

ANNA RAYMAKER

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RESEARCH INTERESTS

- Network and system security, with a focus on securing cyber-physical and safety-critical infrastructures across transportation and energy systems.
- Large-scale data analysis and network measurement for uncovering real-world cyber risks, including GPS spoofing, sensor manipulation, and exposure of distributed energy resources.
- Human-centered and operational technology security, integrating usability, operator workflows, and domain constraints into practical and deployable defenses.

EDUCATION

Ph.D. in Electrical and Computer Engineering

Georgia Institute of Technology

[Cyber-Physical Systems Security Lab](#)

Advisor: Professor Saman Zonouz

Fall 2022 - Present

Atlanta, GA

B. S. in Computer Engineering

University of Florida

Fall 2018 - Spring 2022

Gainesville, Florida

HONORS & AWARDS

Spark Award Scholarship

November 2025

Awarded to Georgia Tech graduate students demonstrating outstanding leadership in advancing student engagement in energy research and broader service impact.

President's Fellowship

August 2022

Offered to the top 10% of the Georgia Institute of Technology's doctoral program applicants.

Commencement Speaker at the University of Florida [\[link\]](#)

Spring 2022

(52:00 - 57:00 approx.)

Presidential Service Award at the University of Florida

Spring 2022

National Merit Scholar

2018

Benacquisto, Bright Futures, and Vicar's Landing Scholarships

2018 - 2022

PUBLICATIONS

Raymaker, A., Kumar, A., Wong, M., Pickren, R., Chhotaray, A., Li, F., Zonouz, S., Beyah, R., "A Sea of Cyber Threats: Maritime Cybersecurity from the Perspective of Mariners," in *The ACM Conference on Computer and Communications Security (CCS)*, 2025

Raymaker, A., Von Brock, R., Pickren, R., Chhotaray, A., Li, F., Zonouz, S., Beyah, R., "She Spoofed Sea Ships by the Sea Shore: Characterizing GPS Anomalies in Global Maritime Positioning Data," in *submission*, 2025

Pickren, R., **Raymaker, A.**, Chhotaray, A., Li, F., Zonouz, S., Beyah, R., "Mutiny!, Compromising Maritime Systems via Weaponized Situational Awareness Broadcast Messages," in *submission*, 2025

Kumar, A., **Raymaker, A.**, Specter, M., "Security and Privacy Analysis of Tile's Location Tracking Protocol," in *submission*, 2025

Ashebo, B., Asiamah, R., Talkington, S., **Raymaker, A.**, Chhotaray, A., Zonouz, S., Molzahn, D., "Analyzing Cyber Resilience of Distribution Systems with High Penetrations of Inverter-Based Resources," in *submission*, 2025

Ryu, Z., Chung, S., Karim, M., **Raymaker, A.**, Jodha, K., Chaturvedi, Y., Mertoguno, S., "Beware EviLLM: Enabling Vulnerability Injection via Large Language Models," in *submission*, 2025

RELEVANT COURSEWORK	Advanced Computer Security, Empirical Computer Security, Cybersecurity of Drones, Network Security, Advanced Malware Analysis, Linear Systems and Controls, Advanced Programming Techniques	
RESEARCH EXPERIENCE	<p>Graduate Research Assistant - CPSec Lab Georgia Institute of Technology Energy and Critical Infrastructure Security (Department of Energy Funded)</p> <ul style="list-style-type: none"> Developed scalable techniques for discovering exposed Distributed Energy Resources (DERs), particularly solar inverters, using Censys data collection, web scraping, and active scanning. Led a team of master's students to build a global pipeline that has already uncovered thousands of exposed inverters, with grid-impact simulations underway for Oahu, Hawaii to evaluate risks to real-world power systems. <p>Maritime and Transportation Cybersecurity</p> <ul style="list-style-type: none"> Built a large-scale maritime data analysis tool to detect GPS spoofing by combining Kalman filtering, geodesic deviation checks, and spatial clustering; identified persistent spoofing zones worldwide (paper under submission). Led a user study identifying key cybersecurity gaps in mariner mental models and training (CCS 2025). Built a maritime cybersecurity testbed to evaluate cyber threats and defenses. Contributed to a research project on AIS-based malware propagation, assisting in the development and evaluation of situational message-based attack vectors (paper under submission). Reverse engineered NMEA 2000 messages over CAN bus to support analysis of vessel controller behavior. <p>Binary Analysis for Software Supply Chain Security (Department of Defense Funded)</p> <ul style="list-style-type: none"> Applied machine learning models (e.g., Trex, GNNs) for binary similarity analysis to support automated Bill of Materials (BA-BOM) extraction in large-scale binaries. 	Spring 2024 - Current Atlanta, GA
	Graduate Research Collaborator - D2I Lab Georgia Institute of Technology	Spring 2024 Atlanta, GA
	<ul style="list-style-type: none"> Led a project on data preprocessing pipelines for large-scale ML analytics. 	
	Graduate Research Collaborator - COEUS Georgia Institute of Technology	Fall 2023 Atlanta, GA
	<ul style="list-style-type: none"> Helped develop efficient binary analysis tools, experimenting with regex and code lifters. 	
	Graduate Research Assistant - CyFI Lab Georgia Institute of Technology	Fall 2022 - Fall 2023 Atlanta, GA
	<ul style="list-style-type: none"> Studied web-based malware, focusing on botnet hijacking and remediation. 	
	Undergraduate Research Assistant - ARC lab University of Florida	August 2021 - May 2022 Gainesville, Florida
	<ul style="list-style-type: none"> Developed an FPGA-accelerated genetic programming tool in VHDL. 	
	Undergraduate Research Assistant - FICS lab University of Florida	June 2020 - Feb 2022 Gainesville, Florida
	<ul style="list-style-type: none"> Conducted fault injection attacks on FPGAs to assess FSM vulnerabilities. 	
	Undergraduate Research Assistant - SWAMP lab University of Florida	August 2019 - 2020 Gainesville, Florida
	<ul style="list-style-type: none"> Analyzed SiGe diffusion using TCAD modeling. 	
TEACHING	Head Graduate Teaching Assistant, Georgia Institute of Technology ECE 3030: Physical Foundations of Computer Engineering	Spring 2024

	Graduate Teaching Assistant, Georgia Institute of Technology ECE 6100: Advanced Computer Architecture	Fall 2023
	Undergraduate Teaching Assistant, University of Florida EEL 4712: Digital Design EEL 4744: Microprocessor Applications EEL 3701C: Digital Logic and Computer Systems	Fall 2021 - Spring 2022 Fall 2021 Spring - Summer 2021
INVITED TALKS	Cyber Security Agency of Singapore Talk (Atlanta, GA) Will demonstrate the maritime cybersecurity testbed and present research findings to government officials at the Cyber Security Agency of Singapore .	Nov 2025
	SecurityWeek ICS Cybersecurity Conference (Atlanta, GA) <i>From Ship to Shore: Real-World Threats and Zero-Day Attacks in Maritime Operational Technology</i> icscybersecurityconference.com	Oct 2025
	ACM CCS 2025 Conference Presentation (Taipei, Taiwan) <i>A Sea of Cyber Threats: Maritime Cybersecurity from the Perspective of Mariners</i>	Oct 2025
	Guest Lecture for Critical Infrastructure Security class (Atlanta, GA) Presented research on maritime cybersecurity to a class of graduate and undergraduate students at Georgia Tech	Oct 2025
	Fireside Chat with Dmitri Alperovitch (Atlanta, Georgia) As President of the GSA for the School of Cybersecurity and Privacy (SCP), I hosted distinguished alumnus Dmitri Alperovitch (co-founder of CrowdStrike) for a fireside chat with Georgia Tech graduate students, discussing his career and insights on cybersecurity.	Sept 2025
	Georgia Institute of Technology - CPSec Lab Testbed Tour Demonstrated the maritime cybersecurity testbed and research to faculty members, the School of Cybersecurity and Privacy (SCP) Chair, and distinguished visitors including John Tien (former Deputy Secretary of DHS) and Ann Dunkin (former CIO, U.S. Department of Energy).	Aug 2025
	TEDxGeorgiaTech Talk <i>The Invisible War: Protecting Our Future from Cyber Threats</i> tedxgeorgiatech.com/conference2025	Mar 2025
PROFESSIONAL EXPERIENCE	FPGA Electrical Engineering Intern L3Harris • Developed SpaceVPX test card in Vivado SPI IP. • Defined FPGA requirements & collaborated with a multi-specialty engineering team.	May 2021 - August 2021 Melbourne, Florida
SERVICE	External Reviewer Conference on Computer and Communications Security (CCS) European Symposium on Research in Computer Security (ESORICS) IEEE S&P Workshop on Language-Theoretic Security (LangSec) IEEE International Conference on Trust, Privacy and Security (TPS)	2023 2023 2023 2022
EXTRA-CURRICULAR ACTIVITIES	President of SCP Graduate Student Association (GSA) Georgia Institute of Technology • Lead the executive board and oversee all GSA initiatives across the SCP. • Plan and organize inter-college and campus-wide engagement events for the COC. • Serve as the sole student representative on the SCP Chair Search Committee, ensuring graduate student perspectives are included in the hiring process.	May 2025 - Present Atlanta, Georgia

Student and Faculty Affairs Chair for SCP GSA	May 2024 - April 2025
Georgia Institute of Technology	Atlanta, Georgia
• Organized faculty-student engagement events.	
• Advocated for a graduate student ombudsperson and mental health resources.	
Presencia Volunteer	May 2024 - August 2024
Presencia	Atlanta, Georgia
• Assisted immigrant youth in nutrition & fitness programs.	
Engineering Ambassador	January 2021 - May 2022
University of Florida	Gainesville, Florida
• Gave tours for the college and acted as a student engineering leader.	
IEEE HKN	August 2020 - May 2022
University of Florida	Gainesville, Florida
• Held exam reviews and tutored students in the ECE department.	
Alpha Phi Omega	August 2018 - May 2022
University of Florida	Gainesville, Florida
• Volunteered for over 1,000 hours at various local organizations (e.g., the Humane Society, Salvation Army, UF student gardens, CADE Museum for Science and Creativity, local nursing homes).	