Criminal Investigations and Network Analysis
A DHS CENTER OF EXCELLENCE

GEORGE MASON UNIVERSITY

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THOUGHTS FROM THE DIRECTOR



Jim Jones

A big component of the CINA center is our research portfolio, so we naturally spend a lot of time thinking about how we initiate, execute, and communicate research that will have a positive impact for DHS. Some of this thinking focuses on our researchers and what they need to succeed. A colleague recently summed it up as a three-legged stool: problems to solve, money to do it, and data. Perhaps a bit simplistic, but it really does capture the essence of doing research. So how well does CINA meet these basic needs?

The center is fortunate to have a rich collection of problems thanks to strong relationships with practitioners and subject matter experts, and to have stable funding thanks to the vision and consideration of the department. But the third leg of that stool - data - is much trickier, and it is a critical aspect of what we do - the CINA portfolio is anchored by efforts to discover and model networks from data, and we can't succeed without good data

Given ethical and privacy concerns, and the relevance of so much open source data, how do we provide data for researchers that is ethically collected, privacy-preserving, accurate, and useful? Answer: by understanding exactly what the researchers need (and don't need). For example, some data sources are loaded with personal information, but the personal information is not critical to the research and those sources can be safely collected, cleansed, and then shared. In other cases, the collected and possibly cleansed data can't be openly shared but can be shared on a limited basis.

Such solutions require forethought, documented and clear policies and procedures, and technology - all of which we know how to do. In other cases, the necessary data just isn't available for technical, legal, or practical reasons. In these cases, we consider proxy data (an

alternate data set that mimics the critical properties of the desired data set), or synthetic data (machine-generated data that mimics the critical properties of the desired data set).

Researchers explore, develop, and test tools and methods on the proxy or synthetic data, then the findings can be shared, tested, and applied in operational environments that do have access to the real data. In other words, we can have our cake and eat it too, but we may have to bake the cake ourselves.



CINA sponsored students participate in DHS COE's Critical Infrastructure Hackathon

Mason student team wins $3,000 prize

On February 25-27, 2022, a collaboration of DHS Centers of Excellence including CINA offered a virtual hackathon where students from across the country could learn about and suggest solutions to Counter Emerging Threats to Critical Infrastructure. CINA solicited interest from 20 students from George Mason University and GMU-MSI affiliated students from the Sul Ross University and the University of the District of Columbia who formed teams to select, research, and offer solutions to one of three problem statements.



Winning CINA hackathon team Junaid Naick, Casey Cho, Amaha Isayas, and Hajar Al-Ali with CINA Jim Jones, CINA Director and Kerry Riddle, Assistant Director for Finance and Operations

Read more



Research using honey bees to solve cases gains national attention

Newsweek, US News and World Report, Chanel 6 News in Richmond, and many other regional news outlets throughout the country continue to highlight the transdisciplinary collaboration between George Mason University's Honey Bee Initiative, Center for Applied Proteomics and Molecular Medicine, the new outdoor Forensic Science Research and Training Laboratory, and Mason's Greenhouse and Gardens sustainability program. Together, under the leadership of Mason Forensic Science Program Director and CINA Science Committee member, Mary Ellen O'Toole, they aim to find whether analyzing the honey produced by bees after feeding on flowers can be a tool to solve criminal cases and locate missing persons.

CINA's Research Portfolio

The CINA center pursues a comprehensive set of programs and activities that are designed to equip practitioners, end users, decision makers, and U.S. policy makers in the homeland security enterprise with state-of-the-art knowledge, expertise, methods, tools, and technologies to help combat the growing threat of transnational crime.

Read about our research portfolio



All 2021 CINA Summer Research Teams receive follow on funding from DHS S&T

Each summer, CINA selects faculty and student teams from Minority Serving Institutions across the country to partner with our center's research leads to develop projects focused on the DHS mission and its research needs. In 2021, CINA's partner teams from The City University of New York, Jackson State, and the University of North Texas, collaborated and conducted their studies at George Mason University's campus in Fairfax, VA. Once the summer program ends, follow-on funding may be awarded to projects that show superior merit, have academic benefits and demonstrate the research is relevant to DHS missions. Congratulations to our MSI research partners as this year, all three CINA summer research teams received this funding to further develop their research.

Learn more about the program

Workforce Development Overview

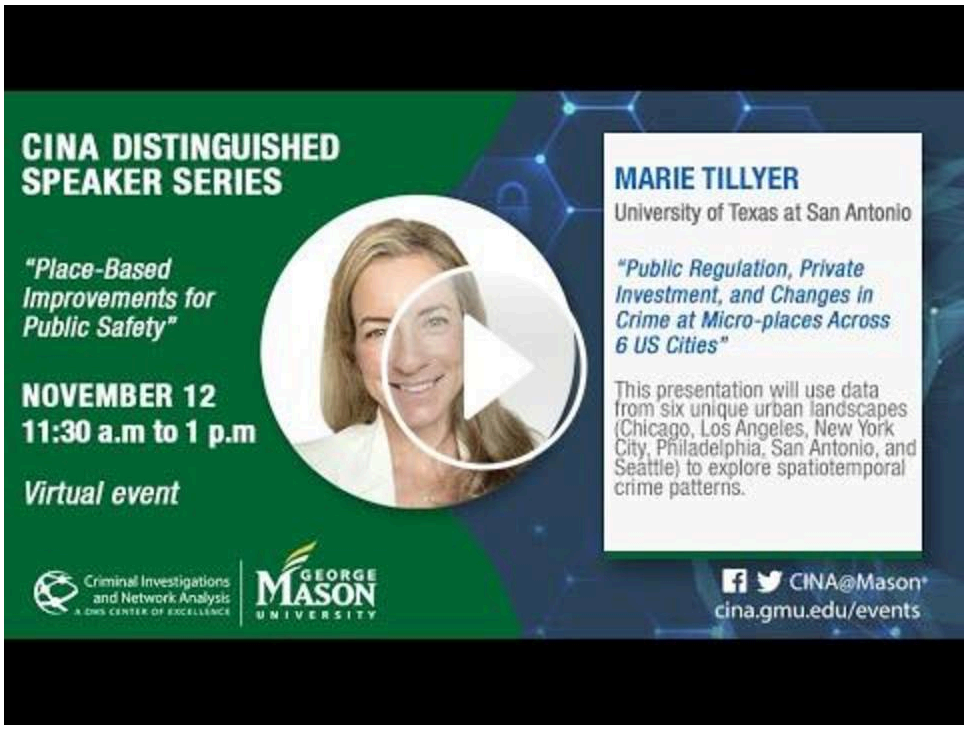
The CINA Center pursues three categories of workforce and professional development activities related to its mission of disabling transnational criminal organizations. Learn more about what our team does to help support these functions by reading our most recent CINA annual report.

Read the annual report



Marie Tillyer: "Open Source Data and Predictive Modeling for High-Density Crime Areas"

In case you missed it, watch Marie Tillyer, Professor of Criminology & Criminal Justice at the University of Texas at San Antonio discuss open source data and predictive modeling to uncover the indicators of high-density crime areas.



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Criminal Investigations and Network Analysis (CINA)
4400 University Drive, MS2A1
Fairfax, Virginia 22030
Phone: 703-993-4409

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