Criminal Investigations and Network Analysis
A DHS CENTER OF EXCELLENCE

GEORGE MASON UNIVERSITY

October 2023 www.cina.gmu.edu

THOUGHTS FROM THE DIRECTOR



Jim Jones

By the time this newsletter is published, I will have transitioned out of the CINA Director's role. I am deeply grateful to George Mason University and DHS for giving me the opportunity to serve in this capacity for almost four years, and I am equally grateful for their support when I requested permission to return to my faculty role. The last few years have been challenging, fulfilling, and humbling, and I have had the great fortune to work with dedicated and highly capable people at all levels on hard problems that truly matter. Ironically, the satisfaction I derive from working on hard problems motivated my return to the faculty ranks – I have unfinished business on the research front and a limited lifespan in which to accomplish it. I focused my energy over the last 44 months on CINA, and now I turn to a different, but I hope equally significant, set of problems and the opportunity to make a difference.

My single greatest takeaway from my time with CINA is that people matter. The CINA center is an organization, a university, partners, a sponsor, research projects, an internet presence, physical infrastructure, and funding, but most of all it is people – the CINA team. These individuals earned my complete trust and respect, they care deeply about our mission and each other, and I don't know that I will ever again find such a strong, dedicated, and kind group of people to call my colleagues and friends.

I have so many other people to thank that I will surely miss some, so rather than risk sounding like an Academy Awards speech, I ask for your understanding when I say thank you to all who gave so generously of their time, energy, and patience to support me, our team, and our efforts at CINA. If you are wondering "does he mean me?" the answer is "yes, I do". Thank you.

Soon the next CINA director will join the team, will continue the great work of the center, and will have the honor and pleasure of working with all of our supporters, collaborators, and stakeholders. There remain plenty of problems and challenges, and I look forward to following the center's activities and successes as we all work to leave the world a better place than we found it.



2022 CINA Annual Report

CINA is pleased to release the 2022 Annual Report, a comprehensive document that details the Center of Excellence's accomplishments this past year.

Read the report

CINA and DHS MSI Scientific Leadership Awards

CINA is pleased to congratulate and collaborate with three teams of researchers from Florida International University and Texas A&M University Kingsville who

received the DHS Minority Serving Institution (MSI) Scientific Leadership Award (SLA).

The first award went to Dr. Lauryn DeGreeff and Dr. Justin Carmel for their work in the area of traditional forensics. Dr. Hadi Amini received the DHS SLA for establishment of an academic center focused on machine learning. A team at TAMU-K led by Dr. Mais Nijim will establish and expand a multidisciplinary educational program to enhance the cyber-engineering workforce. The researchers broadly focus on applying their scientific knowledge to the homeland security enterprise.

Read more about the SLA awards



CINA Funding Agreement Ceiling Raised to $40 Million

In addition to CINA research projects executed under our main Cooperative Agreement with DHS, the center also has a Basic Ordering Agreement (BOA) which allows us to execute projects with classified or sensitive content and handle directive work from DHS components to address critical and emerging challenges. The center has six active projects under this BOA, and the current projects cover a diverse range of issues including criminal disruptions of supply chains, cyber range development, and digital forensics training curriculum development.

The agreement was recently renewed for another five-year term, with an increased ceiling of $40 million to accommodate a higher capacity of work and interest in accessing skilled teams through the center. If you are a representative from DHS or other governmental agency and have a problem, need, or research idea that might be a candidate for execution through the BOA, please contact us and we'd be happy to discuss the potential and structure of a BOA project.

Contact us to learn more

Results Spotlight: "Advancements in Fingerprint Analysis: Shedding Light on Crime Solving"

Fingerprints have long been a cornerstone of forensic investigations, offering invaluable biometric data for solving crimes. Dr. Partha Banerjee and Dr. Akhlesh Lakhtakia's groundbreaking research is poised to revolutionize fingerprint analysis. Their work focuses on improving the accuracy of fingerprint data for partial fingerprint marks found at crime scenes and coated with protective thin films by making digital holograms of the fingerprints and speeding up the imaging processing time during 3D reconstruction to see level 3 details from any perspective on a laptop.

Dr. Banerjee's recent presentation at Optica's Imaging Congress in Boston last August shared results from a paper coauthored with Drs. Lakhtakia, Muhammad Faryad, Hamid Al-Ghezi, and Nouf Alanazi, and highlighted their innovative strides in this field. Their efforts promise to provide law enforcement with more reliable tools for identifying suspects and enhancing the efficiency of criminal investigations. As technology continues to advance, we can look forward to even more breakthroughs in the world of forensic science.

Learn more about the project



Computer science student navigates crime's depths with AI in MSI Summer Research Team program



After taking part in the MSI Summer Research Team program with CINA, Younes Slaoui gained a wide range of both personal and professional skills that makes him feel better prepared for a career.

Slaoui was always interested in AI. Thanks to an opportunity he received last spring from Engineering Student Success Center at UNM, he was able to work on a project for the Department of Homeland Security (DHS) that allowed him to gain a deeper understanding of machine learning and its real-world applications in problems such as criminal activity. Following taking part in a summer program with the DHS Criminal Investigation and Network Analysis (CINA) Center at George Mason University in Virginia, Slaoui said he gained a wide range of both personal and professional skills that makes him feel better prepared for a career.

Learn more about his experience

CINA Summer Research Teams Recap

After a successful 10-weeks of collaboration, each of CINA's Minority Serving Institution Summer Research Teams presented the results of their research. CINA's unique summer research program offers students and faculty at MSI partner institutions ways to collaborate directly with our project leads and DHS stakeholders," shared Joe Rogers, CINA Education and Workforce Development Lead. "This is an excellent springboard of experiential learning, which may lead to potential funding sources



CINA MSI Summer Research Teams (left-to-right, top-to-bottom): University of New Mexico, University of North Texas, Morgan State University, Texas A&M Kingsville)

All four CINA-supported SRTs successfully completed the summer program and applied for one-year follow-on funding from DHS S&T The topics included:

- **"Exploring the Relative Risk Severity of Phishing Techniques on Individual Phishing Susceptibility: A Mixed Approach of Handling Phishing Attacks"** (University of North Texas)
- **"Reconstructing Criminal Networks from Data"** (University of New Mexico)
- **"A Review on Applications of Markov Decision Process Model in Combating Human Trafficking"** (Morgan State University)
- **"Latent Fingerprint Detection Using Nanotechnology to Enhance Criminal Investigation in South Texas"** (Texas A&M University Kingsville)

Read more about the SRT Program





Register Now: Bring Down Counterfeiting 2023

When: Friday, August 18 - Saturday, November 4, 2023
Where: Details will be provided to registered participants

CINA is a proud co-sponsor of the 2023 Bring Down Counterfeiting Hackathon. The Terrorism, Transnational Crime and Corruption Center (TraCCC), a research

center within George Mason University, has partnered with private sector and U.S. government organizations to crowdsource novel proposals aimed at disrupting trade in counterfeit goods. The best submissions will be practical, implementable, scalable, and demonstrable (i.e., using real-world data). Winning submissions must have direct applicability to stated challenges that the United States Patent and Trademark Office (USPTO), Department of Homeland Security (DHS), and other U.S. governmental agencies are actively working to overcome.

Bring Down Counterfeiting 2023 is asking you to prototype solutions that enable more effective public-private partnerships to facilitate or enhance data sharing and operational cooperation among the private sector and U.S. governmental agencies in the fight against counterfeit goods. We would like to challenge solvers to help us develop strategies to identify and counter new and existing trends in counterfeiting and piracy.

Teams will compete for more than **$20,000 in prizes** and will be evaluated by an expert panel of judges. Bring a team or register on your own.

Register Now

Visit our website to view our digital archive, current research, and upcoming events hosted by CINA.

You're invited to submit articles, photos, videos, and story ideas to include in upcoming newsletters. Submit your ideas on our website contact form.

Manage your preferences | Opt Out using TrueRemove™
Got this as a forward? Sign up to receive our future emails.
View this email online.

4400 University Drive, MS2A1 None | Fairfax, VA 22030 US

This email was sent to .
To continue receiving our emails, add us to your address book.

Subscribe to our email list.