Developing the Super Soldier: Enhancing Military Performance

How best do we advance soldier performance to maintain a competitive advantage? Achieving sustainable outcomes in operations relies on sound military strategy and weapons, but also on individual service members performing effectively across multidimensional roles.

Looking to the future, senior military leaders and defense officials strive to develop ‘Super Soldiers’ understood as the enhancement of critical skills, from physical and cognitive abilities, to social, cultural and ethical understanding.

The conference will grapple with the following questions: How do we anticipate individual soldier enhancements required to maintain a competitive edge at the individual level of performance? How can military leaders develop soldiers to ensure unity of purpose, optimal physical and cognitive performance, resilience, and ethically applied fighting spirit? How can the armed forces balance military effectiveness with a stated commitment to reflect society’s values and norms?

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<tr>
<td>1730</td>
<td><strong>CONFERENCE OPENING - RECEPTION AND CHALLENGE</strong></td>
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<td>Welcome Remarks</td>
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<td><strong>Major-General Simon Hetherington</strong>, Canadian Army Doctrine and Training Centre</td>
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<td>Challenge to the Conference:</td>
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<td></td>
<td><strong>Dr. Stéfanie von Hlatky</strong>, Centre for International and Defence Policy, and</td>
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<td><strong>Colonel Derek Basinger</strong>, Canadian Army Command and Staff College</td>
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<td>0700</td>
<td>Breakfast (Grille Room)</td>
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<td>0800</td>
<td>Registration</td>
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<td>0900</td>
<td>Welcome and Introductions</td>
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<td>0915-1030</td>
<td><strong>PANEL 1: OVERCOMING HUMAN LIMITATIONS</strong></td>
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<td>This panel introduces the core themes of the conference by identifying performance challenges that are inherent to the military experience. Human limitations are manifest within military organizations and on the battlefield. To maintain a competitive edge, soldier skills should be developed to push existing physical, cognitive, moral, and social boundaries. The panelists will discuss the following themes: overcoming physical limits and reducing the burden; Slow adaptation to operational environments; Getting rid of undesirable behavior; and Increasing resilience</td>
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<td>Chair: <strong>Dr. Jeffrey Larsen</strong>, NATO Defense College</td>
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|       | Speakers: **Brigadier General (Ret) Peter J. Palmer**, P2 Consulting Services  
**Major-General Wayne Eyre**, Military Personnel Command, Canadian Armed Forces |
| 1030  | BREAK                                                                |
| 1100  | **KEYNOTE ADDRESS ON LEADERSHIP:**                             |
|       | Introduction by Dr. Stéphanie Bélanger, CIMVHR/RMCC               |
|       | **Lieutenant-General Christine Whitecross**, Commandant, NATO Defense College |
| 1200  | LUNCH                                                                |
### PANEL 2: ENHANCING PHYSICAL PERFORMANCE

New technology and recent scientific discoveries demonstrate that physical limits can be overcome, but that such changes can be costly and difficult to implement on a large scale. How can the armed forces take advantage of emerging technologies successfully to push the physical limits of their personnel? This panel tackles this question by examining optimization, intervention, and augmentation technologies that address current physical challenges on operations. Attention will be paid to increasing strength, improving endurance, lightening the physical load of equipment, and reducing the overall physical burden imposed on soldiers during operations.

**Chair:** Colonel Marcus Acosta, G5, US Army  
**Speakers:**  
- Lieutenant Colonel Phillip Thomas, Special Warfare Education Group (Airborne)  
- Karen Gregorczyk, NATICK Soldier Research, Engineering and Development Center  
- Dr. Andrew Herr, Helicase

#### 1430 BREAK

### PANEL 3: ACHIEVING COGNITIVE DOMINANCE

The military prepares service members for war during their entire career through training and education. However, operational environments are often unpredictable and require adaptive cognitive skills. How can the military improve the cognitive abilities of soldiers to optimize the factors critical for success? To guide the discussion, this panel introduces the concept of cognitive dominance, which is understood as the ability to process and analyze information for optimal decision making in operational environments.

**Chair:** Dr. H. Christian Breede, Centre for International and Defence Policy  
**Speakers:**  
- Dr. Mike Tombu, Defence Research and Development Canada  
- Dr. Susan Martin, Center for Strategic Leadership, US Army War College  
- Dr. Jean Vettel, Army Research Laboratory

#### 1800 NETWORKING DINNER  
Island Star, Kingston 1000 Islands Cruises, Confederation Basin Dock
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<tr>
<td>0730</td>
<td>Registration and Breakfast</td>
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<td>0815</td>
<td>Welcome and announcements</td>
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<td><strong>KEYNOTE ADDRESS</strong></td>
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<td>Introduction by Dr. Jeffrey Larsen, NATO Defense College</td>
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<td><strong>Major-General Mike Rouleau</strong>, Commander CANSOFCOM, Canadian Armed Forces</td>
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<td>0915-1100</td>
<td><strong>PANEL 4: INCREASING SOCIAL AWARENESS</strong></td>
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<td>The challenge of reconciling individuality with group effectiveness is salient in any professional organization, but more pronounced in the military given the common formative experience. Internally, service members are part of an increasingly diverse military organization, in terms of gender, race, and socioeconomic backgrounds. Externally, soldiers are exposed to a variety of cultural experiences. Their response to those environments affects the outcome of operations. This panel starts from the premise that displaying social, cultural, and gender-based awareness is crucial for the military's internal and external activities.</td>
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<td><strong>Chair:</strong> Dr. Stéfanie von Hlatky, Centre for International and Defence Policy</td>
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<td><strong>Speakers:</strong> Dr. Leonard Wong, Strategic Studies Institute, US Army War College</td>
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<td>Lieutenant-Colonel Sarah Heer, Directorate of Human Rights and Diversity, Canadian Armed Forces</td>
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<td>Lieutenant-Colonel Darleen Young, Australian Defence Force Peace Operations Centre</td>
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<td>1100</td>
<td>BREAK</td>
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<td>1130-1300</td>
<td><strong>PANEL 5: IMPROVING SOLDIER RESILIENCE</strong></td>
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<td>This panel will discuss the multiple dimensions of resilience by focusing on different phases of the soldier's career, including training, operations, and transition. As the demands placed on service members multiply, resilience should be strengthened correspondingly. To meet the demands of military service, individuals can draw on evidence-based strategies that can help manage the emotional and physical toll of military life.</td>
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<td><strong>Chair:</strong> Brigadier-General Craig Aitchison, Combat Training Centre, Canadian Armed Forces</td>
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<td><strong>Speakers:</strong> Major Harry Crawford, Chaplain CADTC, Canadian Armed Forces</td>
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<td>Colonel (Ret) James P. Picano, Behavioral Health Operations, Johnson Space Center, NASA</td>
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<td>Lieutenant-Colonel Suzanne Bailey, Health Services Group, Canadian Armed Forces</td>
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<td>1300</td>
<td>LUNCH</td>
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## Keynote Address

**Introduction by Stéfanie von Hlatky**

**Jason Dozois**, Narrative Director, Eidos Montréal

### Break

**1445**

### Panel 6: Considering Ethical Implications

The conference has discussed technologies and strategies that promise to enhance the physical, cognitive and social abilities of men and women in uniform. However, just because these possibilities exist, it does not mean they should be pursued. This panel grapples with the ethical implications of developing super soldiers and asks how we should approach military performance enhancement.

**Chair:** **Professor William G. Braun III**, Strategic Studies Institute, US Army War College

**Speakers:**
- **Dr. Charles A. Pfaff**, Strategic Studies Institute, US Army War College
- **Dr. Steven Kornguth**, Kinesiology and Health Education, University of Texas
- **Dr. Jesse Kirkpatrick**, Institute for Philosophy and Public Policy, George Mason University

### Closing Remarks

**Professor Douglas Lovelace**, Strategic Studies Institute, US Army War College

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ABSTRACTS

PANEL 1 – OVERCOMING HUMAN LIMITATIONS

Human Dimension and Challenges with Soldiers Physical and Cognitive Loads
Brigadier General (Ret) Peter J. Palmer
P2 Consulting Services

When considering physical and cognitive loads of soldiers, this presentation initially highlights the genesis of the Army’s Human Dimension Concept (Cognitive/Physical/Social Moral) that was released in 2007. Connected to the AHDC are some of the Soldiers Physical Load issues as highlighted by a West Point Women’s Study and a Ranger School Study conducted by one of the Army’s leading Physiologists Dr/Col(Ret) Karl Friedl. Great focus here is placed on the Cognitive Load challenges and the major gap in understanding and capabilities for the operational force. Key challenges include: lack of leader knowledge and understanding concerning the cognitive domain (how the brain works), lack of standards and measurement processes and tools to measure the soldier’s cognitive potential – or Cognitive ‘Shoe Size’, and lastly, lack of tools and standards to measure human combat readiness or in other terms a ‘Soldiers -10’ PMCS Manual. Also of note is the NTC O/C cognitive study conducted by UCSB dealing with adaptability, as well as emerging field of Epigenetics and its impact on both the physical and cognitive domains.

Optimizing Individual Performance in the Canadian Armed Forces
Major-General Wayne Eyre
Military Personnel Command, Canadian Armed Forces

This presentation will focus on CAF strategic initiatives focused on optimizing the individual performance of all members. The focus will be set, not on creating ‘super soldiers’, but rather on creating ‘effective soldiers’ in light of current challenges. The discussion will begin with the drivers for change – wellness risk factors at the individual, organizational, and societal levels – that are causing a revaluation on many of the CAF personnel management and support policies and practices. These are informed by a number of DGMPRA (Director General Military Personnel Research and Analysis) studies, and the recent CAF Heath and Lifestyle Information Survey, and include such issues as lower fitness and higher levels of obesity and mental illness in our pool of prospective recruits, preventable injuries and increased rates of medical releases, workplace stress, and millennial expectations.

The next aspect discussed will be a host of wellness strategies under the umbrella of the forthcoming Departmental Total Health and Wellness Strategy, including such nested items as the Physical Performance strategy, the Surgeon General’s Integrated Health Strategy, the Joint CAF-VAC Suicide Prevention Strategy, and the Integrated Complaint and Conflict Management (IC2M) Program. Also considered are a number of conceptual initiatives to provide a more flexible career path for individuals, allowing them to better balance familial stresses and multi-career aspirations. Recruiting and entry-level training in this environment, and the requirement for more ‘end of career’ focus as we bring in new transition initiatives in conjunction with Veterans Affairs Canada, are also considerations of this presentation.
Programs for Enhancing Physical Performance:  
The Human is the Platform
LTC Phillip W. Thomas  
Special Warfare Education Group (Airborne), US Army

The human is the most fundamental warfighting system in any military’s arsenal and is the critical component of all other warfighting systems. Special acquisition and maintenance programs exist for most all the warfighting platforms. Program Executive Offices (PEO) exist to ensure the U.S. Army stays on the cutting edge in regards to acquiring and maintaining these warfighting systems. A recent article suggests that the U.S. Army recognizes there is no “silver bullet” technological solutions and that the focus must be placed on “fundamental capabilities that empower the Soldier”. Further suggesting that the U.S. Army must fit machines to the Soldiers rather than the other way around. All that said, where is the PEO for human performance? It is much easier to purchase and measure the effects of hardware. It is much more difficult to measure the effects of proper (or improper) nutrition, physical, social, and/or cognitive education and training interventions.

Human Dynamics and Performance (HDP) Programs help to holistically develop the ‘human platform’ and optimize human performance. These programs have a restorative function, particularly in the physical domain, e.g., physical therapists and/or other coaches working together for a rehabilitation plan. Additionally, HDP is currently working on an initiative to develop a spiritual section in order to address spiritual performance, e.g., morals, values, ethics, ethical decision-making, empathetic planning, and purposeful action. The remainder of HDP resources are geared towards building foundational skills and enhancing Soldier performance.

Augmentation Technologies for Enhancing Physical Performance
Karen Gregorczyk  
NATICK Soldier Research, Engineering and Development Center

Over the last 10 to 20 years, a number of physical augmentation technologies have been designed with the intent of reducing the physical burden on dismounted warfighters and extending the duration of military field missions. However, many fundamental research questions still need to be answered before these devices are deemed field ready and, to ensure soldier safety and performance efficiency, the immediate and long-term physical implications of using these types of devices must be identified and understood.

The U.S. Army has considerable experience testing augmentation technologies on warfighters to inform developers of the implications of their device designs on the user in terms of biomechanics and human factors considerations. Over the course of these assessments, extensive empirical data have been obtained in the laboratory on the biomechanical, physiological, and human factors implications of wearing such devices. Although our investigations have provided valuable insight into the immediate effects of short-term wear of exoskeletons, understanding the long-term implications of exoskeleton use is critical. However, the augmentation technologies that have been assessed by the Army to date are not mature enough to be tested on warfighters in field trials, much less extended operational use. Therefore, the implications of long-term use are still unknown. As part of this panel session, these issues of long term effects, lessons learned from testing warfighters outfitted in augmentation technologies, and recommendations for the successful development of future augmentation technologies will be discussed from a military perspective.
**Inside-Out: Enhancing Physical Performance to Drive Competitive Advantage**

Andrew Herr  
*Helicase*

More ink is spilled opining about super soldiers than signing contracts to develop the requisite technology. Yet, data from the scientific and business worlds clearly demonstrate that opportunities exist today and strongly suggest that much greater ones are coming tomorrow. In his talk, Andrew Herr will discuss opportunities to enhance physical performance now, trends that speak to what may be possible in the future, and how to take advantage of these developments.

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**PANEL 3 – ACHIEVING COGNITIVE DOMINANCE**

**Enhancing Small Arms Target Engagement**

Dr. Mike Tombu  
*Defence Research and Development Canada*

Small arms marksmanship is a domain that is difficult to master. It requires significant training and practice to acquire and maintain. Historically, because small arms are soldier-portable and weight is at a premium, fire control systems seen on larger platforms have not permeated down to their level. However, times are changing. Sensing and computing have become sufficiently powerful, affordable and lightweight that technology-enabled weapon systems are beginning to appear on the market. These systems offer the possibility to address a raft of potential sources of error in marksmanship. The goal of the work described herein is to determine which sources are worth addressing and whether the resulting system will increase operational effectiveness. To this end, a field trial was conducted to address shooting performance under a variety of shooting conditions with a technology-enabled weapon and a traditional, manual-fire weapon. Results indicated that while technology can dramatically improve marksmanship performance, care must be taken to not take things too far. The costs of automation are not always worth the benefits that they provide. A relatively simple assisted target engagement capability that can determine the range to the target and display the appropriate hold may provide the biggest bang for the buck.

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**The Quantified Soldier:**  
**Using Brain Networks to Enhance Future Ops**

Dr. Jean Vettel  
*U.S. Army Research Laboratory*

The Technology has become pervasive on the battlefield and in our daily lives, prompting many futurists to forecast that the longstanding physical burden of Soldier will be replaced by an immense cognitive burden on the Soldier. This burden largely arises from the inability of technology to adapt its algorithms, but as manned and unmanned teams become more prevalent, we must overcome these technological limitations to ensure future overmatch. At the U.S. Army Research Laboratory, we envision technology that can adapt to the Soldier. However, our foundational assumption posits that we cannot design technology to dynamically adapt and enhance Soldier performance without the ability to rapidly sense and predict what type of assistance a Soldier needs for their current task. Our technical approach systematically studies what physiological signals from the brain and/or the body can predict moment-to-moment fluctuations in task performance. As we identify objective measurements of Soldier performance by analyzing physiological signals, we can design interventions that mitigate task errors as well as enhancement approaches that augment task execution.
In my talk, I will present a subset of translational neuroscience research under ARL’s Human Sciences campaign that focuses on brain networks and their ability to (1) capture and quantify Soldier state, (2) reflect task learning and expertise, and (3) reveal how an individual’s social network structure shapes their behavior. As we advance the current state-of-the-art in methods to detect objective physiological measurements of Soldier state, we enable novel approaches to train our Soldiers more efficiently and design technologies that can dynamically adapt to their real-time needs and augment Soldier-system performance. Our research provides the core S&T innovation to realize future capabilities and ensure technological overmatch.

**PANEL 4 – INCREASING SOCIAL AWARENESS**

**From Generation to Generation**

**Dr. Leonard Wong**  
*Strategic Studies Institute, US Army War College*

The complex world in which the future force will operate demands that the junior leaders of today—the Millennials—be developed into tomorrow’s future leaders capable of exercising aggressive, independent, and disciplined initiative. Today’s Millennials, however, are coming out of an American society that has become increasingly uneasy about potential danger and intolerant to risk. It would be naïve for U.S. Army leaders to believe that they are immune to the undercurrent of these societal trends, especially the reluctance of older generations in allowing the Millennial generation to step up and lead. Despite the recent heavy emphasis on instilling the “power down” tenets of Mission Command on the force, the U.S. Army’s culture still reflects some of the same societal unwillingness in allowing the Millennials to be independent and self-sufficient.

**Five Barriers to Sociocultural Awareness**

**Dr. Montgomery McFate**  
*Strategic and Operation Research, US Naval War College*

Even when military organizations recognize the value of understanding opposing forces and host nation societies, they inevitably face impediments when it comes to acquiring, managing, disseminating and utilizing this knowledge at the sharp end of the foreign policy spear. Over and over again, almost regardless of time and place, military organizations encounter similar barriers while operating in foreign policy in foreign societies. The problems of complexity, epistemology, way of war, social theory and policy implementation hamper military attempts to reach long and short term objectives.

**Diversity in the Canadian Armed Forces**

**Lieutenant-Colonel Sarah Heer**  
*Directorate of Human Rights and Diversity, Canadian Armed Forces*

The expression and representation of Canadian values are integral to the military ethos and the effectiveness of the Canadian Armed Forces (CAF), both at home and abroad. The CAF is moving beyond the traditional ‘compliance – based’ model of diversity (legislative requirements for Employment Equity) and adopting a value-based model with the development and implementation of the CAF Diversity Strategy. Diversity is viewed as a source of strength and flexibility and plays a pivotal role in making the CAF a modern, forward-looking organization. The CAF Diversity Strategy envisions a CAF comprised of members who reflect the rich diversity of Canada and who are recognized and encouraged to maintain and contribute to the organization through their unique experiences, abilities, and perspectives. The Diversity Strategy is wide ranging and part of a multi-year effort. The strategy involves all aspects of institutional policies and practices such as career management, recruiting, education and awareness, spiritual support, and other key areas within the CAF.
Operationalisation of UNSCR 1325 in Current Operations

Lieutenant-Colonel Darleen Young

Australian Defence Force Peace Operations Centre

The international community recognises the importance of women’s full participation in peace and security efforts. Australia has been a leading and vocal supporter of the Women, Peace and Security agenda. All of the aspects of UNSCR 1325 and related resolutions are matters the Australian Defence Force (ADF) recognises as imperatives to stabilisation, transition and operational effectiveness. The ADF is striving to have gender perspective integrated into all levels of planning and conduct of operations, and seeks to deploy gender experts to mandated missions, ensure women’s participation in conflict resolution and peacebuilding, and to end impunity. Currently the ADF deploys gender experts to support operations in the Middle East Region (MER), including Afghanistan and Iraq, and the UN mission in South Sudan. Uniformed women have played and continue to provide a key role in armed conflict: however there is still a long way to go. The ADF recognises that stability and peace can only be achieved through a gender inclusive approach to conflict resolution and peacebuilding.

PANEL 5 – IMPROVING SOLDIER RESILIENCE

Spiritual Resiliency: Defensive and Offensive Spirituality as the Foundations of the Super Soldier

Major Harry Crawford

Chaplain, Canadian Army Doctrine and Training Centre

The term spirituality has existed for thousands of years but only recently have definitional changes and a split from its intrinsic connection to religion allowed it as a discipline to gain credibility within the scientific and medical communities. This credibility has led to an openness to systematically study spiritualities effect/value to people’s well-being and to create/develop metrics to assess the effectiveness of certain spiritual practises and programs. The US military as an institution has learned from the scientific and medical communities and has begun to implement Spiritual resilience programs, complete with assessment measures, to aid their members and families. The CA has followed suit, exploring frameworks that will help their members and families increase and enhance their resilience. The RCChS has been given the mandate of developing the programming and assessment criteria for the Canadian defence team’s spiritual health. Many of these programs will be presented during the presentation, highlighting how they could be beneficial to CA members and their families, and whether they belong in the categories of defensive or offensive spirituality. The presentation will end with a brief exploration of the direction the presenter sees spiritual programming/tools advancing in the future.

Lessons Learned from the Assessment and Selection of High-Risk Military Operational Personnel

Colonel (Ret) James P. Picano

Behavioral Health Operations, Johnson Space Center, NASA

Work in the assessment and selection of high-risk operational personnel (military and others), allows a unique vantage point from which to draw some inferences on the contribution of psychological resilience to successful adaptation in military personnel. Not surprisingly, success in such missions requires individuals who can tolerate great amounts of stress without impact to performance (i.e., resilience), along with other key psychological competencies. Assessment and selection (A&S) courses are specially designed to screen and select high-risk operational personnel. They are physically and psychologically rigorous programs that test tolerance for hardship, perseverance, sustained performance under stress, and recovery from stress. Almost by definition, those who complete these rigorous A&S courses can be said to have demonstrated positive adaptation to significant adversity. This presentation will focus on the psychological methods used to assess and select military personnel for potential success in high-risk, high stress non-routine missions, some of the more consistent findings predicting successful completion of rigorous A&S programs, and the conceptual understanding of these results in order to shed light on factors that may be most salient to individual resilience.
Improving Soldier Resilience

Lieutenant-Colonel Suzanne Bailey
Health Services Group, Canadian Armed Forces

Resilience is essentially the ability to adapt well to the daily demands and challenges of life, to transform difficulty and change into action and growth. While we talk about it as something elusive and intangible, resilience is actually the norm. And while most of us are able to cope with most of what happens to us, most of the time, there is always room for improvement. Many of the evidence-based contributors to resilience, such as active coping, cognitive flexibility, facing fears, social support, meaning-making, spirituality and social support, rely on our ability to regulate our emotional responses. Our emotions are a key part of our survival response – they alert us to danger and tell us what to approach and what to avoid. And while the narrowing of attention during the fight or flight response may be necessary for survival in acutely stressful and potentially life threatening situations, it is not necessarily adaptive for most stressors of the modern world. This presentation will explore the role of emotion in resilience and discuss how emotion regulation can enhance decision making, perception, health, performance and relationship quality.

PANEL 6 – CONSIDERING ETHICAL IMPLICATIONS

Ethics of Soldier Enhancement

Dr. Charles A. Pfaff
Strategic Studies Institute, U.S. Army War College

More than simple, temporary modifications to soldiers’ emotional states, which has been possible in the past, current medical technology can alter the human body and mind in ways that increase capacities of soldiers well-above the normal range or provide entirely new ones. However, these enhancements often have side-effects that are poorly understood and may cause permanent harm to the soldier, even when the enhancement itself is temporary. There are number of other concerns that also need to be resolved before determining the moral permissibility of any particular enhancement. For such enhancements to be moral, one must first resolve the compromise to soldiers’ autonomy such enhancements represent. Even if that can be done, one must also consider the effect of the enhancement in the context of International Humanitarian Law: to the extent enhancements undermine the discriminate and proportionate use of force, they are likely not permitted. Moreover, the risk to both combatants and noncombatants represented by these enhancements suggest that they must be in some sense necessary as well as proportional relative to the actual capabilities needed to defeat the enemy and the cost employing those capabilities represent, especially in terms of fairness and equity, social disruption, and human dignity.

Super Soldiers and Virtue

Dr. Jesse Kirkpatrick
Institute for Philosophy and Public Policy, George Mason University

This presentation explores the relationship between military enhancement and the martial virtues. A handful of scholars have explored the relationship between emerging technologies used by soldiers and their potential impact on martial virtue, but few scholars have addressed martial virtue and emerging technologies that will be used on humans to enhance their capabilities as warfighters. The primary forms of human enhancement considered here include pharmacological enhancement, genetic enhancement, neural-enhancement, and physical enhancement. Unlike other emerging technologies, where the emphasis is often on how technologies reduce or alter classic conceptions of martial virtue, some forms of human enhancement may strengthen existing notions of virtue. This presentation explores this possibility, focusing on how considerations of different forms of enhancement will provide different answers to this proposition. It concludes with an analysis of the ethical implications of enhancement and its relationship to martial virtue.
Major-General Simon Hetherington
Commander, Canadian Army Doctrine and Training Centre

Major-General Simon Hetherington was born and raised in Oakville, Ontario and joined the Canadian Army as an officer in the Royal Regiment of Canadian Artillery. He has served on regimental duty with light, airborne, and mechanized artillery units in Germany and across Canada. He holds a Bachelor's degree in political science and a Master's degree in strategic studies.

Major-General Hetherington's operational experience includes United Nations peacekeeping in Cyprus, multiple tours of duty in Bosnia, and three deployments to Afghanistan in various command and staff appointments. He has also participated in several domestic response operations. He has commanded at every level from platoon to division. Staff assignments include service as the Executive Assistant to Commander Canadian Army and the Army Director of the Canadian Forces Transformation Team. He served with the US Army as the Deputy Commanding General for Operations of XVIII Airborne Corps in Fort Bragg, NC, overseeing the operations and training of the Corps' four divisions and seven separate brigades. Major-General Hetherington assumed command of the Canadian Army Doctrine and Training Centre on 26 April, 2017.

Colonel Derek Basinger
Commandant, Canadian Army Command and Staff College

Colonel Basinger joined the Canadian Army as a Reservist in December 1985. Upon finishing high school he entered the Royal Military College of Canada in Kingston graduating in 1991 with a Civil Engineering degree. Colonel Basinger has served with 1 Combat Engineer Regiment (Chilliwack, Edmonton and Croatia), with 2 Combat Engineer Regiment (Petawawa and Bosnia), and commanded 4 Engineer Support Regiment in Gagetown. He also deployed to Kandahar as Task Force Engineer and Chief of Staff for Task Force Afghanistan. Between Regimental postings, Colonel Basinger has instructed at the Army Tactics School, the Canadian Forces School of Military Engineering, coordinated exercises for the National Strategic Studies Program at the Canadian Forces College and led a seminar at the United States Army School of Advanced Military Studies (SAMS). Colonel Basinger is a graduate of the Canadian Land Forces Command and Staff College, the Canadian Forces College, and SAMS.

Since receiving a Bachelors Degree in Civil Engineering, he has received a Masters in Defence Studies from the Royal Military College of Canada, a Masters of Military Art and Science in Strategic Studies from the United States Army Command and General Staff College and is a member in good standing of the Association of Professional Engineers and Geoscientists of New Brunswick. Posted to Ottawa in 2012, Colonel Basinger has worked in the Strategic Joint Staff on Force Posture and Readiness, in Chief Force Development as Director Capability Integration, and in the Army Staff as Director Army Staff. In March 2015 Colonel Basinger was appointed Director of the Corps of Royal Canadian Engineers and in July 2016 assumed his current duties as Commandant of the Canadian Army Command and Staff College in Fort Frontenac, Kingston.
Dr. Jeffrey Larson  
**NATO Defense College**

Dr. Jeffrey A. Larson is Director of the Research Division at the NATO Defense College, managing a small international team of scholars who focus on outreach and research in issues of importance for the Alliance. Prior to taking this position in 2013, he spent 16 years as a Senior Scientist with Science Applications International Corporation and president of Larsen Consulting Group. Prior to SAIC, he served for 21 years in the US Air Force, retiring as a Lt Colonel following a career that included being a command pilot in Strategic Air Command, associate professor at the US Air Force Academy, and founding director of the Air Force Institute for National Security Studies. He has been an adjunct Professor at Denver, Northwestern, and Texas A&M universities. In 2005, Dr. Larsen was selected as NATO’s Manfred Wörner Fellow. He twice won SAIC’s annual publications award. He has served as a consultant to Los Alamos and Sandia National Laboratories, US Strategic Command, US Northern Command, the US Air Force, the Defense Threat Reduction Agency, and NATO. Dr. Larsen is the author or editor of more than 100 books, articles, and monographs on current issues in national security, and he earned his PhD in politics from Princeton University.

Brigadier General (Ret) Peter J. Palmer  
**P2 Consulting Services**

Recently retired after 8 years as director of the General Dynamics EDGE Innovation Network, Brigadier General (Ret) Peter Palmer was responsible for leading the EDGE Innovation Network Enterprise which served as the key construct for General Dynamics innovation efforts. Prior to joining General Dynamics Mission Systems, he performed over 32 years of active service as a commissioned officer in the United States Army, retiring in 2009. His experience in the Army includes a wide range of assignments in the Infantry, training and education both stateside and abroad.

His Joint and Coalition experiences include four tours in NATO (Germany), SHAPE during Kosovo conflict, and later as Deputy Commander TF Falcon in KOSOVO. His most recent Joint and Coalition experience was in 2004-5 as Brigadier General, serving as Deputy Chief of Staff for Strategic Plans (C5) and later as Deputy Chief of Staff for Operations (C3) for the Multi-National Force in Operation Iraqi Freedom. As deputy Chief of staff for operations he served under Major General Molan, Australian Army.

BG Palmer has extensive experience in Army training and education. He has served as an Observer Controller and later as the OPFOR Commander for the Army’s National Training Center. He later served as Commander the Battle Command Training Program (BCTP) at the Combined Arms Center at Fort Leavenworth, Kan. BCTP is a simulation based virtual training environment focusing on training Brigade, Division and Army Commanders and Staff in Joint and Coalition mission command, C4ISR systems and processes. He also served two years as a professor of political decision making and senior leadership at the Naval War College at Newport RI.

BG Palmer received his bachelors of science in electrical engineering and computer science from the United States Military Academy and a Masters of Arts in National Securities studies from the University of California San Bernardino. He also has two masters of military Arts and Science in operation and operational art from the US Army Command and General Staff College and School of Advanced Military Studies (SAMS) at Fort Leavenworth, Kan.
Major-General Wayne Eyre  
*Military Personnel Command, Canadian Armed Forces*

Major-General Eyre attended Royal Roads Military College and Royal Military College. Upon commissioning in 1988 he joined Second Battalion, Princess Patricia’s Canadian Light Infantry, and has had the great privilege of spending the majority of his career in command or deputy command positions, including commanding 3rd Battalion PPCLI, 2 Canadian Mechanized Brigade Group, 3rd Canadian Division and Joint Task Force West, and as Deputy Commanding General – Operations for XVIII (US) Airborne Corps.

Operationally, MGen Eyre has commanded a rifle platoon with the UN force in Cyprus; 2PPCLI’s Reconnaissance Platoon with the UN Protection Force in Croatia (including the Medak Pocket); a rifle company in Bosnia with NATO’s Stabilization Force; the Canadian Operational Mentor and Liaison Team in Kandahar, Afghanistan advising 1-205 Afghan National Army Brigade in combat; and as the Commanding General of NATO Training Mission – Afghanistan, where he oversaw the force generation, institutional training, and professional development of the Afghan National Security Forces. Among various domestic operations, he commanded the military response to both the 2015 Saskatchewan wildfires and the 2016 Fort McMurray evacuation.

As a staff officer, MGen Eyre has served with the Royal Winnipeg Rifles, Land Force Western Area Headquarters, in the Directorate of Defence Analysis at NDHQ, and as the J3 of Canadian Expeditionary Force Command. He is a graduate of the US Army Special Forces Qualification Course, the US Marine Corps Command and Staff College, the US Marine Corps School of Advanced Warfighting, and the US Army War College. He holds a Bachelor of Science and three Masters degrees (Military Studies, Operational Studies and Strategic Studies), and has been awarded the Meritorious Service Cross, the Chief of Defence Staff Commendation, and the US Legion of Merit. MGen Eyre is currently the Deputy Commander of Military Personnel Command.

Dr. Stéphanie Bélanger  
*CIMVHR/Royal Military College of Canada*

Dr. Bélanger is the Interim Co-Scientific Director of the Canadian Institute for Military and Veteran Health Research, a unique consortium of 42 Canadian universities dedicated to researching the health needs of military personnel, Veterans and their families. She is co-editor in chief of the Journal of Military, Veteran and Family Health (University of Toronto Press funded in 2015). She is also co-founder of The New Directions in Foreign Policy, Military, and Security Studies series with McGill Queen’s University Press (MQUP, funded in 2016). She co-chairs the CIMVHR annual Forums, the bi-annual conferences on War Memories (with Université de Rennes 2 and Paris VII), the annual conferences on Military ethics, and she partners with many other institutes to co-host workshops. She is on the Board of Directors Member of the North-American chapter of the International Society for Military Ethics (ISME), the Center for International and Defence Policy (CIDP), and the Last Post Fund.

She was inducted as a member of the College of young scholars of the Royal society of Canada in 2016. She is Professor at the French Department of the Royal Military College of Canada where her research focuses on War Testimony, Soldier Identity and Moral Injuries. She specializes in Military Ethics and Just War Theories. She completed her PhD degree at the University of Toronto in 2003 and her MPA degree at RMCC in 2013. She serves in the Royal Canadian Navy as a reservist since 2004.
Lieutenant-General Christine Whitecross
Commandant, NATO Defense College

Lieutenant-General Christine Whitecross enrolled in the Canadian Forces in 1982, joining the Canadian Military Engineers. Successive postings have taken her from Germany to almost every province in Canada, notably to undertake a range of staff duties such as those of A4 Airfield Engineering Operations at 1 Canadian Air Division, Winnipeg; Executive Assistant to the Chief of the Air Staff at National Defence Headquarters, Ottawa; Director of Infrastructure and Environment Corporate Services for the Assistant Deputy Minister (Infrastructure and Environment); Joint Engineer, Canada Command; and Chief of Staff for Assistant Deputy Minister (Infrastructure and Environment).

Lieutenant-General Whitecross has also performed the duties of G1/G4 for the Force Engineers at United Nations Protection Force (Yugoslavia); Wing Construction Engineering Officer, Greenwood; Commanding Officer, 1 Construction Engineering Unit, Moncton; Commander, Joint Task Force (North), Yellowknife; Deputy Commander, Canadian Operational Support Command, Ottawa; Deputy Chief Of Staff Communications, ISAF HQ, Kabul, Afghanistan; and Canadian Armed Forces Chief Military Engineer at National Defence Headquarters, Ottawa.

Lieutenant-General Whitecross has a Bachelor in Chemical Engineering from Queen’s University and a Masters in Defence Studies from the Royal Military College of Canada. She is also a graduate of the Advanced Military Studies Course and the Command and Staff Course, both conducted at the Canadian Forces College. In 2011, she was named one of Canada’s Top 100 Most Powerful Women, and then again in 2016. Lieutenant-General Whitecross was promoted to her current rank on 26 May 2015. In February of that year, she was appointed Commander of the Canadian Forces Strategic Response Team on Sexual Misconduct. In June 2015, she was appointed Commander, Military Personnel Command. She assumed her current duties, as Commandant of the NATO Defense College in Rome, Italy, in November 2016.

Colonel Marcus Acosta
G5, US Army

Colonel Marcus Acosta is the Assistant Chief of Staff, G-5, for III Corps and Fort Hood, Texas. Previous assignments include strategic planner in the Executive Strategy Group, Office of the Chief of Staff, Army; Special Assistant to the Commander, Allied Force Command Heidelberg (FCHD), and Chief of Civil Engagement within the command’s Deployable Joint Staff Element. He also served as a Political-Military Plans Officer in the C/J-5 Strategy and Policy Division of United States Forces Korea (USFK) at Yong San Army Garrison, Republic of Korea, and taught military strategy and military innovation courses at the United States Military Academy at West Point, eventually serving as an assistant professor and director of the Military Art and Science major program (later renamed Defense and Strategic Studies).

Additional overseas assignments include service as Chief of Strategy and Plans, CJ-5, CJTF-Operation Inherent Resolve; Chief of Conceptual Development-Governance, Stability Division, HQ ISAF in Kabul, Afghanistan; current operations officer in a special operations task force during operations in Iraq; brigade operations advisor to the 3rd Brigade, 3rd Iraqi Army Division; and executive officer of the Quick Reaction Company for the United States Support Group-Haiti.

COL Acosta received a Master of Arts in National Security Affairs (Far East, Southeast Asia and the Pacific) from the Naval Postgraduate School. He completed an Army War College fellowship at Queen’s University, Kingston, Ontario, and is also a graduate of the NATO Defense College Senior Course. His military education includes the Basic Strategic Arts Program, Joint and Combined Warfighting School, and Command and General Staff College.
Lieutenant Colonel Phillip Thomas  
*Special Warfare Group (Airborne), US Army*

LTC Phillip Thomas is currently the Director of Academic Instruction at the Special Warfare Education Group (SWEG). The directorate includes: the Special Operations Forces Captains Career Course (SOFCCC), the Language, Regional Education, and Culture (LREC) Program, and the Human Dynamics and Performance (HDP) Program. LTC Thomas coordinates research and facilitates implementation of education and human performance enhancement initiatives affecting the Special Operations Center of Excellence (SOCoE).

LTC Thomas is a Special Forces Officer with over 20 years of experience managing and leading multiple organizations within the military, both conventional and special operations, in garrison and in combat abroad. Originally commissioned as an Engineer Officer, he holds a B.S. in Civil Engineering. Additionally, he has Masters in Science degrees from the Naval Postgraduate School in Defense Analysis specializing in Irregular Warfare as well as I/O Psychology from Florida Institute of Technology. Phillip is currently all but dissertation (ABD) as a PhD candidate in I/O Psychology at Florida Institute of Technology.

LTC Thomas is currently leading Human Dynamics and Performance (HDP) initiatives to establish a Human Performance Center (HPC) that focuses on holistic human development, treating the ‘Human as the Platform’. The HPC concept includes, but not limited to: synthetic training environments for kinetic and non-kinetic engagements, physical training equipment, human engagement scenario rooms, and biometric feedback equipment.

Karen Gregorczyk  
*NATICK Soldier Research, Engineering and Development Center*

Ms. Gregorczyk is currently the Team Leader for the Biomechanics and Engineering Team at the Center for Military Biomechanics Research, U.S. Army Natick Soldier Research, Development and Engineering Center. Ms. Gregorczyk also serves as a Research Biomechanist and Principal Investigator responsible for conceiving, planning, developing, and conducting basic and applied research programs in biomechanics, human-machine interactions, effects of clothing, shelters, airdrop, and other personnel equipment on Soldier performance, and methodologies for conducting the research.

Since her arrival at Natick in 2001, Ms. Gregorczyk has led and contributed to several key efforts and programs within the biomechanics research portfolio spanning from basic to applied research that focus on the biomechanical implications of wearing Soldier equipment. She has led efforts into characterizing the inertial properties of headborne equipment worn by Soldiers and she has assessed the stability of the Advanced Combat Helmet. Ms. Gregorczyk has also led and been a part of considerable advances for the Army in researching and defining human performance and biomechanics capabilities for various exoskeleton prototypes. Ms. Gregorczyk has over 19 publications as peer-reviewed journal articles and technical reports. She has presented her work widely to both military and civilian audiences. Ms. Gregorczyk received her M.S. in Biomedical Engineering from Worcester Polytechnic Institute and earned her BA in Physics at the College of the Holy Cross.
Dr. Andrew Herr  
**Helicase**

Andrew Herr is the CEO of Helicase, an Adjunct Professor of Security Studies at Georgetown University, and an Adjunct Fellow at the Center for a New American Security. At Georgetown, Dr. Herr teaches about unconventional weapons technologies with a ‘hands-on’ approach, enabling students to gain first-hand experience relevant to chemical, biological, nuclear, and radiological weapons, additive manufacturing, and human enhancement. With the Center for a New American Security’s Defense Strategies & Assessments Program, he focuses on the role of humans in warfare, including the impact of human performance enhancement and human-machine teaming.

Prior to his current positions, he led studies on the future of human performance and biotechnology for the Department of Defense, trained U.S. Government personnel preparing for deployment to Afghanistan and Iraq, and worked with the Departments of Homeland Security and Energy on emerging technology strategy, nuclear weapons detection, and radiation dosimetry. Dr. Herr has been selected as a Fellow by the Emerging Leaders in Biosecurity Initiative, a Mad Scientist by the U.S. Army’s Training and Doctrine Command, a Fellow by the Synthetic Biology Leadership Excellence Accelerator Program, a Leader of Tomorrow by Global Biotech Revolution, a Next Generation Fellow by the Center for a New American Security, and a Science & Technology Fellow by the U.S. Department of Homeland Security.

Dr. Herr received his Master’s Degrees in Health Physics, Microbiology & Immunology, and Security Studies from Georgetown University, where he also completed his undergraduate work in the School of Foreign Service, earned a certificate in Eurasian, Russian, and East European studies, and learned to speak Russian.

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Dr. H. Christian Breede  
**Centre for International and Defence Policy**

Dr. H. Christian Breede holds the rank of Major in the Canadian Army. An Infantry Officer by trade, he joined the Canadian Armed Forces in 1998. He has deployed on several overseas operations including Operation HALO (Port au Prince, Haiti in 2004) and Operation ATHENA (Kandahar City, Afghanistan in 2008-9). He received his Ph.D. in War Studies from the Royal Military College of Canada in 2013 and is an Assistant Professor of Political Science at the Royal Military College of Canada as well as the Deputy Director of the Centre for International and Defence Policy at Queen's University where he also teaches. He has authored, co-authored, edited, and co-edited several articles and books, most recently being a co-edited book (with Stéfanie von Hlatky) entitled Going to War? which was published in 2016 by McGill-Queen’s University Press as well as his own book, The Idea of Failed States, which will be published by Routledge Press this Fall.

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Dr. Mike Tombu  
**Defence Research and Development Canada**

Dr. Mike Tombu received a PhD in cognitive psychology from the University of Waterloo in 2003 where he specialized in attention and multi-tasking. Following an NSERC postdoctoral fellowship at York University at the Centre for Vision Research, Dr. Tombu spent three years as a research associate at Vanderbilt University examining the neural underpinnings of attention. In 2008, Dr. Tombu joined Defence Research & Development Canada as a defence scientist. He is currently a group leader in the Human Effectiveness Section leading a team of scientists examining the human factors of future small arms as part of the Future Small Arms Research project. The goal of this work is to identify future capabilities that could be incorporated into future small arms that will result in improved operational effectiveness. As part of this work Dr. Tombu conducts live-fire field trials and lab studies to better understand the capabilities that will make a difference to soldiers.
Dr. Susan Martin  
*Center for Strategic Leadership, US Army War College*

Dr. Martin is a Cognitive Research Scientist with more than 25 years experience applying her expertise to real-world problems. She is an acknowledged expert in the field of Human Decision Making and Cognitive Engineering. Her experience includes technical leadership across a broad range of commercial and military aerospace and C2 related programs. Her work includes, but is not limited to: senior leader cognitive processes in decision making, flight deck system requirements development and system evaluation; design and conduct of full and part-mission flight deck and crew performance experimentation, studies and analysis; human error reduction and decision support; culture-automation interactions; C2 system requirements definition; major aviation accident/incident investigation; assessing the impact of national, organizational and professional culture within the operational environment; and cross-cultural training systems design and evaluation. Her experience further extends to the analysis of the global future in terms of threats/risks from multiple national perspectives and their impact on national policy, military response options and business strategy.

She had a lead role in Global Future Analysis, as well as and international analysis as part of both NATO SCI-181 and SCI-186. She has also served as the lead scientist for Crew Performance Research within the BCA organization and later Human Systems Integration lead for Advanced Information Engineering. During her career, Dr. Martin has conducted research with and for such organizations as NASA, FAA, ATA, ONR and ARI. She has served on numerous committees including a NASA appointment to the Aviation Research and Technology Sub-Committee and has worked extensively in international settings interacting with government agencies in China (CAFC, CAAC), Singapore (NSCC, DSTA), Europe, Australia and the US, as well as projects with more than 17 international airlines. Dr. Martin has been an invited speaker at venues as diverse as CTTA (London) USAWC and SAE / COMAC (Shanghai).

Dr. Martin holds a Doctorate in Cognition from the University of Washington with minors in both physiological and organizational psychology and has published extensively in her field.

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Dr. Jean Vettel  
*U.S. Army Research Laboratory*

Dr. Jean M Vettel earned her PhD in Cognitive Neuroscience from Brown University, funded by an NSF Graduate Fellowship (2004-2007) and a DoD SMART Fellowship (2007-2009), following a lab position at Washington University in St. Louis and BA from Carnegie Mellon. Since Sept 2009, she has been a civilian neuroscientist at Army Research Laboratory and currently serves as a senior science lead in the Future Soldier Technologies Division under ARL’s Human Sciences campaign. In support of ARL’s Open Campus, Jean was appointed as adjunct faculty at University of California, Santa Barbara in 2014 and a visiting scholar at University of Pennsylvania in 2015. Her collaborative research investigates methods to quantify brain connectivity that accounts for task performance variability both within- and between-individuals and then uses these brain metrics in novel neurotechnology approaches to enhance performance and enable fundamental innovations in adaptive technology. She has conducted over 15 media interviews and given numerous invited briefs and talks to communicate the value of neuroscience and human sciences research for the Army across a wide range of audiences.
Major-General Mike Rouleau  
*Commander, Canadian Special Operations Forces Command, Canadian Armed Forces*

Major-General Rouleau’s career has been roughly split between duty in the Canadian Army, Special Forces, and strategic Staff portfolios at Defence Headquarters. He has commanded Canada’s Special Operations Forces Command since February, 2014; responsible to the Chief of the Defence Staff for the provision of kinetic and non-kinetic counter terrorism and special forces effects domestically and around the globe. General Rouleau’s service in SOF began in 1994 with Joint Task Force 2 (JTF 2). A badged Special Operations Assaulter, he has commanded from troop to unit including deployed Task forces and teams (Afghanistan, Balkans, and Africa).

General Rouleau retired from the CAF, serving as an Ottawa Police Service emergency response officer from 1999-2002, and re-enrolled as a result of the events of 9-11. His decorations include the Governor General’s Commendation (Sarajevo 1992) and Meritorious Service Cross (Afghanistan, 2007) and he was inducted as an Officer in the Order of Military Merit in 2013. He has a Bachelor of Arts (political science), a Masters in Defence Studies and a Master of Arts Degree in Security, Defence Policy and Management. He is also a graduate of the Senior Executives in National and International Security program at Harvard University (2015) and a Fellow of the US GOFO Pinnacle Program, 2016.

Dr. Stéfanie von Hlatky  
*Director, Centre for International and Defence Policy*

Dr. Stéfanie von Hlatky is currently the director of the Centre for International and Defence Policy, and an Associate Professor at Queen’s University. She received her Ph.D. in Political Science from Université de Montréal in 2010, where she was also Executive Director for the Centre for International Peace and Security Studies. In 2010, she was a postdoctoral fellow at Georgetown University’s Center for Peace and Security Studies and a policy scholar with the Woodrow Wilson International Center for Scholars in Washington, D.C. In 2011, she was a Visiting Professor at Dartmouth College’s Dickey Center for International Understanding. Prior to joining Queen’s, von Hlatky was a senior researcher with the Center for Security Studies at ETH Zurich. She is also the founder of Women in International Security-Canada. She is the author of American Allies in Times of War: The Great Asymmetry, published by Oxford University Press in 2013.

Dr. Leonard Wong  
*Strategic Studies Institute, US Army War College*

Dr. Leonard Wong is a research professor in the Strategic Studies Institute at the U.S. Army War College. His research focuses on the human and organizational dimensions of the military and includes topics such as leadership development and the military profession. He is a retired Army officer whose career included teaching leadership at West Point and serving as an analyst for the Chief of Staff of the Army. His research has led him to locations such as Iraq, Afghanistan, Kosovo, Bosnia, and Vietnam. He has testified before Congress and his work has been highlighted in media such as the New York Times, Wall Street Journal, Washington Post, New Yorker, CNN, NPR, PBS, and 60 Minutes. He is a Professional Engineer and holds a B.S. from the U.S. Military Academy and an M.S. and Ph.D. in Business Administration from Texas Tech University.
Ms. Dr. Montgomery ‘Mitzy’ McFate is a cultural anthropologist who works on defense and national security issues. She is a professor at the Center for Naval Warfare Studies at the US Naval War College in Newport, Rhode Island. Formerly, she was the Senior Social Scientist for the US Army’s Human Terrain System, which she helped develop from a ‘good idea’ on PowerPoint to a $150 million dollar-a-year Army program. She has held positions at a variety of think tanks, including RAND and the Institute for Defense Analyses. She was an American Association for the Advancement of Science Fellow at the US Navy’s Office of Naval Research, where she was awarded a Distinguished Public Service Award by the Secretary of the Navy.

She has served on the Army Science Board and the Defense Science Board, and was an instructor at the Johns Hopkins School of Advanced International Studies. Dr. McFate received a BA from University of California at Berkeley, a PhD in Anthropology from Yale University, and a JD from Harvard Law School. Her PhD dissertation concerned British counterinsurgency in Northern Ireland. She is the editor of Social Science Goes to War (Oxford University Press, 2015) and author of Military Anthropology (Oxford University Press, 2017 forthcoming).

Lieutenant-Colonel Sarah Heer is a Royal Canadian Artillery Officer who has completed all of her regimental time to date with the 2nd Regiment Royal Canadian Horse Artillery in Petawawa, Ontario. Her operational experience includes a deployment to Kabul, Afghanistan in 2003/2004 and two Disaster Assistance Response Team (DART) deployments (Sri Lanka, OP STRUCTURE in 2005 and Haiti, OP HESTIA in 2010). LCol Heer commanded E Battery (M777 Howitzer Battery), 2 RCHA from 2011-2013. She completed her Joint Command and Staff Programme and Masters in Defence Studies at the Canadian Forces College in Toronto, in 2014, and was subsequently posted to the Strategic Joint Staff as a Regional Planner for Latin America. She followed this with a year employed as the Artillery Officer Career Manager in 2015 and was promoted to her current rank and assumed the post of Director of the Directorate of Human Rights and Diversity (DHRD) in June 2016.

As DHRD, on behalf of the Commander Military Personnel Command, she is responsible for ensuring that all current and future CAF policies are in compliance with applicable legislation and are implemented in accordance with the Employment Equity Act to achieve the CAF representation rates and to provide a better work environment for all our members. Additionally, DHRD is responsible for the development and implementation of the CAF Diversity Strategy and action plan which was published in January 2017.

Lieutenant-Colonel Darleen Young was commissioned into the Royal Australian Corps of Transport and served in a range of regimental appointments at the unit and formation level and instructional appointments. LCol Young’s command appointments include Officer Commanding University of Wollongong Company; Commanding Officer of the University of New South Wales Regiment, Commanding Officer of ADF Joint Training; and Deputy Commander of the ADF Peace Operations Training Centre. She was selected by Chief of Army in 2014 as the Gender Advisor-Army Operations and she is currently posted to the Australian Peacekeeping Training Centre.

LCol Young has operational service during OP BEL ISI and was key in the transition from the ADF led mission OP TANAGER in Timor Leste to the UN. She recently returned from the Middle East and deployed with Task Groups to support operations in Iraq and Afghanistan as the Joint Task Force Commanders Gender and Protection Advisor. LCol Young was selected by the UN to develop and implement specialized military training materials on Gender and Child Protection including leading a multi-national team responsible for delivery to selected nations in Africa, South
America and Asia. She was instrumental in leading and conducting TNI (Indonesia) pre-deployment mission rehearsal training prior to their deployment to Darfur.

LCol Young has a Bachelor of Education Honours (Dux), and postgraduate studies in Agriculture (Dux), Critical Thinking, Education Leadership, Gender Mainstreaming, and Defence Studies. She has been employed with NSW Education as a senior executive, a senior lecturer and facilitator at the University of Newcastle and Global Peace Operations Institute, and as a Director of a Registered Training Organisation.

Brigadier-General Craig Aitchison
Combat Training Centre, Canadian Armed Forces

Brigadier-General Craig Aitchison joined the Canadian Armed Forces (Reserve) in January 1985 then transferred to the Regular Force through the Regular Officer Training Plan in 1987. He completed his Infantry Phase training and was badged into The Royal Canadian Regiment where he served in a variety of command and staff positions over three regimental tours with the 2nd and 3rd Battalions. He deployed three times with The Regiment to the Former Republic of Yugoslavia: once on Operation CAVALIER and twice on Operation PALLADIUM. He deployed to Afghanistan on Operation ATHENA (Roto 6) where he served for nine months as the current Operations Officer at Headquarters Regional Command (South) in Kandahar.

He has commanded at each level up to and including a formation at Base Gagetown. In 1991, he was a platoon commander and in 2003 a company commander at 2 RCR. From 2009 to 2011 he commanded the infantry school and on 24 July 2015 he took command of the Combat Training Centre. In August of 2017, he will deploy to Iraq as the Chief of Staff for the Combined/Joint Forces Land Component Command, Operation INHERENT RESOLVE.

Brigadier-General Aitchison holds master’s degrees in Defense Studies from RMC as well as Military Arts and Science from the U.S. Army Command and General Staff College. He is a graduate of the Canadian Army Command and Staff College, the Joint Command and Staff Programme at the Canadian Forces College, and the Advanced Operational Art Studies Fellowship at the School of Advanced Military Studies in the United States. There, in his second year, he was a seminar leader, teaching operational art to a group of bright, motivated majors. In May of 2013, upon completion of his time in Kansas he was posted to Ottawa, Ontario as Director of Army Staff and Director of Infantry.

Major Harry Crawford
Chaplain, Canadian Army Doctrine and Training Centre

Padre Harry Crawford joined the CAF in 1999 as part of the RESO program. He spent three years as a naval reserve chaplain, one summer as a cadet chaplain and now has served for 12 wonderful years in the Regular Forces. He deployed to Afghanistan with the army and to Europe and the artic while serving with the senior service. He has served as the Snr Fleet Chaplain in Halifax, the Deputy to the 5 Division Chaplain and is currently employed as the CADTC Formation chaplain in Kingston. He recently attended St Paul University where he completed a master’s of Conflict Studies Degree by successfully defending his thesis on the topic of Religious Leader Engagement.
Colonel (Ret) James P. Picano  
*Behavioral Health Operations, Johnson Space Center, NASA*

Dr. James Picano is a Senior Operational Psychologist with the University of Texas Medical Branch at Galveston and KBR Wyle working in the Behavioral Health and Performance (BHP) Group at NASA Johnson Space Center. Dr. Picano provides psychological services supporting the selection and training of astronauts, and spaceflight missions aboard the International Space Station. Prior to joining NASA, he worked as a psychologist for 22 years in various capacities at VA Northern California Health Care System including Director of Psychology Training, Assistant Chief of Mental Health, and Interim Associate Chief of Staff for Mental Health. Dr. Picano also served for 31 years as an Army psychologist (both active and reserve) where he focused on the selection, training, and psychological support of personnel who conduct critical and sensitive national security missions. He is a Fellow of the American Psychological Association, and the recipient of the Charles S. Gersoni Award for outstanding contributions to Military Psychology, and the Julius E. Uhlaner Award for outstanding contributions to research in military selection and recruitment, from the Society of Military Psychology (Division 19), American Psychological Association.

Lieutenant-Colonel Suzanne Bailey  
*Health Services Group, Canadian Armed Forces*

Lieutenant-Colonel Suzanne Bailey joined the Canadian Forces in 1986, graduated from the Royal Military College of Canada in 1990, and worked as a Military Police Officer for a few years. In 1994 she transferred to the Social Work occupation and completed her Master of Social Work degree at the University of Toronto in 1996. Since 2008 LCol Bailey has been involved in the development and implementation of the Road to Mental Readiness (R2MR) program. She was promoted to her current rank in 2011 and appointed Military Occupation Advisor and National Practice Leader for Social Work in the CAF.

Jason Dozois  
*Narrative Director, Eidos Montreal*

Jason Dozois is a Narrative Director and Writer who has worked in the video game industry since 2001. He has worked on a wide variety of games from Disney’s Kim Possible and DC’s Teen Titans, to Star Wars and Indiana Jones, and all the way to more mature titles such as Tomb Raider (2013). His most recent project is Deus Ex: Mankind Divided, a game with complex narrative branching based on moral choices set in a dystopian future filled with advanced technology and human augmentations.

Professor William G. Braun III  
*Strategic Studies Institute, US Army War College*

William G. Braun III is Professor of Practice at the Strategic Studies Institute, a research institute within the U.S. Army War College. Professor Braun’s research agenda includes senior leader decision-making, military concepts and force development, and land force employment-- with an emphasis on Stability Operations and Security Force Assistance. His professional career as an army officer included assignments as Director, CJ-7 (Force Integration, Training, and Education Directorate), Combined Security Transition Command-Afghanistan (CSTC-A); Director of Requirements, Deputy Chief of Staff G-3/5/7 Pentagon; Aviation Battalion Commander, Soto Cano Air Base, Honduras; operational assignments at Ft. Bragg, NC, Camp Casey Korea, Ft. Campbell, KY; and previous institutional support assignments at the Pentagon, Ft. Rucker, AL, and the U.S. Army Recruiting Command. Professor Braun holds a Bachelor of Arts degree from Alfred University and Master Degrees from the U.S. Army War College, School of Advanced Military Science (SAMS), and Webster University.
**Dr. Charles A. Pfaff**  
*Strategic Studies Institute, U.S. Army War College*

Dr. Tony Pfaff is currently the research professor for the Military Profession and Ethic at the Strategic Studies Institute (SSI), U.S. Army War College, Carlisle, PA.

A retired Army colonel and Foreign Area Officer (FAO) for the Middle East and North Africa, his last active duty posting was Senior Army and Military Advisor to the State Department from 2013-2016, where he served on the Policy Planning Staff advising on cyber, regional military affairs, the Arab Gulf Region, Iran, and security sector assistance reform. Prior to taking the State Department position, he served as the Defense Attaché in Baghdad, the Chief of International Military Affairs for US Army Central Command, and as the Defense Attaché in Kuwait. He served twice in Operation IRAQI FREEDOM, once as the Deputy J2 for a Joint Special Operations Task Force and as the Senior Military Advisor for the Civilian Police Assistance Training Team. He also served as the Senior Intelligence Officer on the Iraq Intelligence Working Group and as a UN observer along the Iraq-Kuwait border. As a company grade Army officer, he deployed to Operation DESERT SHIELD and DESERT STORM with 82nd Airborne Division and participated in Operation ABLE SENTRY with the 1st Armored Division. Prior to becoming a FAO, Dr. Pfaff served on the faculty at West Point as an assistant professor of Philosophy.

Dr. Pfaff has a bachelor's degree in Philosophy and Economics from Washington and Lee University, where he graduated cum laude with Honors in Philosophy; a master's degree in Philosophy from Stanford University, with a concentration in the History and Philosophy of Science and where received a graduate fellowship at the Center for Conflict and Negotiation; a master's in National Resource Management from the Industrial College of the Armed Forces, where he was a Distinguished Graduate; and a Doctorate in Philosophy from Georgetown University.

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**Dr. Steve Kornguth**  
*Kinesiology and Health Education, University of Texas*

Dr. Steve Kornguth took his B.A. at Columbia College in New York City and his Ph.D. in biochemistry at the University of Wisconsin-Madison. He was Professor of Neurology and of Biomolecular Chemistry at the University of Wisconsin between 1962 and 1998. His research during this period related to neural development, autoimmune diseases and development of binding agents for sensors and magnetic resonance image contrast materials. In 1998 Steve relocated to The University of Texas, Austin and led federally funded programs in Biological Defense and also on the effects of sleep deprivation on decision making in Soldiers and athletes. Current research involves the effect of head impacts during competitive athletic events on neural structures and protein biomarkers. Steve served as Director of Neuroscience programs at the National Science Foundation for a two year period and at the Office Naval Research. He also works as consultant for Vencore in Chantilly VA on Biological Security.

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**Dr. Jesse Kirkpatrick**  
*Institute for Philosophy and Public Policy, George Mason University*

Dr. Jesse Kirkpatrick is Assistant Director of the Institute for Philosophy and Public Policy at George Mason University, an affiliate Assistant Research Professor in Mason's graduate neuroethics concentration, and a Politico-Military Analyst for Johns Hopkins University's Applied Physics Lab. He received his Ph.D. from the University of Maryland, where he was awarded a Hoobler Fellowship for his work on post-conflict justice and public policy. Jesse specializes in political and moral philosophy, with an emphasis on the just war tradition, emerging technologies, human rights, and security studies. Prior to joining the Institute, Jesse was an Assistant Professor at Radford University and a Research Fellow at the US Naval Academy.
Professor Douglas Lovelace
Strategic Studies Institute (SSI), US Army War College

Douglas C. Lovelace, Jr., became the Director of the Strategic Studies Institute in May 2000. He held the Douglas MacArthur Professor of Research Chair at the U.S. Army War College. His Army career included a combat tour in Vietnam and a number of command and staff assignments. While serving in the Plans, Concepts and Assessments Division and the Conventional War Plans Division of the Joint Staff, he collaborated in the development of documents such as the National Military Strategy, the Joint Strategic Capabilities Plan, the Joint Military Net Assessment, national security directives, and presidential decision directives. He also was Director of Military Requirements and Capabilities Management at the U.S. Army War College. He is a graduate of the U.S. Army Command and General Staff College and the National War College. He holds an MBA from Embry Riddle Aeronautical University and a J.D. from Widener University School of Law. He is a member of the Pennsylvania and New Jersey bars. He has published extensively in the areas of national security and military strategy formulation, future military requirements and strategic planning.