

2024 Resilience Week (RWS 2024)

**Austin, Texas, USA
3-5 December 2024**



**IEEE Catalog Number: CFP24B24-POD
ISBN: 979-8-3503-8899-2**

**Copyright © 2024 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP24B24-POD
ISBN (Print-On-Demand):	979-8-3503-8899-2
ISBN (Online):	979-8-3503-8898-5
ISSN:	2766-449X

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Relationship Between Weather Parameters and Transmission System Resilience	1
<i>Svetlana Ekisheva, Christopher Claypool</i>	
Estimating Critical Customer Outages Resulting from Extreme Hurricanes.....	8
<i>Narayan Bhusal, Sangkeun M. Lee, Avishek Bose, Supriya Chinthavali, Melissa R. Allen-Dumas, Teja Kuruganti</i>	
An Empirical Study on Analyzing the Evidence-Based Method in Attack Path Detection.....	16
<i>Mukesh Yadav, Peter J. Hawrylak</i>	
A Protocol-Agnostic DER Intrusion Detection System using an IEEE 1547-Enabled Digital Twin	22
<i>Timotius Oentung, George Fragkos, Jay Johnson, Keshav Sreekumar</i>	
Utility-Scale Shared Energy Storage Deployment: Challenges, Research Gaps, and Opportunities	30
<i>Mukesh Gautam, Di Wu, Mohammed Ben-Idris</i>	
Strengthen the Grid for Longevity and Resilience	36
<i>Davoud Zamani, Talieh Zargar</i>	
A Comprehensive Model for Analyzing the Effects of Power Outages on Customers.....	41
<i>Sangkeun M. Lee, Anika Tabassum, Narayan Bhusal, Nasir Ahmad, Supriya Chinthavali</i>	
The Growth of Asset Identification in OT Environments and Remaining Challenges	46
<i>Noah L. Schrick, Casey Lorenzen, Candice Mitchell, Christopher Rials, Robert Swartzwelder, Chris Kelley, Chase Sweeney, Joseph Nelson, Andrew Hendrix, David Kalohi, Jamal Fluellen, Michael Gray, John Chavez, Andrew Stlouis, Adam Akridge</i>	
Goaltender: Cloud-Based Defense and Response Tools for the DER Ecosystem	52
<i>Yung R. Choe, Dalton A. Brucker-Hahn, George Fragkos, Keshav Sreekumar, Bailey Nelson, Alexander Safonov, Ryan Sullivant, Aisha B. Rahman, Sean Tsikteris, M. Sadman Siraj, Eirini E. Tsiropoulou, Jorge Pineda, Jay Johnson, Brian Tansy, Kyu H. Lee, Junghwan Rhee</i>	
WIPP - Smart Authentication: Contextual Strategies for Dynamic User Verification.....	62
<i>Jonathan Sharp, Alexander Williams, Baker Womack, Arunava Roy, Dipankar Dasgupta, Csilla Farkas</i>	
Advancing Cyber-Attack Detection in Power Systems: A Comparative Study of Machine Learning and Graph Neural Network Approaches.....	72
<i>Tianzhixi Yin, Syed A. R. Naqvi, Sai P. Nandanoori, Soumya Kundu</i>	
Zero Trust in 5G Networks: Principles, Challenges, and Opportunities.....	81
<i>Moyan Lyu, Junaid Farooq</i>	
Data-Driven Approximation of Formal Implicit Interaction Analysis for Cyber-Physical System Designs	89
<i>Luke Newton, Jason Jaskolka, Quentin Rouland, Brahim Hamid</i>	
WIPP - Towards a Delay-Sensitive Provenance Framework for Operational Technology Networks	99
<i>Christopher Porras, Deepak Tosh</i>	
Architecture Design for Remote Operation of Microreactors	106
<i>Megan Culler, Joseph Oncken, Kaeley Stevens, Thomas Ulrich</i>	

Modeling Grid Data Flows for Transmission and Distribution Operations: Review, Design, Next Steps	116
<i>Aditya Sundararajan, Supriya Chinthavali, Scott Coe</i>	
Data Fusion-Based Hybrid Framework for Cyber-Physical Security of the Smart Grid.....	125
<i>Sharon A. Boamah, Reynold Mathieu, Victor Faillace, Dennis Agnew, Janise McNair, Arturo Bretas</i>	
Self-Debugging Robots: Fault Recovery Through Reasoning and Planning.....	133
<i>Christopher Thierauf, Matthias Scheutz</i>	
Performance Evaluation of Vertical Federated Machine Learning Against Adversarial Threats on Wide-Area Control System.....	143
<i>Ethan Tucker, Rakib Hossain, Vivek K. Singh</i>	
Transmission Data-Driven User-Defined Model for Inverter-Based and Conventional Power Plants.....	151
<i>Kaveri Mahapatra, Sai Munikoti, James Folium</i>	

Author Index