

**New York Scientific Data
Summit 2024: Addressing Data
Challenges in Digital Twins**

Report of Contributions

Contribution ID: 1

Type: **not specified**

Opening and Plan of the Day

Monday, 16 September 2024 08:45 (10 minutes)

Presenter: LIN, Meifeng (Brookhaven National Laboratory)

Session Classification: Motivating Applications of Digital Twins and Challenges

Contribution ID: 2

Type: **not specified**

Welcome Remarks

Monday, 16 September 2024 08:55 (5 minutes)

Presenter: D'IMPERIO, Nicholas (Brookhaven National Laboratory)

Session Classification: Motivating Applications of Digital Twins and Challenges

Contribution ID: 3

Type: **not specified**

Informing Medical Digital Twins: Highlights from the Virtual Human Global Summit

Monday, 16 September 2024 09:00 (20 minutes)

Presenter: STAHLBERG, Eric (Frederick National Laboratory for Cancer Research)

Session Classification: Motivating Applications of Digital Twins and Challenges

Contribution ID: 4

Type: **not specified**

Multiscale Digital Twins for Precision Modeling and Predictive Cell Survival Outcomes

Monday, 16 September 2024 09:20 (20 minutes)

Presenter: KAPADIA, Anuj (Oak Ridge National Laboratory)

Session Classification: Motivating Applications of Digital Twins and Challenges

Contribution ID: 5

Type: **not specified**

Digital Twins for Wind Energy and Leading-Edge Erosion Detection

Monday, 16 September 2024 09:40 (20 minutes)

Presenter: MINKOFF, Susan (Brookhaven National Laboratory)

Session Classification: Motivating Applications of Digital Twins and Challenges

Contribution ID: 6

Type: **not specified**

FAIR Data Management at the Joint Genome Institute

Monday, 16 September 2024 10:30 (20 minutes)

Presenter: FAGNAN, Kjersten (Lawrence Berkeley National Laboratory)

Session Classification: Data Acquisition and Management

Contribution ID: 7

Type: **not specified**

Curating Carbon Storage Data for Reuse: Enabling Research and Modeling from Earth's Surface to Subsurface

Monday, 16 September 2024 10:50 (20 minutes)

Presenter: MORKNER, Paige (National Energy Technology Laboratory)

Session Classification: Data Acquisition and Management

Contribution ID: 8

Type: **not specified**

Data Privacy, Provenance and Context: Challenges and Perspectives

Tuesday, 17 September 2024 14:10 (20 minutes)

Presenter: QURESHI, Nabeel (OpenHealth)

Session Classification: Data Safety, Security, Privacy and Beyond

Contribution ID: 9

Type: **not specified**

Frontier AI for Science, Security and Technology (FASST)

Monday, 16 September 2024 13:30 (20 minutes)

Presenter: ALEXANDER, Frank (Argonne National Laboratory)

Session Classification: Machine Learning and Data Quality - Part I

Contribution ID: 10

Type: **not specified**

(Remote) AuroraGPT: Rationale, Data Challenges and Development of an AI Research Assistant

Monday, 16 September 2024 14:50 (20 minutes)

Presenter: CAPELLO, Franck (Argonne National Laboratory)

Session Classification: Machine Learning and Data Quality - Part I

Contribution ID: 11

Type: **not specified**

On Training Foundation Models on Frontier

Monday, 16 September 2024 13:50 (20 minutes)

Presenter: DASH, Sajal (Oak Ridge National Laboratory)

Session Classification: Machine Learning and Data Quality - Part I

Contribution ID: 12

Type: **not specified**

Data aggregation and integration for energy infrastructure modeling

Monday, 16 September 2024 14:10 (20 minutes)

Presenter: ROSE, Kelly (National Energy Technology Laboratory)

Session Classification: Machine Learning and Data Quality - Part I

Contribution ID: 13

Type: **not specified**

Physics-Informed Machine Learning and Generative AI for Surrogate Modeling in Science and Industry

Monday, 16 September 2024 14:30 (20 minutes)

Presenter: O'KEEFFE, Mike (NVIDIA)

Session Classification: Machine Learning and Data Quality - Part I

Contribution ID: 14

Type: **not specified**

Responsible AI in the US Banking Industry

Monday, 16 September 2024 15:40 (20 minutes)

Presenter: RATZAN, John (Accenture)

Session Classification: Machine Learning and Data Quality - Part II

Contribution ID: 15

Type: **not specified**

Synthetic Teammates: Leveraging Digital Twins to Optimize Human-AI Performance in Critical Missions

Monday, 16 September 2024 16:00 (20 minutes)

Presenter: VOLKOVA, Svitlana (Aptima)

Session Classification: Machine Learning and Data Quality - Part II

Contribution ID: 16

Type: **not specified**

Creating trustworthy open data for scientific discovery

Monday, 16 September 2024 16:20 (20 minutes)

Presenter: PENG, Grace (NIH)

Session Classification: Machine Learning and Data Quality - Part II

Contribution ID: 17

Type: **not specified**

Operationalizing Biomedical Digital Twins compliant with the National Academies Report: issues regarding machine learning and data quality

Monday, 16 September 2024 16:40 (20 minutes)

Presenter: AN, Gary (University of Vermont)

Session Classification: Machine Learning and Data Quality - Part II

Contribution ID: 18

Type: **not specified**

Fusion Energy Digital Twins - from Experiment to Power Plant

Tuesday, 17 September 2024 08:40 (20 minutes)

Presenter: CHURCHILL, Michael (Princeton Plasma Physics Laboratory)

Session Classification: Validation, Verification and Uncertainty Quantification (VVUQ)

Contribution ID: 19

Type: **not specified**

Uncertainty in Digital Twins from Imperfect System Information

Tuesday, 17 September 2024 09:20 (20 minutes)

Presenter: URBAN, Nathan (Brookhaven National Laboratory)

Session Classification: Validation, Verification and Uncertainty Quantification (VVUQ)

Contribution ID: 20

Type: **not specified**

Recent developments in uncertainty quantification and model validation for complex systems

Tuesday, 17 September 2024 09:00 (20 minutes)

Presenter: GHANEM, Roger (University of Southern California)

Session Classification: Validation, Verification and Uncertainty Quantification (VVUQ)

Contribution ID: 21

Type: **not specified**

Navigating uncertainty to build trust in digital twins

Tuesday, 17 September 2024 09:40 (20 minutes)

Presenter: CHAUDHURI, Anirban (University of Texas Austin)

Session Classification: Validation, Verification and Uncertainty Quantification (VVUQ)

Contribution ID: 22

Type: **not specified**

Towards Efficient Neural Representation of Visual Computing Data

Tuesday, 17 September 2024 10:30 (20 minutes)

Presenter: SUN, Qi (New York University)

Session Classification: Data Visualization and Virtual Reality

Contribution ID: 23

Type: **not specified**

Towards the creation of digital twins for scientific simulations using visualization surrogates

Tuesday, 17 September 2024 10:50 (20 minutes)

Presenter: SHEN, Han-Wei (The Ohio State University)

Session Classification: Data Visualization and Virtual Reality

Contribution ID: 24

Type: **not specified**

Digital Twins for Science

Tuesday, 17 September 2024 11:10 (20 minutes)

Presenter: FISKE, Barton (NVIDIA)

Session Classification: Data Visualization and Virtual Reality

Contribution ID: 25

Type: **not specified**

(Remote) Visualization Techniques for the Tokamak Digital Twin

Tuesday, 17 September 2024 13:30 (20 minutes)

Presenter: FEIBUSH, Eliot (Princeton University)

Session Classification: Data Safety, Security, Privacy and Beyond

Contribution ID: 26

Type: **not specified**

TIPPSS to address data-related challenges in the development & deployment of digital twins

Monday, 16 September 2024 11:10 (20 minutes)

Presenter: HUDSON, Florence (Columbia University)

Session Classification: Data Acquisition and Management

Contribution ID: 27

Type: **not specified**

Safety, Security and Privacy in the Age of Generative AI

Tuesday, 17 September 2024 13:50 (20 minutes)

Presenter: SOTO, Carlos (Brookhaven National Laboratory)

Session Classification: Data Safety, Security, Privacy and Beyond

Contribution ID: 28

Type: **not specified**

(Remote) Multimodal Generative AI for Precision Health

Tuesday, 17 September 2024 15:00 (20 minutes)

Presenter: POON, Hoifung (Microsoft)

Session Classification: The Future of Digital Twins

Contribution ID: 29

Type: **not specified**

Enabling Digital Twins Through Common Infrastructure

Tuesday, 17 September 2024 15:20 (20 minutes)

Presenter: BROWNING, Jeren M. (Idaho National Laboratory)

Session Classification: The Future of Digital Twins

Contribution ID: **30**

Type: **not specified**

Digital Twins in Large Scale Scientific Instruments

Tuesday, 17 September 2024 15:40 (20 minutes)

Presenter: LIN, Lucy (Brookhaven National Laboratory)

Session Classification: The Future of Digital Twins

Contribution ID: 31

Type: **not specified**

Digital Twin: Open Source Development and Deployment

Tuesday, 17 September 2024 16:00 (20 minutes)

Presenter: SRIVASTAVA, Anil (Open Health Systems Laboratory)

Session Classification: The Future of Digital Twins

Contribution ID: 32

Type: **not specified**

The Evolving Digital Twin - Driving the Next Wave of Digital Transformation

Tuesday, 17 September 2024 16:20 (20 minutes)

Presenter: ISAACS, Dan (Digital Twin Consortium)

Session Classification: The Future of Digital Twins

Contribution ID: 34

Type: **not specified**

Voice-Enabled Beamlines at National Synchrotron Light Source II (NSLS-II)

Tuesday, 17 September 2024 13:00 (7 minutes)

Presenter: MATHUR, Shray (Brookhaven National Laboratory)

Session Classification: Lightning Talks

Contribution ID: 35

Type: **not specified**

Menopause: It's about Femhealth, not just Femtech

Tuesday, 17 September 2024 13:07 (7 minutes)

Presenter: LIEBMAN, Michael (IPQ Analytics LLC)

Session Classification: Lightning Talks

Contribution ID: 36

Type: **not specified**

Biomimetic Digital Twins and Multiomics: Applications to Rheumatoid Arthritis to Understand the Molecular Mechanisms of Diseases

Tuesday, 17 September 2024 13:14 (7 minutes)

Presenter: KEARNS, William G. (Genzeva)

Session Classification: Lightning Talks

Contribution ID: 37

Type: **not specified**

Grand challenges and cross-disciplinary collaborations for digital twins

Monday, 16 September 2024 11:30 (30 minutes)

Presenters: KAPADIA, Anuj (Oak Ridge National Laboratory); ALEXANDER, Frank (Argonne National Laboratory); BROWNING, Jeren M. (Idaho National Laboratory); LIN, Meifeng (Brookhaven National Laboratory)

Session Classification: Panel Discussion

Contribution ID: 38

Type: **not specified**

Biomedical Digital Twin Industry Panel

Monday, 16 September 2024 17:00 (30 minutes)

Presenters: CHRISTIANSON, Anastasia (EPAM); ELLIS, Josh (Intempo Health); HADJISAVAS, Michael (p-Chips); BRADLEY, Nathaniel (Data Vault)

Session Classification: Panel Discussion

Contribution ID: 39

Type: **not specified**

Digital Twin Impact and Market

Tuesday, 17 September 2024 11:30 (30 minutes)

Presenters: FISKE, Barton (NVIDIA); PENG, Grace (NIH); CHURCHILL, Michael (PPPL); PARIKH, Mihir (Nishith Desai Associates)

Session Classification: Panel Discussion

Contribution ID: 40

Type: **not specified**

Going Forward: What do we do as a community to facilitate the R&D and applications of digital twins?

Tuesday, 17 September 2024 16:40 (30 minutes)

Presenters: RASHEED, Adam (Amazon Web Services); STAHLBERG, Eric (Frederick National Laboratory for Cancer Research); HUDSON, Florence (Columbia University); DENG, Jun (Yale University)

Session Classification: Panel Discussion

Contribution ID: 41

Type: **not specified**

Building and Deploying Digital Twins for Business Value

Tuesday, 17 September 2024 13:21 (7 minutes)

Presenter: RASHEED, Adam (Amazon Web Services)

Session Classification: Lightning Talks

Contribution ID: 42

Type: **not specified**

Data Vault Holdings

Monday, 16 September 2024 13:00 (10 minutes)

Presenter: BRADLEY, Nathaniel (Data Vault)

Session Classification: Sponsor Presentations

Contribution ID: 43

Type: **not specified**

Intempo Health

Monday, 16 September 2024 13:10 (7 minutes)

Presenter: ELLIS, Josh (Intempo Health)

Session Classification: Sponsor Presentations