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.

Agenda

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<td>Registration &amp; Networking</td>
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<td>Keynote Presentation 1: Wayne Chung (former CTO, FBI)</td>
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<td>11.00 - 11.20</td>
<td>VS. Subrahmanian (Dartmouth)</td>
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<td>11.20 - 11.40</td>
<td>Julian Williams (Durham University)</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: Alex Kott (US Army Research Lab), 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 Laboratory’s Chief Scientist)</td>
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<td>Closing Remarks by Phil Hanlon, President – Dartmouth College</td>
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<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, Professor in Accounting and Finance, Co-Director in the Institute of Hazard, Risk and Resilience, Durham University Business School

He has published widely on the topics of financial regulation, risk management and portfolio management. His main interests lie in market microstructure, regulating complex derivative securities and the impact of the liquidity of these instruments on the cost of capital for individuals, companies and governments. His work has been commented on and referenced in the Financial Times, the Press and Journal and OECD publications.

Professor Soroush 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.

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.
Speakers and Panelists

Dimitri Alperovitch  
Co-founder and CTO of Crowdstrike

Dimitri Alperovitch leads the Intelligence, Technology and Crowdstrike Labs teams. Alperovitch has invented 18 patented technologies and has conducted extensive research on reputation systems, spam detection, web security, public-key and identity-based cryptography, malware and intrusion detection/prevention. He is a renowned computer security researcher and thought leader on cybersecurity policies and state tradecraft. Alperovitch’s many honors include being selected as MIT Technology Review’s “Young Innovators under 35” (TR35) in 2013. He also was named Foreign Policy Magazine’s Leading Global Thinker for 2013 and received a Federal 100 Award for his information security contributions.

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.

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.

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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