JENNIFER MCARDLE

Administration of Justice and Homeland Security Salve Regina University 100 Ochre Point, Newport RI

<u> Jennifer.mcardle@salve.edu</u>

EDUCATION

King's College London London, UK

Doctor of Philosophy in War Studies September 2015 \sim December 2018

Concentration in cybersecurity

University of Cambridge, Queens' College Cambridge, UK

Master of Philosophy in Political Science October 2009 – November 2010

Upper Honors

University of New Hampshire Durham, NH

Bachelor of Arts in Political Science and Justice Studies September 2005 – June 2009

summa cum laude

EXPERIENCE Name of the Name of

Salve Regina University

Administration of Justice and Homeland Security

Assistant Professor of Cyber Defense

Adjunct Professor of Cybersecurity

September 2016 - present
June 2016- August 2016

American Foreign Policy Council Washington DC

Fellow in Defense Studies December 2016 - present

Potomac Institute for Policy Studies Arlington, VA

Center for Revolutionary Scientific Thought (CReST)

Non-Resident Fellow
Associate & CReST Fellow
July 2016- December 2016
March 2014- June 2016

Young Professionals in Foreign Policy Washington DC

Cyber Discussion Group

Co- Chair April 2015 – April 2016

American Association for the Advancement of Science Washington DC

Center for Science, Technology, and Security Policy

Program Associate September 2012 - February 2014

Observer Research Foundation New Delhi, India

Asia Pacific Security Initiative

Visiting Fellow and Non-Resident Fellow October 2011- September 2012

Institute for Defense Studies and Analyses New Delhi, India

Visiting Fellow June 2011- September 2011

National Defense University Washington DC

Institute for National Strategic Studies (INSS)

Contractor January 2011 – May 2011

COURSES TAUGHT

Undergraduate:

ADJ 243: Comparative Law and Justice in a Deeply Cybered World

ADJ 399: Disruptive Technologies, National Security, and Innovation

Graduate:

ADJ 518: Public Policy and National Defense

ADJ 543: Cyber Intelligence

ADJ 580: Capstone Master's Thesis in Cybersecurity

ADJ XX: Cyber Operations and Military Synthetic Training

HCA 581: Cybersecurity and Resiliency in Healthcare Administration

PROFESSIONAL ACTIVITIES

Member, International Studies Association

Member, Women's Society of Cyberjutsu

Member, International Consortium of Minority Cybersecurity Professionals

Member, National Defense Industrial Association

Member, Women in International Security

SERVICE TO UNIVERSITY

Grant: \$180K grant from CAE, Inc. for cybersecurity and military synthetic training research Committee Member, Atwood Committee Lecture, Spring 2017 - present Committee Member, Library Committee, Spring 2017 - present Faculty Adviser, Cybersecurity Club, Fall 2016- Spring 2017

ONGOING RESEARCH

Dissertation: Despite the clear impact of cyber on economic power and statecraft, little has been written on this topic. Studies of cyberpower have predominantly focused on the mechanisms by which cyber supports military power. Scholarly work on cyber statecraft tends to mirror this trend. This dissertation aims to fill this gap in the literature by exploring how cyber contributes to state economic power and how states use cyber-economic statecraft to advance their geopolitical ends. To answer this question, the dissertation opts for a multilevel reading of the concept of power. The first section charts the impact of cyber economic elements of power, while also examining how those elements are then converted into national ends. The second section explores the instrumental aspects of cyber enabled economic power through an overview of the incentives and coercive tools--or 'carrots' and 'sticks'-tied to the pursuit of cyber enabled economic statecraft. It discusses what can best be termed "the capability-vulnerability paradox" of cyber enabled economic power and statecraft—how the most connected states may also be the most vulnerable to economic manipulation and exploitation. The last section examines the role of 'cybered' or Internet governance related international institutions and their impact on state economic power and statecraft. The dissertation reveals that the lack of attention to this topic in the academic literature is cause for concern, as the cyber enabled components of economic power and statecraft are emerging as key tools of geopolitical competition.

Monograph: As the potential for mid- and long-term technological parity emerges between the U.S. and great power peer competitors, the U.S. will need to develop alternative strategies to maintain military supremacy. Live, virtual, and constructive (LVC) military training provides an opportunity to ensure a warfighting edge in the event of conflict. However, the increased use of synthetics also creates cybersecurity risks. Using the information security CIA triad—confidentiality, integrity, and accessibility—as a framework, this article seeks to assess the cybersecurity challenges associated with increased LVC usage, while also identifying potential solution areas to mitigate risk.

PUBLICATIONS

Journal Articles

Spidalieri F. and McArdle J., "Transforming the Next Generation of Military Leaders into Cyber-Strategic Leaders: The Role of Cybersecurity Education in U.S. Service Academies," *The Cyber Defense Review* 1 (April 2016).

Think Tank Reports

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "India: Cyber Readiness at a Glance," *Potomac Institute for Policy Studies* (February 2017).

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "Italy: Cyber Readiness at a Glance," *Potomac Institute for Policy Studies* (November 2016).

"The Role of Live, Virtual, and Constructive Training," *Potomac Institute for Policy Studies* (November 2016).

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "United Kingdom: Cyber Readiness at a Glance," *Potomac Institute for Policy Studies* (November 2016).

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "United Kingdom: Cyber Readiness at a Glance," *Potomac Institute for Policy Studies* (October 2016).

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "Germany: Cyber Readiness at a Glance," *Potomac Institute for Policy Studies* (October 2016).

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "France: Cyber Readiness at a Glance," *Potomac Institute for Policy Studies* (September 2016).

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "Japan: Cyber Readiness at a Glance," *Potomac Institute for Policy Studies* (September 2016).

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "United States of America: Cyber Readiness at a Glance," *Potomac Institute for Policy Studies* (September 2016).

Hathaway M., Demchak C., Kerben J., McArdle J., Spiadelieri F., "Cyber Readiness Index 2.0: A Place for Cyber Readiness, A Baseline and an Index," *Potomac Institute for Policy Studies* (November 2015).

Coat G., McArdle J., Marburger L., Berger K., "Scientific Engagement in the Broader Middle East and North Africa: Promoting a Safe and Secure Research Environment," *American Association for the Advancement of Science* (September 2013).

McArdle, Jennifer, "Wading out to Sea: The Evolution of India and Indonesia's Naval Mindset," *Observer Research Foundation Occasional Paper* 36 (July 2012).

Think Tank Briefs

McArdle, Jennifer, "An Assessment of Russian and Chinese Offensive Cyber Operations on U.S. Space Assets," in Eric Sterner and Jennifer McArdle, "Cyber Threats to the Space Domain," American Foreign Policy Council *Defense Technology Program Brief* (March 2016).

McArdle, Jennifer, "Transforming Defense: The Potential Role of 3D Printing," American Foreign Policy Council, *Defense Dossier* 13 (February 2015).

Leutert W., McArdle J., Gerbin S., "South China Sea: From Technical Cooperation to Mutual Trust?" Center for Strategic and International Studies, *Issues & Insights* 14.6 (June 18, 2014).

International Organization Publication

Hathaway M., McArdle J., Spidalieri F., "Reflections on OAS Cyber Security," in Organisation of the American States, *Observatory of Cyber Security in Latin America and the Caribbean* (*Forthcoming*, March 2016).

Magazine Articles

McArdle J., Barnett B., Goodson K., "The Cost of Access," STEPS (October 2015).

McArdle J., Cheetham M., "The Soft Power of Science in Cybersecurity," *Seminar Magazine* (March 2014).

Opinion Pieces

McArdle, J. and Blondin Y. "No Longer Science Fiction: Enhancing Military Readiness Through Synthetic Training," *War on the Rocks*, March 24, 2017.

McArdle, J. and Catalan B., "Cybersecurity is essential to college study," *Newport Daily News* (October 3, 2016).

McArdle, Jennifer, "Five Reasons Why the Newly Minted Sino-US Cyber Agreement on Industrial Espionage Will Fail," *The National Interest* (November 2, 2015).

McArdle J., Rajagopalan R., "Chalein Saath Saath: Forward Together We Go (In Space)?" *Space News* (October 6, 2014).

Rajagopalan R., McArdle J., "Modi's U.S. Visit: Can Space Transform the Relationship?" *Space News* (September 29, 2014).

McArdle J., Barnett B., "Understanding ISIL Messaging through Behavioral Science," *The Pacific Standard* (September 17, 2014).

McArdle, Jennifer, "Hardware Security in the U.S.- Indian Cyber Dialogue," *The National Interest* (June 30, 2014).

McArdle, Jennifer, "Rethinking Property in the Digital Era," The National Interest (May 4, 2014).

McArdle, Jennifer, "Indonesia and Chinese 'congagement'," *Asia Times Online, Speaking Freely* (August 16, 2012).

McArdle, Jennifer, "India Eyes Its Cinderella Service," *The Diplomat* (April 20, 2012).

McArdle, Jennifer, "What's India Up To?" *INSS Dynamic Dialogue*, National Defense University, (February 22, 2011).

Also featured in Real Clear World, National Defense Magazine, FierceGovernmentIT, GovInfo Security, Talent Economy, and DNA India.

LECTURES AND PANEL DISCUSSIONS

Presented report "Live, Virtual, and Constructive Training," at IITSEC: Inter-Industry, Training, Simulation and Education Conference, CAE Client Reception, Orlando, FL, December 2016.

Presented on "Rethinking Next Generation Warfare: The Role of Live, Virtual, and Constructive Simulation," at CAE, Inc. Montreal, Canada, February 2016.

Presented on "The Cyber Readiness Index 2.0, A Plan for Cyber Readiness: A Baseline and an Index," at University of Oxford, Oxford Martin School, Global Cyber Security Capacity Centre conference "Understanding Cyber Security Capacity and Cyber Harm," Oxford, United Kingdom. January 2016 panel discussion.

Lectured on "S&T Policy" at FelCom Career Development Think Tank Panel, U.S. National Institute of Health, Bethesda, MD, April 2015.

Presented paper "The Soft Power of Science in Cybersecurity" at ORF and Federation of Indian Chambers of Commerce and Industry CyFy, New Delhi, India. October 2013 panel discussion.

Presented paper titled "Preempting Finlandization: A New Framework for Indonesia Military Strategy" at 5th Annual Indonesia Forum, Yale University and Universitas Gadjah Mada, Yogyakarta, Indonesia. July 2012 panel discussion.

Presented report "Wading out to Sea: The Evolution of India and Indonesia's Naval Mindset" at Institute for Defense Studies and Analyses, New Delhi, India. July 2011 panel discussion.

Additionally, moderated series of panel discussions on emerging technology and national security at the American Association for Advancement of Science and currently moderates the Salve Regina University Warrior Women: Empowering Young Women in National Security series.

LEADERSHIP, SCHOLARSHIPS, & HONORS

2017: Awardee of 2017 \$10K Doctoral Studies RADM Fred Lewis (I/ITSEC) Scholarship 2016: 3rd Chinese- U.S.- European Young Leaders Exchange Program

• Selected by the Chinese Association for International Understanding (CAFIU), the International Department of the Communist Party of China, and the DC based American Foreign Policy Council (AFPC) to participate as one of three Americans.

2015: World Economic Forum, DC Global Shaper

- Selected as one of eleven from large pool of applicants
- 2014: Aspen Institute Socrates Fellow
 - Selected in nationwide competition to participate in the cyber security roundtable, awarded scholarship

2013: Center for Strategic International Studies Pacific Forum Young Leader

- Selected to participate in 2013 Council for Security Cooperation in the Asia-Pacific General Conference in Beijing, China; South China Sea working group
- 2012: Young Professionals in Foreign Policy "Top 99 Under 33 in Foreign Policy."
 - Highlighted in September/ October 2012 edition of Diplomatic Courier

2009: Phi Beta Kappa

2009: UNH Presidential Scholar

2009: UNH Undergraduate Research Conference Award of Excellence

2008: UNH University Scholar 2008: Golden Key International Honor Society

2008: Pi Sigma Alpha- American National Political Science Honor Society 2007: Alpha Phi Sigma- Delta Zeta American National Criminal Justice Honor Society