

# 2019 NY SCIENTIFIC DATA SUMMIT: ADVANCE PROGRAM

WEDNESDAY, JUNE 12, 2019

Davis Auditorium, Columbia University

TIME	SPEAKER	TITLE
8:30-9:00 am	<i>Continental Breakfast</i>	
9:00-9:15am	<i>Welcome and Opening Remarks</i>	
9:15-10:15am	<b>KEYNOTE: Gavin Schmidt Director, NASA Goddard Institute for Space Studies, NY</b>	<b>“Challenges in Climate Science in an Era of Big Data”</b>
10:15-10:45am	<i>Coffee Break</i>	

## SESSION 1: EARTH AND CLIMATE SCIENCE (PART 1)

10:45-11:15 am	<i>Robert Kopp, Rutgers University</i>	<i>“Mapping Sea-Level Change in Time, Space, and Probability”</i>
11:15-11:45 am	<i>Ryan Abernathy, Columbia University/ Lamont-Doherty Earth Observatory</i>	<i>“Pangeo: Big Climate Data Analytics on HPC and Cloud”</i>
11:45-12:15 pm	<i>Qidong Yang, Chia-Ying Lee and Michael K. Tippett, Columbia University/ Lamont-Doherty Earth Observatory</i>	<i>“Improved Forecasts and Understanding of Hurricane Rapid Intensification”</i>
12:15-1:45 pm	<i>Lunch and Poster Session #1</i>	

## SESSION 2: EARTH AND CLIMATE SCIENCE (PART 2)

1:45-2:15 pm	<i>Kun Wang, Wai-Ching Sun, and Qiang Du, Columbia University</i>	<i>“A Multiscale Meta-Modeling Game for Fluid-Infiltrating Porous Media”</i>
2:15-2:45 pm	<i>Jeroen Tromp, Princeton University</i>	<i>“Workflow Management for Exascale Global Seismic Tomography”</i>
2:45-3:30 pm	<i>Coffee Break and Poster Session #1 (cont.)</i>	

## SESSION 3: COMPUTATIONAL ASTROPHYSICS AND COSMOLOGY

3:30-4:00 pm	<i>Peter Nugent, LBL</i>	<i>“Supernova Astrophysics and Cosmology: the Merger of Simulations and Observations”</i>
4:00-4:30 pm	<i>Greg Bryan, Columbia University</i>	<i>“Simulating the First Stars and Black Holes in the Universe”</i>
4:30-5:30 pm	<b>KEYNOTE: David Keyes KAUST</b>	<b>“The Convergence of Big Data and Large-Scale Simulation: Leveraging the Simulation-Data-Edge Continuum for Science”</b>
5:30-6:30 pm	<i>Social Reception</i>	

# 2019 NY SCIENTIFIC DATA SUMMIT: ADVANCE PROGRAM

THURSDAY, JUNE 13, 2019

Davis Auditorium, Columbia University

TIME	SPEAKER	TITLE
8:30-9:00 am	<i>Continental Breakfast</i>	
9:00-10:00 am	<b>KEYNOTE: Mark Moraes Head of Engineering, D.E. Shaw Research</b>	<b>“Drinking from a Firehose: Solving Data Analysis Challenges Posed by the Anton Supercomputer”</b>
10:00-10:30 am	<i>Coffee Break</i>	

## SESSION 4: SCALABLE ALGORITHMS AND COMPUTER SYSTEMS FOR SCIENTIFIC APPLICATIONS

10:30-11:00 am	<i>Rajit Manohar, Yale University</i>	<i>“Neuromorphic Computing”</i>
11:00-11:30 am	<i>Shantenu Jha, BNL/Rutgers University</i>	<i>“Middleware Building Blocks for Scientific Workflow Systems”</i>
11:30-1:00 pm	<i>Lunch and Poster Session #2</i>	
1:00-2:00 pm	<b>KEYNOTE: Rick Stevens, Argonne National Laboratory/University of Chicago</b>	<b>“AI for Science”</b>
2:00-2:15 pm	<i>Short Break</i>	

## SESSION 5: BIOMEDICAL INFORMATICS

2:15-2:45 pm	<i>Georgia Tourassi, ORNL</i>	<i>“Artificial Intelligence for Near-Real Time Population Cancer Surveillance: Challenges and Opportunities”</i>
2:45-3:15pm	<i>Ji Hwan Park, Han Eol Cho, Jong Hun Kim, Melanie Wall, Yaakov Stern, Hynsun Lim, Shinjae Yoo, Hyoung-Seop Kim, and Jiook Cha, BNL, Yonsei University College of Medicine [S. Korea], National Health Insurance Service Ilsan Hospital [S. Korea], Columbia University</i>	<i>“Electronic Health Records Based Prediction of Future Incidence of Alzheimer’s Disease Using Machine Learning”</i>
3:15-4:00pm	<i>Coffee Break and Poster Session #2 (cont.)</i>	

## SESSION 6: LARGE-SCALE IMAGE ANALYSIS AND MAPPING

4:00-4:30 pm	<i>Yuewei Lin, Xiaoning Li, Qun Liu, and Shinjae Yoo, BNL, Stony Brook University</i>	<i>“One-Shot Particle Picking in Cryo-EM Images”</i>
4:30-5:00 pm	<i>Suryanarayana Maddu, Bevan L. Cheeseman, Ivo F. Sbalzarini, and Christian L. Mueller, TU Dresden [Germany], Max Planck Institute Dresden, [Germany], University of Cambridge [UK], Flatiron Institute [NY]</i>	<i>“Enabling Data-Driven Discovery in Biology by Statistical Learning of Interpretable Mathematical Models from Microscopy Videos”</i>
5:00-5:30 pm	<i>Qian Wang and Xiaofu He, NY State Psychiatric Institute, Columbia University</i>	<i>“A Hierarchical Feature Extraction Pipeline Using Resting-State fMRI for Autism Classification”</i>
5:30-6:00 pm	<i>Aurel Lazar, Columbia University</i>	<i>“Building the Functional Map of the Fruit Fly Brain”</i>

# 2019 NY SCIENTIFIC DATA SUMMIT: ADVANCE PROGRAM

FRIDAY, JUNE 14, 2019

Davis Auditorium, Columbia University

TIME	SPEAKER	TITLE
8:30-9:00 am	<i>Continental Breakfast</i>	
9:00-10:00 am	<b>KEYNOTE: Karen Willcox UT Austin</b>	<b><i>“Predictive Data Science for Physical Systems: from Model Reduction to Scientific Machine Learning”</i></b>
10:00-10:30 am	<i>Coffee Break</i>	

## SESSION 7: STREAMING DATA ANALYSIS AND LARGE-SCALE SIMULATION

10:30-11:00 am	<i>Mike Tuts, Columbia University</i>	<i>“Historical Perspective – The ATLAS Experiment at CERN’s LHC: How Do You Analyze 40 Million Physics Pictures Per Second?”</i>
11:00-11:30 am	<i>Luca Carloni, Giuseppe Di Guglielmo, Yeon-Jae Jwa, and Georgia Karagiorgi, Columbia University</i>	<i>“Accelerating Deep Neural Networks for Real-Time Data Selection for High-Resolution Imaging Particle Detectors”</i>
11:30-12:00 pm	<i>Yibo Yang and Paris Perdikaris, University of Pennsylvania</i>	<i>“Physics-Informed Deep Generative Models for Scalable Uncertainty Quantification”</i>
12:00-12:10 pm	<i>Closing Remarks</i>	