The Dartmouth-Durham global debate

In today’s digital world organisations and government face cyberattacks. Ransomware, hacking of personal information to cyber-attacks on government agencies has been dominating global news. Governments and organisations have been attempting to develop robust systems to ensure that all forms of digital assets can be protected from cyber-attacks.

Business and policy leaders are asking a key question – how can we be prepared to protect our digital assets from the threat of cybercrime, without having to compromise on innovation and creatively and do so at a reasonable price?

Researchers from Dartmouth and Durham have been studying the role of Artificial Intelligence (AI) and Machine Learning (ML) to process potential threat in a cost effective manner. These developed systems are now being used by governments, cybersecurity firm and businesses. The Dartmouth-Durham debate will highlight the importance of Cyber Security in today’s digital society with a focus on developing robust systems for reducing the risk of cyberattacks.

The Dartmouth-Durham global debate will showcase the future cyber landscape and discuss how organisations and governments can implement best processes and structures to “ensure a coordinated cyber resilience strategy” across the organization.

Agenda

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<td>10.00 - 10.30</td>
<td>Registration &amp; Networking</td>
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<td>10.30 - 11.00</td>
<td>Keynote Presentation 1: Wayne Chung (former CTO, FBI)</td>
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<td>11.00 - 11.20</td>
<td>V.S. Subrahmanian (Dartmouth)</td>
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<td>11.20 - 11.40</td>
<td>Julian Williams (Durham University)</td>
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<td>11.40 - 12.00</td>
<td>Soroush Vosoughi (Dartmouth)</td>
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<td>Panel 1: Will the Cyber-Risks of AI Exceed the Benefits of AI to National Security</td>
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<td>Moderator: Kiran Fernandes (Durham University) Panelists: George Cybenko (Dartmouth), Julian Williams (Durham University), Eugene Santos (Dartmouth)</td>
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<td>14.00 - 14.30</td>
<td>Keynote Presentation 2: Alex Kott (US Army Research Lab)</td>
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<td>Panel 2: What Steps Need to be Taken By Government to Mitigate the Next Generation of Cyber-Risk</td>
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<td>Moderator: George Cybenko (Dartmouth) Panelists: David Pym (University College London), Ranjeev Mittu (US Naval Research Lab), Soroush Vosoughi (Dartmouth)</td>
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<td>15.50 - 16.00</td>
<td>Closing Remarks by Phil Hanlon, President – Dartmouth College</td>
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<td>16.00 - 17.00</td>
<td>Networking Reception</td>
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Speakers and Panelists

Wayne Chung
Wayne Chung served till mid 2019 as the Chief Technology Officer of the Federal Bureau of Investigation. Dr. Chung has spent the past 14 years on technology research and development for complex national security and public safety problems. Many of these challenges rival those found at high tech Silicon Valley firms; they may involve incredible volumes, velocity, and variety of data, challenging collections environments, and immediate deadlines – all while lives are at stake.

Professor V.S. Subrahmanian, Dartmouth College Distinguished Professor in Cybersecurity, Technology, and Society, Professor of Computer Science; Director, ISTS
World-renowned scholar, author, speaker whose work is data science and cybersecurity has been used to detect bots on social media platforms, prevent rhinoceros poaching, and accurate forecast the behavior of terrorist networks. Prior to being named director of Dartmouth's Institute for Security, Technology, and Society in 2018, co-founder the University of Maryland's Lab for Computational Cultural Dynamics and founded its Center for Digital international Government. He has been an invited speaker at the United Nations.

Professor Julian Williams, Chair in Accounting and Finance at the University of Durham Business School and Executive-Director of the University of Durham's Institute for Hazard Risk and Resilience.
Expert in the area of audit and investment in risk mitigation with particular interest to securing information assets. Julian’s recent work has focused on insurance and alternative measures of liability and payment indexation as well as secure financial technologies. Julian has published extensively in the academic literature on the economic theories underpinning behavioural choices in security risk management and on the public policy component of cyber security.

Professor Sorosh Vosoughi, Assistant Professor of Computer Science
Miner and modeler of large social and information networks. Studies complex social behaviors using methods at the intersection of natural language processing, machine learning, and network science. Expert on social cybersecurity.

Professor Kiran Fernandes, Associate Dean for Internationalisation of Durham University Business School, Professor of Operations Management
The Chair of the Operations Management Group and a Fellow of the Wolfson Research Institute he researches on complex systems operations within innovative ecosystems. He is also a Fellow of the interdisciplinary York Centre for Complex Systems Analysis (YCCSA).

Dr. Alexander Kott
US Army Research Laboratory's (ARL) Chief Scientist
As Chief Scientist at ARL he provides leadership in development of ARL technical strategy, maintaining technical quality of ARL research, and presenting ARL to external technical community. Between 2009 and 2016, he was the Chief, Network Science Division, Computational and Information Sciences Directorate, ARL, responsible for fundamental research and applied development in network science and science for cyber defense. In 2003-2008, he served as a Defense Advanced Research Programs Agency (DARPA) Program Manager.
Speakers and Panelists

**Professor David J. Pym, Director of UCL's Centre for Doctoral Training in Cybersecurity, Professor of Information, Logic, and Security at UCL, University of London, Head of Programming Principles, Logic, and Verification (PPLV) and Turing Fellow, The Alan Turing Institute**

A logician, mathematician, and computer scientist his research is mainly in logic where he works in pure logic and on developing logic-based methods as a mathematical modelling technology for reasoning about systems, security, and behaviour. He is beginning to develop logic-based approaches to a semantic theory of information (in the philosophical spirit of situation theory). Related to this a developing interest in truthmaker semantics. He is also working in information security with a focus on individual, organizational, and societal security behaviours. He is Editor-in-Chief of OUP’s Journal of Cybersecurity.

**Mr. Ranjeev Mittu is the Branch Head for the Information Management and Decision Architectures Branch within the Information Technology Division at the U.S. Naval Research Laboratory**

The research within the branch is focused on visual analytics and augmented reality, immersive simulations, intelligent decision support applications, distributed systems and enterprise and service oriented architectures. Mr. Mittu’s research expertise is in multi-agent systems, artificial intelligence, machine learning, data mining, pattern recognition and anomaly detection. He has a track record for transitioning R&D solutions to the operational community, and received a technology transfer award at NRL in August 2012. He has co-edited five books, co-authored one book, and published numerous book chapters and conference publications. Mr. Mittu has been a co-organizer and on program committees on conferences related to artificial intelligence, and participates in several national and international steering committees and technical panels. Mr. Mittu received a Master of Science Degree in Electrical Engineering in 1995 from The Johns Hopkins University in Baltimore, MD.

**Professor Eugene Santos, Professor of Engineering, Thayer School of Engineering**

Artificial intelligence expert whose work encompasses the areas of information cognition, human factors, and mathematics. Has applied his work to insider threat and deception detection, intelligence assessment, and analysis of adversarial intent and course of action.

**Professor George Cybenko**
**Dorothy and Walter Gramm Professor of Engineering**

Pioneer in machine learning, adversarial dynamics, and cybersecurity; government advisor on boards including the Army Cyber Institute at West Point. Founding editor of IEEE Security & Privacy, the leading professional security publication.

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**Philip J. Hanlon**
**President of Dartmouth College**

Philip J. Hanlon ’77 took office as the 18th president of Dartmouth College in June 2013. Hanlon earned his Bachelor of Arts degree from Dartmouth, from which he graduated Phi Beta Kappa, then went on to obtain a doctorate from the California Institute of Technology. Prior to coming to Dartmouth, he most recently served as Provost and the Donald J. Lewis Professor of Mathematics at the University of Michigan. In his role as President, Hanlon has prioritized keeping Dartmouth at the forefront of undergraduate education, increasing experiential learning opportunities, and expanding Dartmouth’s mark on global issues. As a mathematician, Hanlon focuses on probability and combinatorics, the study of finite structures and their significance as they relate to bioinformatics, computer science, and other fields. His research has earned numerous honors and awards, Sloan and Guggenheim Fellowships, the National Science Foundation Presidential Young Instigator Award, and he is a Fellow of the American Academy of Arts and Sciences.

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