DCS-Water '24: 1st International Conference on the Design of Cyber-Secure Water Plants

April 23-24, 2024
The Water Tower, Buford, Georgia

Conference Program

Day 1	**Tuesday April 23, 2024**

7:45am — *Continental Breakfast and Networking (Water-Falls Classroom)*

8:30 — **Conference Opening** (Multipurpose Room)
> Melissa Meeker, CEO of The Water Tower

8:35 — **Welcome to Gwinnett County, Georgia**
> Matthew Holtkamp, Gwinnett County Commissioner, District 4

8:45 — **Introduction to the Inaugural Speaker**
> Aditya Mathur, iTrust, Singapore University of Technology and Design

8:50 — **Inaugural Address – *When Worlds Collide: The Cybersecurity of Engineered Systems***
> Richard DeMillo, Charlotte B. and Roger C. Warren Chair in Computing
> and Professor, School of Cybersecurity and Privacy,
> College of Computing, Georgia Tech

9:30 — **Introduction to the Keynote Speaker**
> Aditya Mathur, iTrust, Singapore University of Technology and Design

9:35 — **Keynote Talk - *Water Security: Trends, Capabilities, and Research Directions to Secure Water Infrastructure***
> Stephen Reese, Idaho National Laboratory

10:05 — *Coffee Break with Exhibitors (Water-Falls Classroom)*

10:20 — **Regular Session I: Chair: Jianying Zhou**
Bridging the Gap How Automated ICS Digital Twins Facilitate Collaboration and Knowledge Sharing in Cybersecurity Research

Saranachon Iammongkol, Ding-Jie Huang and Guan-Cherng Lin, Cybersecurity Technology Institute, Taipei, Taiwan

Studying properties of water data using manifold-aware anomaly detectors
Tino Paulsen and Ulf Brefeld, Leuphana University, Germany

The use of HTM and TSSE Encoder for Online Anomaly Detection In Industrial Cyber-Physical Systems
Roman Malits and Avi Mendelson, Department of Computer Science Technion Institute of Technology, Israel

11:50   *Lunch with Exhibitors (Water-Falls Classroom)*

1:00pm   **Regular Session II: Chair: Gauthama Raman**
             Anomaly-Based Intrusion Detection in Operational Technology Using Long Short-Term Memory Recurrent Neural Networks
             Corwin Stanford, April Tanner and Tor Kwembe, Department of Mathematics & Statistical Sciences, Jackson State University

Exploring OPC-UA Architecture and Digital Twins in Critical Infrastructures
Rajeev Kanth, Md. Z Khan, Patryk Wójtowicz, Aki Happonen and Jukka Heikkonen, Savonia University of Applied Science, Kuopio, Finland and University of Turku, Turku, Finland

SmartPonic: A Smart Aquaponic Plant
Anand Agrawal, Praneeta Maganti and Rajib Ranjan Maiti, BITS Pilani, Hyderabad Campus

2:30   *Coffee Break and Networking (Water-Falls Classroom)*

2:45   **Tools for Training and R&D: Chair: Francisco Furtado**
             ACWA: an AI -driven cyber-physical testbed for intelligent water systems
             Nazmul Kabir Sikder, Virginia Tech A3 Lab

Cyber Twins for Hands-On Training
Sam Bryce and David Formby, Fortiphyd Logic

Running a threat hunt & incident response training exercise for water systems on DHS CISA Control Environment Laboratory Resource (CELR): Technology Demonstration
Thomas Edgar, Pacific Northwest National Laboratory

Integrating Dynamic Access control and IDSs: A Composite Framework Employing AW-TRBAC and Semantic Variational Autoencoders for Enhanced CPS Security
Abanisenioluwa Orojo, Baylor University

3:45   **Tools Presentations: Chair: Francisco Furtado** (Water-Falls Classroom)
             ▪ Siemens
             ▪ Waterfall Security Solutions

- TetraTech/Goldilock
- Fortiphyd Logic
- iTrust Labs

5:15   *Networking Reception with Exhibitors*

6:00   *Dinner –in the lobby and back patio*

Day 2   Wednesday April 24, 2024

7:30am   *Continental Breakfast and Networking (Water-Falls Classroom)*

8:20   **Welcome and Introduction to the Keynote Speaker**
            Melissa Meeker, CEO of The Water Tower
8:25   **EPA Cybersecurity for the Water Sector**
            Pernell Brown, United States Environmental Protection Agency

8:55   **Water/Wastewater Utility Practical Cyber**
            Roger Caslow, Hampton Roads Sanitation District

9:30   *Coffee Break and Networking (Water-Falls Classroom)*

10:00   **Defending Water Utilities: Industry Perspective**
            Chair: Chris Traub
            Wrangling the Regulation
            David Espy and Jonathan Mitchell, Tetra Tech
            Cyber Informed Engineering for Water Systems
            Andrew Ginter, VP of Industrial Security, Waterfall Security
            Mitigating Direct Access – An Adversarial Discussion on the Physical Protection of OT Systems
            Matthew Dimmick, Senior Consultant, OT Security, STV
            Collaborative Resilience: Harnessing Opportunities Through Vendor-Utility Partnerships
            Gaurav Srivastava, Siemens Technology - Cybersecurity Service Innovation

12:00pm   *Lunch and Tools Demonstrations (Water-Falls Classroom)*

1:15   **Secure By Design – What it is and what it means**
            Kenneth Crowther, Product Security Leader, Xylem and video guests
            Andy Kling (Schneider *Electric), Dr. Matt Rogers (CISA) and Andrew Ohrt (WestYost)*

2:00   **Defending Water Utilities: The iTrust Tech Pyramid**
                Aditya Mathur, iTrust, Singapore University of Technology and Design

2:45   *Coffee Break and Networking (Water-Falls Classroom)*

3:05   **Discussion Tables:**
        Starting an OT Cybersecurity Program - Best practices, from executive
        sponsorship to building a culture of cybersecurity.
        IT Shared Services - Is it enough that IT is willing to help? How much separation
        and/or collaboration should there be?
        Cybersecurity Assessments – Different types offer different values at different
        stages.
        IT/OT Collaboration - Convergence has mostly been technical, how do we
        manage the process and people parts?
        Budgets! Where does the money come from? Mining the 2021 Infrastructure
        Investment and Jobs Act (IIJA) and the 2022 Inflation Reduction Act (IRA) for
        critical infrastructure cybersecurity funding.
        Secure By Design – What are the potential impacts to the industry from this
        approach?
        To Cloud, or not to Cloud – What are the options?
        Cybersecurity Resources for the Water/Wastewater Industry. What are the
        best resources to help plan, build, develop, accelerate, and/or optimize an OT
        Cybersecurity Program?

3:50   **Report-Out from Table Discussions**

4:10   **Closing Remarks/Adjourn**
        Melissa Meeker, CEO, The Water Tower
        Aditya Mathur, iTrust, Singapore University of Technology and Design