycled plastic pallets and the LOCKGRID family of Surface Solutions for field vehicle maintenance shop floors, temporary parking lots, roadways, deployment camps and erosion control. The Concrete Canvas line of shelters and material is available to meet remote shelter and airfield construction needs. Norleans offers the DND standardized RF / EMI shielded CSA approved shelter lighting. www.norleanstech.com

Provincial Aerospace Ltd



Provincial Aerospace Ltd (PAL) is a Canadian aerospace and defence company based in St John's Newfoundland with operations centers across Canada and in a dozen countries internationally. PAL is the preeminent private provider of maritime ISR operations to the Canadian government and private industry. Our modification facility has completed system designs, installations, and integration on a large number of aircraft for foreign government and paramilitary organizations around the world. PAL, is the owner, operator of the Goose Bay UAS Test and Coordination Facility in Labrador. This facility provides our customers a full service center for UAS testing and training with access to nearly 150,000 square kilometers of unencumbered airspace. PAL is the first Canadian private company to operate a mixed fleet of manned and unmanned surveillance aircraft, our experience is paving the way towards routine UAS operations in Canada and has established PAL firmly in the UAS operations arena.

www.provinciaaerospace.com

Memorial University of Newfoundland and Labrador Raven Project



The Remote Aerial Vehicles for ENvironmental Monitoring (RAVEN) is a model airplane that will be used autonomously for offshore applications. The project will be the first application of commercial UAV surveillance in Atlantic Canada and will aid greatly in the areas of environmental monitoring, search and rescue, and national security. RAVEN, which is a collaborative research project between the Faculty, Provincial Airlines Ltd., the Atlantic Canada Opportunities Agency and the two National Research Council laboratories: Institute for Aerospace Research and Institute for Ocean Technology, will allow researchers to pursue research and development on autonomous vehicles over four different industrial sectors: aerospace, mining, marine and subsea, based on a common technology.

www.eng.mun.ca