

REPPERGER RESEARCH INTERN PROGRAM

RESEARCH PROJECT #: AFRL-RHW-25-02

The Battle of the Minds: Cognitive Warfare, Social Influence, and the Age of AI

PROJECT DESCRIPTION: In our nation's history, warfare was often portrayed as a game of chess: two players battling for ultimate dominance, often with the players' attention focused on the most powerful pieces. However, the Digital Revolution, the Age of Artificial Intelligence, and the spread of globalization have irrevocably altered the chessboard of strategic competition and the relationships between allies and adversaries. The technology revolution has enabled cognitive manipulations, group polarization and erosion of trust on an unprecedented and elaborate scale. To maintain strategic advantage, the Air Force must develop an understanding of a nuanced information environment to gain a competitive edge over adversaries and defend against the non-kinetic components of Information and Cognitive Warfare. Adversaries can attack human cognition and decision-making processes across the stratosphere of society: targeting individuals, groups, and nations through dis/misinformation, deep fakes, participatory propaganda, algorithm manipulation, and deception campaigns. Information campaigns started online can motivate users to take their grievances offline in the form of protests and demonstrations or can derail the public's trust in public institutions. Both phenomena can be amplified by fake accounts and bots by exploiting our social networks and cognitive vulnerabilities. This project seeks to investigate effective social media messaging strategies and content, the characterization and measures of effectiveness behind regional and global influence maneuvers, social engineering attempts via large language models, collective movements and identities that form online. Results will elucidate solutions for the DoD to enhance training, characterize playbooks used in Cognitive Warfare, and build resilience to malign influence.

LEARNING OBJECTIVE: Interns will actively participate in the research process for ongoing projects, including spin-off study idea generation for an independent project. Soft skill development will include discussing research ideas, design, and results with scientists in their primary field of study and from other disciplines; hard skill development will focus on building experience using R for data analysis and using social media analysis tools to collect data trends.

ACADEMIC LEVEL: Undergraduate; Masters; Doctoral

DISCIPLINE NEEDED:

- Experimental Psychology
- Social Psychology
- Psychology
- Sociology

RESEARCH LOCATION: Wright-Patterson Air Force Base, Dayton, Ohio

RESEARCH MENTOR: Christine A. Vitiello, Ph.D.
Social Psychology, University of Florida, 2021



Dr. Christine Vitiello is a Research Psychologist in the Air Force Research Research Laboratory's Cognition and Modeling Branch (711/ RHWE) as well as the lead for the Human Performance Wing's Cognitive Warfare Working Group. She is a social psychologist interested in how social norms, attitudes, and individual differences affect online and offline behavior and the interactions of influence campaigns/maneuvers, cognitive and social biases, and social identity.

RESEARCH MENTOR: Kathleen G. Larson, Ph.D.
Experimental Psychology, University of Nevada, Las Vegas, 2017



Dr. Kathleen Larson is a Research Psychologist for the Air Force Research Laboratory's Cognitive Modeling Branch (711/RHWEM). Dr. Larson's background is in cognitive psychology, and she is currently interested in developing methods and analytics to leverage social media information to better understand human behavior.

Photo courtesy of the U.S. Air Force Research Laboratory