

Softwar: A Novel Theory on Power Projection and the National Strategic Significance of Bitcoin

by

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**M.S. Astronautical Engineering, Air Force Institute of Technology (2017)
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**Submitted to the System Design and Management Program
in Partial Fulfillment of the Requirements for the Degree of**

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ABSTRACT

Current analysis of Bitcoin's underlying proof-of-work technology is almost exclusively based on financial, monetary, or economic theory. Recycling the same theoretical frameworks when performing hypothesis-deductive analysis of Bitcoin has the potential to create systemic-level analytical bias which could negatively impact public policy making efforts and could even pose a threat to US national security.

This thesis introduces a novel theoretical framework for analyzing the potential national strategic impact of Bitcoin as an electro-cyber security technology rather than a peer-to-peer cash system. The goal of this thesis is to give the research community a different frame of reference they can utilize to generate hypotheses and deductively analyze the potential risks and rewards of proof-of-work technologies as something other than strictly monetary technology. The author asserts it would be beneficial for researchers to explore alternative functionality of proof-of-work technologies to eliminate potential blind spots, provide a more well-rounded understanding of the risks and rewards of proof-of-work protocols like Bitcoin, and positively contribute to the development of more informed public policy in support of the March 2022 US Presidential Executive Order on Ensuring the Responsible Development of Digital Assets and the May 2022 US Presidential Executive Order on Improving the Nation's Cybersecurity.

Utilizing a grounded theory methodology, the author combines different concepts from diverse fields of knowledge (e.g. biology, psychology, anthropology, political science, computer science, systems security, and modern military strategic theory) to formulate a novel framework called "Power Projection Theory." Based on the core concepts of Power Projection Theory, the author inductively reasons that proof-of-work technologies like Bitcoin could not only function as monetary technology, but could also (and perhaps more importantly) function as a new form of electro-cyber power projection technology which could empower nations to secure their most precious bits of information (including but not limited to financial bits of information) against belligerent actors by giving them the ability to impose severe physical costs on other nations in, from, and through cyberspace. The author calls this novel power projection tactic "softwar" and explores its potential impact on national strategic security in the 21st century. Like most grounded theory research efforts, the primary deliverable of this thesis is a novel theory rather than deductive analysis of a hypothesis derived from existing theory.

**Thesis Supervisor: Joan Rubin
Executive Director, System Design & Management Program**

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Biography

Major Jason “Spook” Lowery is a Department of Defense (DoD) sponsored US National Defense Fellow, Department of the Air Force Fellow, MIT System Design and Management Fellow, astronautical engineer, and active-duty technology and innovation officer in the US Space Force (USSF). Prior to attending MIT, Jason served as the director of operations for the USSF Second Space Launch Squadron. Before that, he was a founding member of the cadre of officers who stood up USSF, serving as the deputy chief of the commander’s action group for USSF Space Operations Command and US Space Command (USSPACECOM) Combined Force Space Component Command (CFSCC). Jason transferred into USSF from the US Air Force (USAF), where he served as an all-source intelligence analyst and subject matter expert in electronic warfare, blast and ballistics effects, and space weapon system design. Jason has a decade of experience serving as a technical advisor for US senior officials, to include the Office of the President of the United States (OPOTUS), Office of the Secretary of Defense (OSECDEF), and the Office of the Director of National Intelligence (ODNI). He has a master’s degree in astronautical engineering from Air Force Institute of Technology, Ohio and a bachelor’s degree in mechanical engineering from Baylor University, Texas.

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