VICEROY NORTHWEST INSTITUTE FOR CYBERSECURITY EDUCATION AND RESEARCH

CySER Virtual Seminar

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Post-Quantum Cryptography in Practice: From Standards to Systems

Oct. 28, 2025, 1:10 – 2 PM Pacific

Team Link: Click here to join the meeting
Meeting ID: 251 587 715 197 7| Passcode: da9Gf9RR
Call in (audio only) +1 509-498-6399 | Phone Conference ID: 115 002 268#

Abstract:

Quantum computers have the potential to break many of the encryption methods that protect sensitive data and secure communications today. This poses a long-term risk to systems across banking, healthcare, transportation, energy, and other critical infrastructure. Even data that is securely encrypted today could be accessed by future quantum-enabled attackers if protective measures are not adopted. To address this emerging threat, the U.S. National Institute of Standards and Technology (NIST) has selected a first generation of post-quantum cryptography (PQC) standards, algorithms designed to resist quantum attacks while maintaining practical usability. While these standards represent a significant step forward, integrating them into real-world systems presents a number of challenges, including larger key sizes, performance impacts on embedded and constrained devices, certificate management, and compatibility with existing protocols.

This seminar will provide a clear overview of the current state of PQC, highlight practical applications in industrial, enterprise, and cloud environments, and discuss the obstacles organizations face when transitioning to these new cryptographic methods. It will also outline strategies for starting the migration today, including hybrid approaches that combine classical and post-quantum algorithms, helping organizations prepare their systems and security operations for a future with quantum computing.

Bio:

Dr. Ishaani Priyadarshini is an Assistant Professor in the School of Electrical Engineering & Computer Science at Washington State University Everett. Her research focuses on Artificial Intelligence, Data Science, and Cybersecurity, with an emphasis on bridging cutting-edge research with practical applications. Dr. Priyadarshini earned her MS and PhD in Electrical and Computer Engineering from the University of Delaware, followed by a postdoctoral appointment at the University of California, Berkeley. She has published over 65 scientific articles in leading journals, authored and edited books, and serves as lead guest editor for multiple special issues in AI and cybersecurity. Her work spans both foundational research and real-world impact, including projects that apply AI and data-driven methods to enhance security, resilience, and decision-making in complex systems.

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