



The outbreak of COVID-19 has brought unprecedented challenges to communities and industries across our nation and the globe. In this time of challenge, we as individuals, organizations, and society are truly tested in the resiliency of our social and physical systems.

At the SWIM Center, our mission is more important than ever to help the water sector transform and adapt the broad spectrum of our social and physical infrastructure systems to become more intelligent, sustainable, and resilient to the impacts of extreme events. Anyone interested in learning the practices and strategies for Intelligent Water Management at different scales and under different business risk exposures should plan to attend. Attendees will walk away feeling engaged, informed, and better connected to others in their field.

CONFERENCE THEMES:

- Customer Experience
- Workforce Development
- Innovation Ecosystem
- Stakeholder Engagement
- Governance and Policy Enablement
- Sustainability and Resilience
- Sensors and Sensor Informatics
- Data Analytics and Artificial Intelligence
- Forecasting and Strategic Planning

Substantial Benefits for Participants:

- Contribute to the transformation of intelligent water through artificial intelligence applications
- Understand the “Best Use” of leading practices for resilient and sustainable water sector systems
- Learn from “Case Studies” related to integrated and smart one water management practices
- Participate in “Panel Discussion” for Governance, Innovation, Workforce, & Stakeholder Engagement
- Network opportunities with “Your Colleagues and Friends” at other leading water utilities and industry

Please Register for the Conference at: <https://www.swim.cee.vt.edu/swim-conference-2021/>

WORKSHOP SPONSORS



CONFERENCE SPONSORS



SWIM ANNUAL WORKSHOP

VIRTUAL MEETING

Monday, December 6th 11:00 AM - 6:00 PM (ET)

WORKSHOP SPEAKERS



Harry Zhang
Program Director
Water Research Foundation



Ken Thompson
Global Technology Lead
Jacobs



Sunil Sinha
Professor & Director
SWIM, Virginia Tech



John McMahon
Senior Municipal Engineer,
Metro Vancouver, Canada



Brian O' Malley
Chief of Data and Technology Operations
NYDEP, New York



Hardeep Anand
Director, One Water Strategy
WASH DC, Florida



Jon Greene (Moderator)
Associate Director for
Strategic Development
Virginia Tech



Ting Lu
Business Practice Leader
Clean Water Services, Oregon



**Chris Dermody
(Moderator)**
Digital Solutions &
Information Technology
Jacobs

WORKSHOP AGENDA

11:00 am: Welcome and Opening Remark;
Harry Zhang, Water Research Foundation
11:15 am: Designing Sensor Networks at
Sewershed Scale; Ken Thompson, Jacobs
11:30 am: Intelligent Water System Analysis;
Sunil Sinha, Virginia Tech
11:45 am: Intelligent Water Networks, Metro
Vancouver, Canadian Utility Experience; John
McMahon, Metro Vancouver
12:00 pm: Data Management and Data
Governance; Brian O'Malley, NYDEP
12:15 pm: Urban Sewershed Scale
Management, Miami-Dade Water & Sewer
Experience; Hardeep Anand, Miami Dade
12:30 pm: Sensor Networks at the Sewershed
Scale, Clean Water Services, Oregon
Experience; Ting Lu, Clean Water Services
12:45 pm: Breakout Briefing – System
Understanding, Data Collection & Analytics,
and Artificial Intelligence

1:00 pm-1:15 pm Break

Breakout Sessions

1:15 pm- 2:15 pm: (I) Intelligent Water
System Definition & System Understanding;
Moderator: Ken Thompson and Sunil Sinha
2:15 pm- 3:15 pm: (II) Data Collection, Data
QA/QC, and Database Management;
Moderators: Ken Thompson and Sunil Sinha

3:15 pm-3:30 pm Break

3:30 pm- 4:30 pm: (III) Big Data Analytics, AI
Applications, and Decision Support;
Moderators: Ken Thompson and Sunil Sinha
4:30 pm: Summary of Activities and
Discussion on Path Forward for White Papers
Development; Moderators: Jon Greene and
Chris Dermody

5:00 pm: Workshop Wrap-up

5:30 pm– 6:00 pm: Open Forum!!

SWIM ANNUAL CONFERENCE

VIRTUAL MEETING

Tuesday, December 7th 11:00 AM - 6:00 PM (ET)

CONFERENCE SPEAKERS



Sunil Sinha
Professor & Director
SWIM, Virginia Tech



Douglas Burns
Research Hydrologist
USGS



Joe Manous
Director
Institute for Water
Resources, USACE



Dwane Young
Chief, Water Data
Integration Branch
USEPA



Steve Cauffman
Chief, Resilience
Services Branch
USDHS



Yarom Polsky
Section Head, Energy
Systems Integration and
Controls
Oak Ridge National Lab



Vincent Tidewell
Energy Water
Systems Integration
Department
Sandia National Lab



Walter Graf
(Moderator)
Senior Project
Manager
GHD



Colby Manwaring
Digital Twin
SWAN



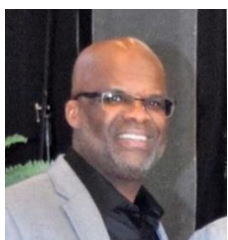
Michael Arceneaux
Managing Director
Water ISAC



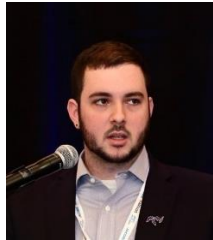
Dean Barnett
Program Director
IWN Australia



Elkin Hernandez
Intelligent Water
Technology
Committee, WEF



Robert Scott Jr.
President
Baywork



Max Herzog
Program Manager
Cleveland Water Alliance



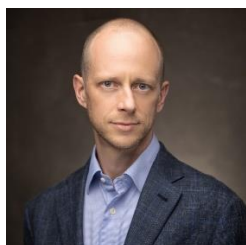
Celine Hyer
(Moderator)
Senior Vice
President
Arcadis



Ken Thompson
(Moderator)
Global Technology Lead
Jacobs



John McMahon
Senior Municipal
Engineer
Metro Vancouver,
Canada



Travis Wagner
Vice President
SUEZ Water

CONFERENCE AGENDA

11:00 am: The Future of Water

Sunil Sinha, Professor and Director

11:15 am: Federal Initiatives

USGS – Douglas Burns

USACE – Joe Manous

USEPA – Dwane Young

USDHS – Steve Cauffman

ORNL – Yarom Polsky

Sandia National Lab – Vincent Tidewell

12:45 am: Session Discussion

Moderator: Walter Graf, GHD

1:00 pm: Break

1:00–1:15 pm: ARCADIS

1:15 pm: Organization Initiatives

SWAN – Colby Manwaring

Water ISAC – Michael Arceneaux

IWN Australia – Dean Barnett

WEF – Elkin Hernandez

BAYWORK – Robert Scott

Cleveland Water Alliance –Max Herzog

2:45 pm: Session Discussion

Moderator: Celine Hyer, Arcadis

3:00 - 3:15 pm: Break

3:00 - 3:15 pm: ELECTROSCAN

Strategic Plan for Intelligent Water Management at River-basin Scale

3:15 pm: Expert Panel Discussion

Moderator: Ken Thompson, Jacobs

3:20 pm: John McMahon, Metro
Vancouver

3:35 pm: Travis Wagner, SUEZ Water

3:50 pm: Structured Panel Discussion

4:50: Panel Wrap-up – Whitepaper

5:15 pm: SWIM Center Award

5:30 – 6:00 pm: Open Forum!!

SWIM ANNUAL CONFERENCE

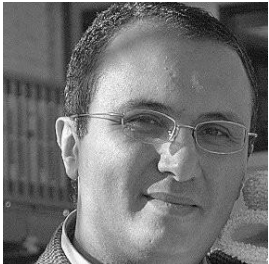
VIRTUAL MEETING

Wednesday, December 8th 11:00 AM - 6:00 PM (ET)

CONFERENCE SPEAKERS



Sunil Sinha
Professor & Director
SWIM, Virginia Tech



Alireza Parhami
Supervisor Systems
Assessment
DC Water



Kieran Fahey
Director, CSO Project
Management
City of South Bend,
Indiana



Jeff Shiner
Program Manager
Metropolitan St. Louis
Sewer District, Missouri



Ryan Radspinner
Hydraulic Analysis
Manager
HRSD, Virginia



Kevin Keane
Director of
Environmental
Leadership
American Water. NJ



Hugh Sinclair
Asset Management
Division Manager
WSSC, Maryland



Anas Malkawi
(Moderator)
Chief of Asset
Management
HRSD, Virginia



Lindsay Birt
(Moderator)
Customer Solutions
Xylem



Brian O' Malley
Chief of Data and
Technology
Operations
New York DEP



Fazle Rabbi
Engineering
Manager
City of Houston,
Texas



Edgar Westerhof
(Moderator)
Vice President
Arcadis



Hardeep Anand
Director, One Water
Strategy, WASD
Miami Dade, Florida



Kees van der Lugt
Regional Manager
Waternet,
Netherlands

CONFERENCE AGENDA

11:00 am: SmartOneWater Initiative

Sunil Sinha, Professor and Director

11:15 am: Utility Initiatives

DC Water – Alireza Parhami

South Bend – Kieran Fahey

St. Louis – Jeff Shiner

HRSD – Ryan Radspinner

American Water – Kevin Keane

WSSC – Hugh Sinclair

12:45 am: Session Discussion

Moderator: Anas Malkawi, HRSD

1:00 pm: Break

1:00 pm–1:15 pm: Layermark

Data Collection & Data Analytics for
Intelligent Water System

Moderator: Lindsay Birt, Xylem

1:15 pm: Expert Panel Discussion

1:20 pm: Brian O' Malley, NYDEP

3:35 pm: Fazle Rabbi, Houston Water

1:50 pm: Structured Panel Discussion

2:50: Panel Wrap-up – Whitepaper

3:00 pm- 3:15 pm: Break

3:00 pm- 3:15 pm: Stantec

**Governance and Implementation of
Intelligent Water System**

3:15 pm: Expert Panel Discussion

Moderator: E. Westerhof, Arcadis

3:20 pm: Hardeep Anand, Miami Dade

3:35 pm: Kees van der Lugt, Waternet

3:50 pm: Structured Panel Discussion

4:50 pm: Panel Wrap-up – Whitepaper

5:15 pm: SWIM Industry Award

5:30 pm– 6:00 pm: Open Forum!!

SWIM ANNUAL CONFERENCE

VIRTUAL MEETING

Thursday, December 9th 11:00 AM - 6:00 PM (ET)

CONFERENCE SPEAKERS



Sunil Sinha
Professor & Director
SWIM, Virginia Tech



Jim Cooper
Intelligent Water Lead
ARCADIS



Albert Cho
Senior Vice President
Xylem



Raja Kadiyala
Vice President
Jacobs



Gemma Dunn
Water Market Leader
GHD



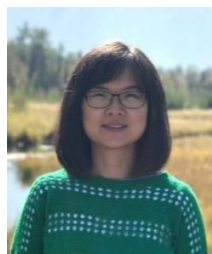
Graham Bell
Vice President
Structural



Patrick Keaney
Director of Development
Amazon



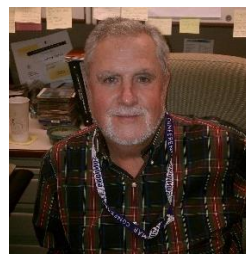
James Carolan
(Moderator)
Vice President
CDM Smith



Ting Lu
Business Practice
Leader
Clean Water
Services, Oregon



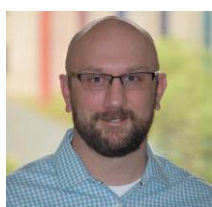
Lauren Knight
Digital Partner
Anglian Water Services
United Kingdom



James Horne
(Moderator)
Sustainability Program
Manager
USEPA



Catherine Curtis
Board Member
Baywork



Shane Zondor
Manager of Workforce
Ft. Worth, Texas

CONFERENCE AGENDA

11:00am: WATERiD & PIPEiD

Sunil Sinha, Professor and Director

11:15 am: Industry Initiatives

ARCADIS – Jim Cooper

XYLEM – Albert Cho

JACOBS – Raja Kadiyala

GHD – Gemma Dunn

STRUCTURAL – Graham Bell

AMAZON – Patrick Keaney

12:45 am: Session Discussion

Moderator: James Carolan, CDM Smith

1:00 pm: Break

1:00 pm– 1:15 pm: Layermark

Artificial Intelligence Applications for Intelligent Water Systems

1:15 pm: Expert Panel Discussion

Moderator: Sunil Sinha, Virginia Tech

1:20 pm: Ting Lu, Clean Water Services

1:35 pm: Lauren Knight, Anglian Water

1:50 pm: Structured Panel Discussion

2:50 pm: Panel Wrap-up – Whitepaper

3:00 pm- 3:15 pm: Break

3:00 pm- 3:15 pm: Mueller

Water Sector Workforce Development for Intelligent Water System

3:15 pm: Expert Panel Discussion

Moderator: James Horne, USEPA

3:20 pm: Catherine Curtis, Baywork

3:35 pm: Shane Zondor, Ft. Worth Texas

3:50 pm: Structured Panel Discussion

4:50 pm: Panel Wrap-up – Whitepaper

5:15 pm: SWIM Student Award

5:30 pm– 6:00 pm: Open Forum!!

SWIM ANNUAL CONFERENCE

SPONSOR SPEAKERS

COMPANY	SPEAKER	PRESENTATION TITLE
	 Yucel Tepekoy	Wednesday, Dec. 8 th 1:00 – 1:15 pm Situational Awareness Operations Dashboard: Flood Watch, Water Watch Thursday, Dec. 8 th 1:00-1:15 pm Manage Assets, Track Work, Optimize Business
	 Jim Cooper	Tuesday, Dec. 7 th 1:00 – 1:15 pm Topic will be updated
	 Prabhushankar Chandrasekeran	Wednesday, Dec. 8 th 3:00 – 3:15 pm Definition, Framework and Maturity Assessment for Intelligent Water Systems
	 Chuck Hansen	Tuesday, Dec. 7 th 3:00 – 3:15 pm Leak Detection in Water Infrastructure Systems
	 Laura Sproule	Thursday, Dec. 9 th 3:00-3:15 pm Condition Assessment: A Reliable Tool to Support Intelligent Water Systems



2021 SWIM AWARD RECIPIENTS

CENTER AWARD



Ken Thompson has 41 years of experience in the industry and is a Senior Technology Fellow for Jacobs in their Denver Office. He serves as the Global Technology Leader for IoT and Smart Sensors for the Jacobs Digital Solutions Team, which includes the design and implementation of smart systems for water, wastewater and other sectors. Ken has managed or served as the technical lead in many Surveillance and Response systems and water quality optimization projects. Prior to joining Jacobs, Ken worked for public utilities in water, wastewater, recycled water system operations, process evaluation, water quality, and regulations. He is an active Board Member of Sustainable Water Infrastructure Management (SWIM) Center at Virginia Tech.

INDUSTRY AWARD



Hugh Sinclair is the Division manager for the Asset Management Division in the Operations branch of WSSC Water. Mr. Sinclair oversees the staff that is responsible for the development and implementation of the Asset Management Program for all assets including linear, vertical, support services. This includes tracking the condition and performance of vertical assets, optimization of operations and maintenance strategies, capital planning, with the objective of continuous improvement of WSSC's level of service. He has spearheaded the development of several programs and projects in asset management, many of which have been industry first initiatives. Mr. Sinclair holds a Bachelor's Degree in Civil Engineering and a Master's Degree in Environmental Engineering from Howard University.

STUDENT AWARD



Nisha Thuruthy has over 13 years of experience working with water and wastewater utilities. In addition to water and wastewater system design, Ms. Thuruthy's experience in asset management covers the asset life cycle from beginning to end – including inventory control, CMMS configuration, work planning and scheduling, condition assessment and rehabilitation, data collection and analysis, root cause analysis, and asset retirement. Nisha Thuruthy performed research at the Virginia Tech SWIM Center from 2010 – 2013 under Dr. Sunil Sinha. She worked with utilities across the nation to author the WERF manuals Condition Assessment for Drinking Water Pipelines and Condition Assessment for Wastewater Pipelines, among other publications.