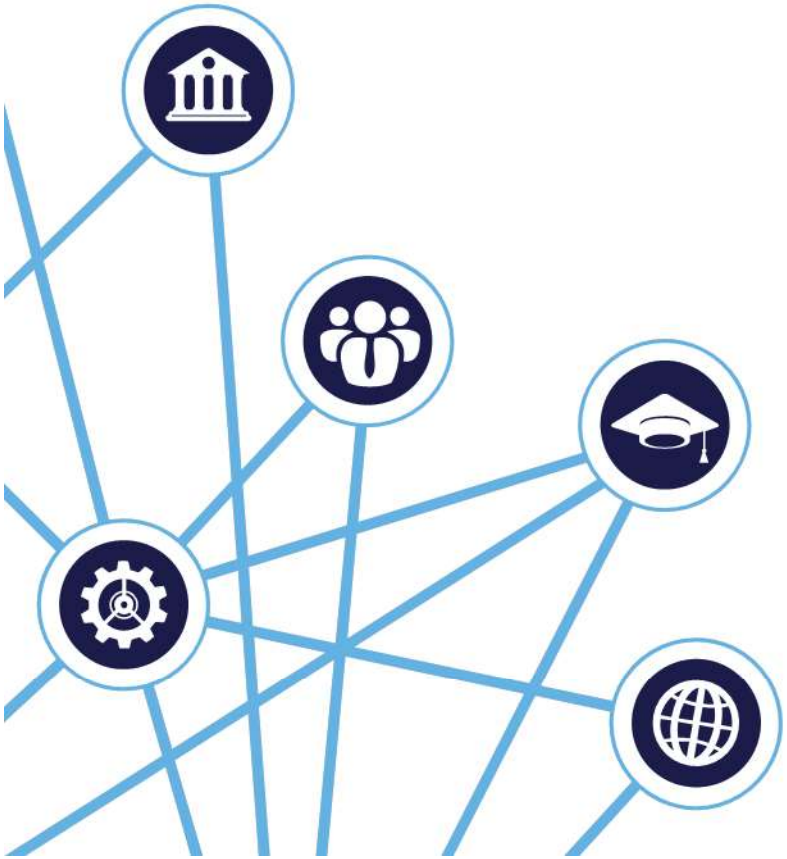


PROJECT IDEAS SESSION

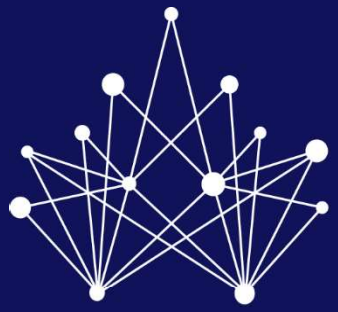
CARIC

CONSORTIUM FOR AEROSPACE RESEARCH AND INNOVATION IN CANADA

CONSORTIUM EN AÉROSPATIALE POUR LA RECHERCHE ET L'INNOVATION AU CANADA

FUNDING PARTNER | PARTENAIRE FINANCIER

Industry Canada Industrie Canada



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CONSORTIUM FOR
AEROSPACE RESEARCH AND
INNOVATION IN CANADA

CARLETON UNIVERSITY

VISUALIZATION & SIMULATION (VSIM) ADVANCED COGNITIVE ENGINEERING (ACE) LABORATORY

Dr. Chris Herdman

Presented by Murray Gamble, Carleton University

NEXT GENERATION FLIGHT TRAINING TECHNOLOGIES

PROJECT THEME
AVIO-1501_TRL4+

Descriptions of the Need & Research Objectives

Need:

Simulation-based training systems require complex immersive visual environments (i.e., display systems). A traditional approach is to use a large dome with many projectors. This approach is cost prohibitive, expensive to maintain, requires a physically large and fixed installation, requires expensive and complex computing resources, and yet ultimately suffers from limitations in field-of-view, resolution and visual characteristics (e.g., brightness and contrast). These display systems can easily exceed $2M.

This research activity proposes to build on a current Ontario Centres of Excellence (OCE) project to expand the scope of implementation and to improve the maturity of a technical solution based upon a next generation Blended Virtual Reality (VR) training system that leverages emerging low-cost technology.

DURATION
2 years

TRL Level start
4

TRL Level end
6

Research Objectives: Progress the technology from TRL~4 to TRL6

- Further mature immersive visualization and emerging motion/own-body tracking technologies
- Expand scope of training system implementation
- Test training performance and effectiveness via comparative experimentation (i.e., compare new technology and traditional technology)
- Develop commercial exploitation plan (based upon Discovery Air Defence training business model)

NEXT GENERATION FLIGHT TRAINING TECHNOLOGIES

PROJECT THEME
AVIO-1501_TRL4+

Expertise sought

- Pilots to assist in ensuring operational relevance
- Modeling and simulation platform technology to support maturation of technical solution
- Media development capability to improve the visual fidelity of the simulation
- Technical expertise in passive motion tracking of body/hands

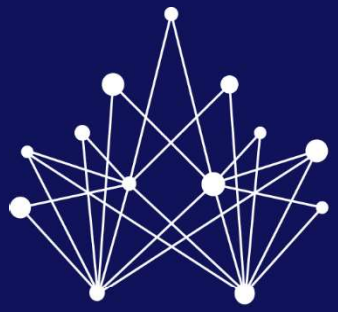
DURATION
2 years

TRL Level start
4

TRL Level end
6

Potential Partners

- Discovery Air Defence – Confirmed
- Lockheed Martin Canada - Confirmed
- McGill University – Not confirmed
- NRC - Not confirmed



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CONSORTIUM FOR
AEROSPACE RESEARCH AND
INNOVATION IN CANADA

CARLETON UNIVERSITY

BETTER SOFTWARE VERIFICATION

Yvan Labiche, Associate Professor

Presented by Cédric Prince, CARIC

BETTER SOFTWARE VERIFICATION

PROJECT THEME
MDO-711

Descriptions of the Need & Research Objectives

Engineering Problem

- Engineers lack proven, experimental data to select adequate software verification/testing techniques
- What evidence do we have to help choose a technique?
- What testing technique is better than another (in context)?
- To address certification/qualification requirements?

DURATION
3 years

TRL Level start
2-4

TRL Level end
4-6

Research Objectives

- More experimental work is needed to provide evidence about cost and effectiveness (e.g., at finding faults)
- Experimenting with several testing techniques on several case studies, from several partners

BETTER SOFTWARE VERIFICATION

PROJECT THEME
MDO-711

Expertise sought

Software testing

- Various levels (unit/integration/system, HLR/LLR, performance/robustness/…)
- Test harness construction
- Various testing techniques

Other software verification techniques than testing

DURATION
3 years

TRL Level start
2-4

TRL Level end
4-6

Potential Partners

Any industry partner involved in avionics

- The more the merrier

Any academic doing testing/verification

CARIC

CONSORTIUM FOR
AEROSPACE RESEARCH AND
INNOVATION IN CANADA

CASCADE AEROSPACE

PAINT STRIPPING & PAINTING OPTIMIZATION

Marty Witt

PAINT STRIPPING / APPLICATION PROCESS, WASTE AND TIME OPTIMIZATION

PROJECT THEME
PLE-P-1501_TRL4+

Descriptions of the Need & Research Objectives

"Currently the Cascade paint process for paint stripping & painting a C-130 aircraft takes 26 calendar days. Cascade's objective is to reduce this time in half to 13 days. One of Cascade's customers is asking for 7 to 9 calendar days turn around as anything over results in penalties. Industry standard currently is 19 - 21 calendar days".

Improve the efficiency of Cascade Aerospace's paint removal and application process.

Reduce the hazards to personnel and reduce the hazardous waste in preparation, strip and paint process.

DURATION
1 year

TRL Level start
3

TRL Level end
5

PAINT STRIPPING / APPLICATION PROCESS, WASTE AND TIME OPTIMIZATION

PROJECT THEME
PLE-P-1501_TRL4+

Expertise sought

Cascade Aerospace requires subject matter experts in the field of:

- Paint removal and application process automation.
- Hazardous waste treatment/material processing.
- Paint manufacturing.
- Human behaviour and efficiency studies.

DURATION
1 year

TRL Level start
3

TRL Level end
5

Potential Partners

- UBC Okanagan - confirmed
- BCIT – not confirmed
- SFU – not confirmed
- NRC - confirmed
- Paint Manufacturers – not confirmed

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CONSORTIUM FOR AEROSPACE RESEARCH AND INNOVATION IN CANADA

ESTERLINE CMC ELECTRONICS INC.

REALTIME FLIGHT DATA MONITORING

Dave McKay

REALTIME FLIGHT DATA MONITORING

PROJECT THEME
AVIO-1502_TRL4+

Descriptions of the Need & Research Objectives

Need: Helicopters are subject to numerous aerodynamic phenomena that may place strain on the capability of the pilot to maintain adequate control. In many cases onset of these phenomena is not well-identified to pilots, and they are significant contributors to accidents and incidents. Efforts to mitigate such incidents/accidents have concentrated on collecting data for post-flight analysis, during which time adverse events may be detected, analyzed, and corrective measures (training, procedures) may be introduced directed at preventing future similar events.

This research activity proposes to develop real-time in-flight monitoring and analysis of flight parameters, both individual and in combination, that are potential precursors for accidents or incidents and notify crew accordingly to allow timely corrective action.

Based on CMC patent submitted 11 July 2014 (US Application # 62/023,332)

DURATION
2 years

TRL Level start
4

TRL Level end
6

Research Objectives: Progress the technology from TRL~4 to TRL7

- Identify cases of interest (nominally 5, see patent description)
- Identify relevant parameters
- Develop suitable algorithms
- Test in lab (using CMC Flight Management System CMA-9000)
- Test in simulation (using Carleton U VSIM/ACE lab flight simulation resources)
- Test on a prototype (using NRC FRL helicopter)
- Develop commercial exploitation plan (based on CMC FMS installed-base initially)

Esterline CMC Electronics Inc.

CARIC

REALTIME FLIGHT DATA MONITORING

PROJECT THEME
AVIO-1502_TRL4+

Expertise sought

- Pilots to assist in ensuring operational relevance;
- OEM to provide aerodynamic data and possibly assist in algorithm development
- Modeling and simulation for prototype evaluation
- Flight test capability for prototype evaluation in representative environment
- Experimental design expertise

DURATION
2 years

TRL Level start
4

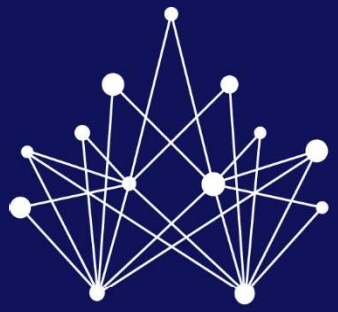
TRL Level end
6

Potential Partners

- Carleton University Visualization and Simulation (VSIM) Advanced Cognitive Engineering (ACE) Laboratory
- NRC Flight Research Laboratory
- Heli operator – CHC, Cougar, STARS, Ornge?
- OEM – Bell Helicopter Canada?

Esterline CMC Electronics Inc.

CARIC



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CONSORTIUM FOR
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INNOVATION IN CANADA

CANADIAN NUCLEAR LABORATORIES

STRESSES IN PROTECTIVE COATINGS FOR AEROSPACE APPLICATIONS

Michael A. Gharghouri

STRESSES IN PROTECTIVE COATINGS

PROJECT THEME
MANU-1501_TRL4+

Descriptions of the Need & Research Objectives

Coatings (≥75 μm thick) are used extensively in the aerospace industry to improve performance and prolong component life.

Residual stresses affect adherence to the substrate, and therefore performance.

Neutron diffraction allows us to measure stresses non-destructively in the coating and the substrate.

DURATION
2 years

TRL Level start
5

TRL Level end
6

Objectives are to:

1. Measure residual stresses in coating and substrate.
2. Determine how stresses in the coating and substrate are affected by applied stress and temperature.
3. Determine how the phase composition of the coating is affected by stress and temperature.

STRESSES IN PROTECTIVE COATINGS

PROJECT THEME
MANU-1501_TRL4+

Descriptions of the Need & Research Objectives

Applicable to many types of coatings:

- Ceramic
- Metallic
- Anything that has a crystal structure

In-situ method - **allows us to study how the coating material and substrate evolve with time under service conditions.**

- 100 kN axial load frame
- 50 kN / 100 Nm axial-torsional load frame
- Heating lamps

DURATION
2 years

TRL Level start
5

TRL Level end
6

STRESSES IN PROTECTIVE COATINGS

PROJECT THEME
MANU-1501_TRL4+

Expertise sought

- Coating technologies
- Design and manufacture of aerospace components

DURATION
2 years

TRL Level start
5

TRL Level end
6

Potential Partners

Providers of:

- Coatings
- Wing structures
- Jet engine components (blades, vanes, combustion liners…)
- Landing gear
- Actuation systems (pistons, pumps, flaps…)
- Regulatory agencies that evaluate quality and performance

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CONSORTIUM FOR AEROSPACE RESEARCH AND INNOVATION IN CANADA

CANADIAN NUCLEAR LABORATORIES

APPLICATION OF NEUTRON DIFFRACTION

Jintong Li

APPLICATION OF NEUTRON DIFFRACTION

OPTIMIZING LINEAR FRICTION WELD (LFW) PROCESS FOR MANUFACTURE AND REPAIR OF INC718 NICKEL-BASED SUPERALLOY COMPONENTS

PROJECT THEME
MANU-1502_TRL4+

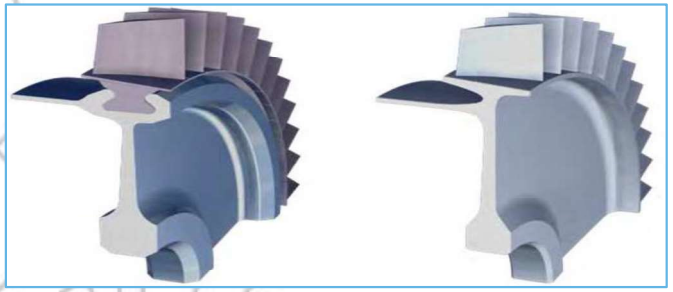
Descriptions of the Need & Research Objectives

- LFW is used to:
  - Weld blades directly to disks.
  - Repair components.
- Residual stresses caused by LFW can significantly influence the lifetime of the component.
- Need to quantitatively measure residual stresses in the as-welded and Post-Weld-Heat-Treated (PWHT) component.
- Use neutron diffraction to optimize the LFW and PWHT processes.

DURATION
3 years

TRL Level start
5

TRL Level end
6



Left: Traditional blade/disk assembly.
Right: New BLISK component

Canadian Nuclear Laboratories

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APPLICATION OF NEUTRON DIFFRACTION

OPTIMIZING LINEAR FRICTION WELD (LFW) PROCESS FOR MANUFACTURE AND REPAIR OF INC718 NICKEL-BASED SUPERALLOY COMPONENTS

PROJECT THEME
MANU-1502_TRL4+

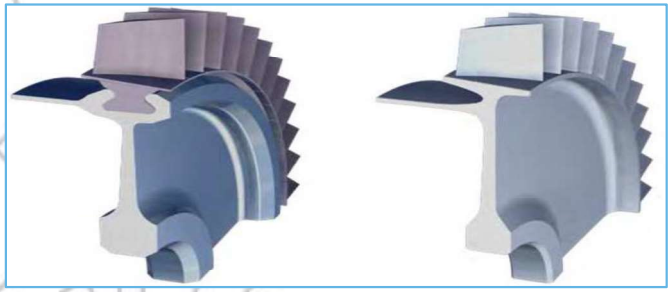
Descriptions of the Need & Research Objectives

- Neutron diffraction is a proven technique for stress analysis in the most challenging and safety-critical applications in the aerospace industry.
- Neutron diffraction effectively provides a 3D strain gauge that can be positioned accurately inside the bulk of full-sized components.
- Neutron diffraction measures elastic strains, which can be used to determine the corresponding stresses.
- Use neutron diffraction to optimize of the LFW process and PWHT.

DURATION
3 years

TRL Level start
5

TRL Level end
6



Canadian Nuclear Laboratories

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APPLICATION OF NEUTRON DIFFRACTION

OPTIMIZING LINEAR FRICTION WELD (LFW) PROCESS FOR MANUFACTURE AND REPAIR OF INC718 NICKEL-BASED SUPERALLOY COMPONENTS

PROJECT THEME
MANU-1502_TRL4

Expertise sought

- Residual stress characterization
  - CNL - Canadian Neutron Beam Centre
- Welding

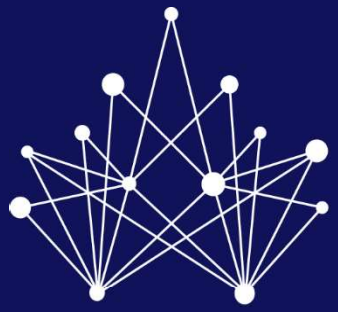
DURATION
3 years

TRL Level start
5

TRL Level end
6

Potential Partners - (not confirmed)

- Manufacturers of jet engine blades / disks
- Maintenance, repair & overhaul (MRO) providers.
- Universities (e.g. UBC Okanagan, Waterloo, Manitoba, ETS)



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CONSORTIUM FOR
AEROSPACE RESEARCH AND
INNOVATION IN CANADA

HIT DYNAMICS

DEVELOPMENT AND TESTING OF IMPACT- RESISTANT AEROSPACE STRUCTURES

John Spray (john.spray@hitdynamics.ca)

DEVELOPMENT AND TESTING OF IMPACT-RESISTANT AEROSPACE STRUCTURES

PROJECT THEME
DPHM-706

Descriptions of the Need & Research Objectives

The behaviour of aerospace materials and vulnerable components continues to require validation via high-speed impact testing

HIT Dynamics performs Foreign Object Debris strikes under controlled, highly reproducible conditions through applied use of advanced technology including:

- A suite of purpose built FOD and high speed impact guns
- State of the art Finite Element Analysis capacity to assist in computer modelling and development of new materials
- Digital Image Correlation matched with very high speed imaging
- Material analysis with Electron Microscopy and Micro Raman Spectrometry

Objectives:

1. Develop candidate materials that are more efficient
2. Test and prove new materials for their impact performance
3. Deploy new materials in next-generation aircraft and systems

Hit Dynamics

DURATION
2-3 years

TRL Level start
2

TRL Level end
5

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DEVELOPMENT AND TESTING OF IMPACT-RESISTANT AEROSPACE STRUCTURES

PROJECT THEME
DPHM-706

Expertise sought

Partners engaged in any stage of the development or manufacture of aero structures and materials that are subject to FAA defined impact threats and require agile, precise testing to advance the development of their concepts.

DURATION
2-3 years

TRL Level start
2

TRL Level end
5

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Potential Partners

Composite component manufacturers, landing gear manufacturers, engine manufacturers and OEMs.

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CONSORTIUM FOR AEROSPACE RESEARCH AND INNOVATION IN CANADA

HIT DYNAMICS

LIGHTER IMPACT-RESISTANT AND REFRACTORY MATERIALS FOR JET ENGINES

John Spray (john.spray@hitdynamics.ca)

LIGHTER IMPACT-RESISTANT AND REFRACTORY MATERIALS FOR JET ENGINES

PROJECT THEME
DPHM-707

Descriptions of the Need & Research Objectives

Development and testing of materials and components for turbine jet engines

HIT Dynamics performs Foreign Object Damage strikes under controlled, highly reproducible conditions through applied use of advanced technology including:

- A suite of purpose built FOD and high speed impact guns
- State of the art Finite Element Analysis capacity to assist in computer modelling and development of new materials
- Digital Image Correlation matched with very high speed imaging
- Material analysis with FESEM and Micro Raman Electroscope

Objectives:

1. Develop materials that enhance the efficiency of power units
2. Test new materials for suitability
3. Deploy new materials in next generation power units

DURATION
2-3 years

TRL Level start
2

TRL Level end
5

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Hit Dynamics

CARIC

LIGHTER IMPACT-RESISTANT AND REFRACTORY MATERIALS FOR JET ENGINES

PROJECT THEME
DPHM-707

Expertise sought

Knowledge of:

- Turbine engine performance
- Efficiency requirements and existing initiatives
- Component temperature gradient ranges
- Impact of system cycling
- Component stresses and strains

DURATION
2-3 years

TRL Level start
2

Potential Partners

- Refractory materials suppliers (e.g., ceramics, ceramic matrix composites, high-performance alloys)
- Engine manufacturers
- Tier 1 suppliers to engine manufacturers.

TRL Level end
5

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CONSORTIUM FOR
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PRATT & WHITNEY CANADA CORP.

ADVANCED MAINTENANCE MONITORING SYSTEM

Serafettin Engin, Ph.D.
Fellow, Metal Cutting - Machining Technology Development

ADVANCED MAINTENANCE MONITORING SYSTEM

PROJECT THEME
MANU-1503_TRL4+

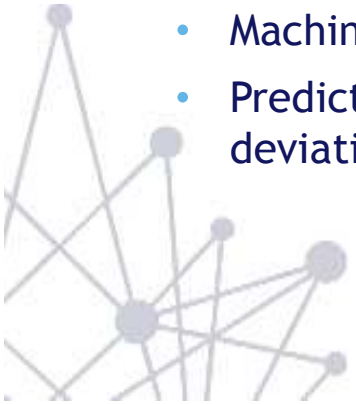
Descriptions of the Need & Research Objectives

- Developing advanced maintenance monitoring systems for machine tools in manufacturing
- Identify the key parameters for maintenance monitoring
- Machine tool condition monitoring
- Data collection and continuous analysis
- Machine condition history
- Prediction of Maintenance requirement before machine tool deviation in production

DURATION
2-3 years

TRL Level start
3

TRL Level end
6



ADVANCED MAINTENANCE MONITORING SYSTEM

PROJECT THEME
MANU-1503_TRL4+

Expertise sought

- Manufacturing
- Maintenance
- Machine monitoring
- Data analysis

DURATION
2-3 years

TRL Level start
3

TRL Level end
6

Potential Partners

- Aerospace component manufacturers
- Universities
- Research centers

Pratt & Whitney Canada Corp.

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CONSORTIUM FOR AEROSPACE RESEARCH AND INNOVATION IN CANADA

PRATT & WHITNEY CANADA CORP.

NEW MANUFACTURING PROCESS FOR LOW MACHINABILITY MATERIALS

Serafettin Engin, Ph.D.
Fellow, Metal Cutting - Machining Technology Development

NEW MANUFACTURING PROCESS FOR LOW MACHINABILITY MATERIALS

PROJECT THEME
MANU-1504_TRL4+

Descriptions of the Need & Research Objectives

New advanced machining strategies with high metal removal rate and high quality for low machinability materials

Machining of low machinability materials : Nickel based powder technology materials with less than 10% machinability

Acceptable surface integrity after machining for, critical, life-limited, rotating parts

DURATION
2-3 years

TRL Level start
3

TRL Level end
6

Pratt & Whitney Canada Corp.

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NEW MANUFACTURING PROCESS FOR LOW MACHINABILITY MATERIALS

PROJECT THEME
MANU-1504_TRL4+

Expertise sought

- Manufacturing
- Machining, cutting mechanics
- Metallographic microstructure evaluation

DURATION
2-3 years

TRL Level start
3

TRL Level end
6

Potential Partners

- Aerospace component manufacturers
- Universities
- Research centers

Pratt & Whitney Canada Corp.

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CONSORTIUM FOR
AEROSPACE RESEARCH AND
INNOVATION IN CANADA

STANDARD AERO

EVALUATION OF ADVANCED FUSION WELDING TECHNOLOGIES IN THE STRUCTURAL REPAIR OF ALUMINUM AND MAGNESIUM ALLOYS

Doug Roberge

EVALUATION OF ADVANCED FUSION WELDING TECHNOLOGIES IN THE STRUCTURAL REPAIR OF ALUMINUM AND MAGNESIUM ALLOYS

PROJECT THEME
DPHM-711_TRL4+

Descriptions of the Need & Research Objectives

conventional welding processes (TIG) used in aerospace manufacturing and repair typically do not offer sufficient repeatability, strength or control of distortion to meet acceptance standards for structural applications

Need to evaluate innovative high performance welding technologies for difficult applications of weld repair of magnesium & aluminum alloys

Performance of selected advanced fusion welding methods, namely Cold Metal Transfer (CMT), Electro-Spark Deposition (ESD), Laser Hybrid, and Laser Hot Wire Cladding, will be evaluated.

Evaluation and optimization of process parameters.

Characterization of metallurgical & mechanical properties.

DURATION
2 years

TRL Level start
3

TRL Level end
5

StandardAero

CARIC

EVALUATION OF ADVANCED FUSION WELDING TECHNOLOGIES IN THE STRUCTURAL REPAIR OF ALUMINUM AND MAGNESIUM ALLOYS

PROJECT THEME
DPHM-711_TRL4+

Expertise sought

- Manufacturer or MRO provider of Al and/or Mg products
- Interest in welding of these alloys using advanced techniques
- Knowledge of structural design considerations for aerospace components
- Process expertise for optimization of stated welding technologies.

DURATION
2 years

TRL Level start
3

TRL Level end
5

Potential Partners

- University of Manitoba – **confirmed**
- Red River College – **confirmed**
- Huys Industries Canada – **confirmed**
- Additional Industrial partner - ??

StandardAero

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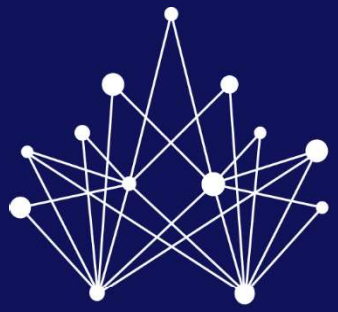

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CONSORTIUM FOR
AEROSPACE RESEARCH AND
INNOVATION IN CANADA

BOMBARDIER

ONE STEP ASSEMBLY

Alain Landry

Presented by Jonathan Hack

ONE STEP ASSEMBLY

PROJECT THEME
MANU-1505_TRL4+

Descriptions of the Need & Research Objectives

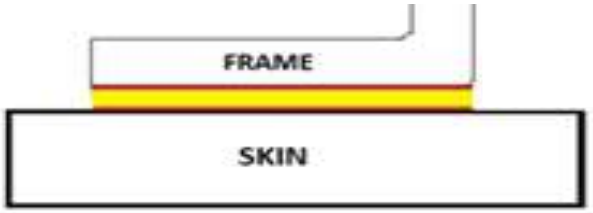
Develop an optimized process/material for structural assembly.

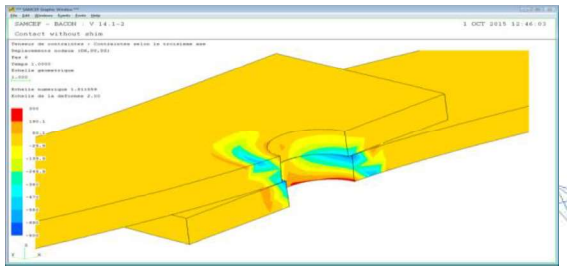
The research will develop a new material for shimming to perform assembly in one step (vs several steps today) and will analyze the effect of the shims on the assembly.

Mechanical Tests and simulation will be conducted to understand, characterize and optimize the shimming mechanism.

New Material will be tested to fulfill all severe environment conditions

BOMBARDIER
the evolution of mobility





DURATION
2 years

TRL Level start
3

TRL Level end
6

OPEN TO INTL

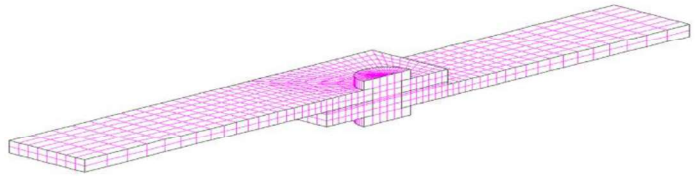
CARIC

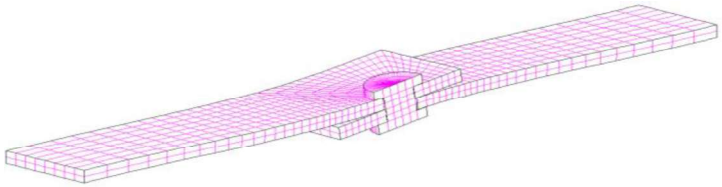
ONE STEP ASSEMBLY

PROJECT THEME
MANU-1505_TRL4+

Expertise sought

- Optimize assembly process
- Shimming characterization and simulation for various assembly
- Mechanical testing
- Material Characterization





Potential Partners

Bombardier

DURATION
2 years

TRL Level start
3

TRL Level end
6

OPEN TO INTL

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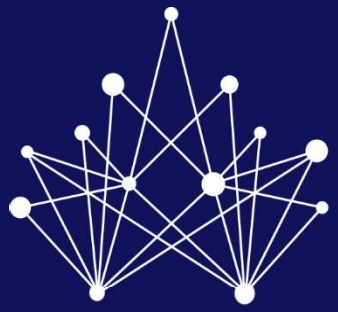

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INNOVATION IN CANADA

CAE INC.

UNDERWATER ACOUSTIC MODELING

Patricia Gilbert

Presented by Cédric Prince

UNDERWATER ACOUSTIC MODELING

PROJECT THEME

ENV-1501

Descriptions of the Need & Research Objectives

- Need: identify an optimal ocean model for real time sound propagation
- Research objectives:
  - Conduct a comparative study and benchmarking of existing ocean models/ underwater acoustic propagation models to assess their limitations, performances and characteristics against various criteria
  - Recommend optimizations to ensure the selected model is viable in a real time simulation context

DURATION

2 years

TRL Level start

3

TRL Level end

4

UNDERWATER ACOUSTIC MODELING

PROJECT THEME

ENV-1501

Expertise sought

- Strong knowledge in underwater sound propagation and models
- Significant network of contacts with universities, research centres and community of practice relevant to the research topics
- Object-oriented programming

DURATION

2 years

TRL Level start

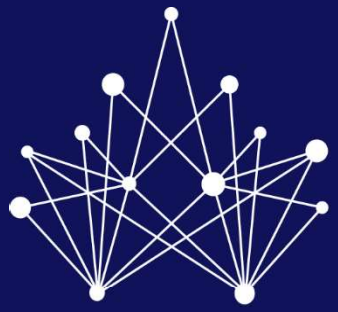
3

TRL Level end

4

Potential Partners

Universities, research centres



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CONSORTIUM FOR
AEROSPACE RESEARCH AND
INNOVATION IN CANADA

CAE INC.

COTS SENSORS FOR LEARNING PROGRESS ASSESSMENT

Patricia Gilbert

Presented by Cédric Prince

COTS SENSORS FOR LEARNING PROGRESS ASSESSMENT

PROJECT THEME

OPR-701

Descriptions of the Need & Research Objectives

- Explore novel methods of using COTS sensors to assess and quantify the progression of a trainee's learning in the context of flight simulation
- Use COTS sensors such as Kinect 2 for gaze tracking to assess visual activity in an aircraft cockpit environment
- Use COTS sensors such as brainwave readers, heart rate sensors or other physiological monitoring sensors to evaluate reaction and behavior during situational training
- Correlate various sensors inputs to contextualize cockpit activities and performance

DURATION

1-3 years

TRL Level start

2

TRL Level end

3

COTS SENSORS FOR LEARNING PROGRESS ASSESSMENT

Expertise sought

- Physiological monitoring
- Psychology
- Learning assessment

PROJECT THEME

OPR-701

DURATION

1-3 years

TRL Level start

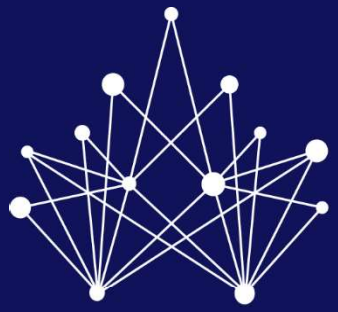
2

TRL Level end

3

Potential Partners

Industrial partners



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VARDEC

APPLYING VISUAL ANALYTICS FOR EFFECTIVE REAL-TIME DECISION-MAKING IN MANUFACTURING ENVIRONMENTS

Jean-Sebastien Mercier

APPLYING VISUAL ANALYTICS FOR EFFECTIVE REAL-TIME DECISION-MAKING IN MANUFACTURING ENVIRONMENTS

PROJECT THEME
MDO-1501_TRL4

Descriptions of the Need & Research Objectives

Need: To better understand the use of available data for real-time decision-making during composite component manufacturing.

Goal: Explore and evaluate interactive 2D and 3D visual analytics techniques used on next-generation mobile devices (e.g., tablets, wearable smart glasses, etc.).

Purpose: Understand how mobile interactive visual analytics can be used to facilitate data-driven decision-making in real-time on the manufacturing floor.

Current project is a follow-on to an earlier successful VARDEC project involving NGRAIN and Convergent Manufacturing.

DURATION
>1 year

TRL Level start
3

TRL Level end
5

APPLYING VISUAL ANALYTICS FOR EFFECTIVE REAL-TIME DECISION-MAKING IN MANUFACTURING ENVIRONMENTS

Expertise sought

- Real-time Manufacturing Data Analysis
- Composite Manufacturing
- Information Visualization
- Augmented Reality
- Mobile Device Development
- Human-Computer Interaction

Potential Partners

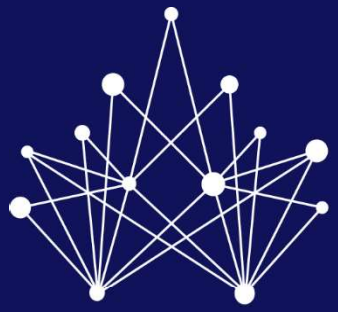
- NGRAIN
- Convergent Manufacturing Technologies
- The Boeing Company
- University of Manitoba
- CANVAC

PROJECT THEME
MDO-1501_TRL4

DURATION
>1 year

TRL Level start
3

TRL Level end
5



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VARDEC

UNMANNED AERIAL VEHICLE (UAV) VIDEO ANALYTICS

Jean-Sebastien Mercier

UNMANNED AERIAL VEHICLE (UAV) VIDEO ANALYTICS

PROJECT THEME
AUT-1501_TRL4+

Descriptions of the Need & Research Objectives

Need: Provide capability for unmanned aerial vehicles (UAV) to use real-time video analytics capabilities to enhance mission objectives.

Goal: Integrate UAV multi-sensor and flight data with video data so real-time video analytics algorithms can be used during UAV missions.

Purpose: In a UAV Command and Control environment, this capability would allow mission operators and commanders to rely on algorithmic analysis of video data in real-time in order to make better operational decisions.

New proposed VARDEC project.

DURATION
1-3 years

TRL Level start
2

TRL Level end
3

UNMANNED AERIAL VEHICLE (UAV) VIDEO ANALYTICS

PROJECT THEME
AUT-1501_TRL4+

Expertise sought

- Real-Time Video Analytics
- UAV Multi-Sensor Integration & Flight Data Analysis
- Interactive Human Analysis of Multi-Sensor and Video Displays
- Computer Vision & Pattern Recognition
- Machine Learning

DURATION
1-3 years

TRL Level start
2

TRL Level end
3

Potential Partners

- Avigilon
- The Boeing Company
- DRDC
- CANVAC member Universities

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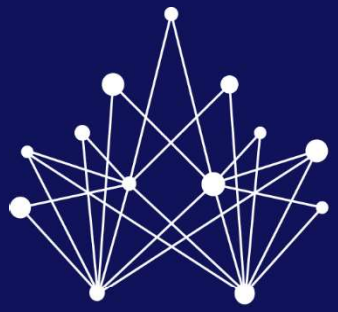

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THANK YOU!