



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

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| 7:45am | <i>Continental Breakfast and Networking (Water-Falls Classroom)</i> |
| 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 – <i>When Worlds Collide: The Cybersecurity of Engineered Systems</i>
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 - <i>Water Security: Trends, Capabilities, and Research Directions to Secure Water Infrastructure</i>
Stephen Reese, Idaho National Laboratory |
| 10:05 | <i>Coffee Break with Exhibitors</i> |
| 10:20 | Regular Session I: Chair: Jianying Zhou <ul style="list-style-type: none">• 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**

SmartPonic: A Smart Aquaponic Plant

Anand Agrawal, Praneeta Maganti and Rajib Ranjan Maiti, BITS Pilani,
Hyderabad Campus

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

2:30 *Coffee Break and Networking*

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
- PNW National Lab

- Fortiphyd Logic
- iTrust Labs

5:15 *Networking Reception with Exhibitors*

6:00 *Dinner – on the lawn or in the lobby, weather dependent*

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*

10:00 **Defending Water Utilities: Industry Perspective**

Chair: TBD

- **Wrangling the Regulation**

David Espy and Jonathan Mitchell, Tetra Tech

- **Cyber Informed Engineering for Water Systems**

Andrew Ginter, VP of Industrial Security, Waterfall Security

- **Collaborative Resilience: Harnessing Opportunities Through Vendor-Utility Partnerships**

Gaurav Srivastava, Siemens Technology - Cybersecurity Service Innovation

- **Mitigating Direct Access – An Adversarial Discussion on the Physical Protection of OT Systems**

Matthew Dimmick, Senior Consultant, OT Security, STV

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 Orht (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*

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?

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