

The 2nd NOAA Workshop on Leveraging AI in Environmental Sciences: Exploiting Space- and Ground-Based Observations and Enhancing Earth System Prediction

Workshop in Slow Motion (WiSM)

July 2020 - February 2021

Via GoToWebinar

All listed times correspond to the US Eastern Time Zone (ET)

Thursday, 30 July 2020

Session 1 (S1): Overview Talks, Part 1

Chairs: Harry Cikanek (NOAA/NESDIS, STAR Director)

1:00 PM - 1:05 PM	- Information on the 2nd NOAA AI Workshop: Logistics, Timeline and Structure <i>Kevin Garrett (NOAA/NESDIS/STAR, Local Organizing Committee)</i>
1:05 PM - 1:15 PM	- Welcoming remarks and introduction of keynote speakers <i>Harry Cikanek (NOAA/NESDIS, STAR Director)</i>
1:15 PM - 1:25 PM	- Keynote Address, NOAA AI: Realizing Transformational Advances in Mission Performance and Our Culture of Innovation <i>RADM Timothy Gallaudet (NOAA, Deputy NOAA Administrator)</i>
1:25 PM - 1:35 PM	- Keynote Address <i>Stephen Volz (NOAA, NESDIS Assistant Administrator)</i>
1:35 PM - 1:45 PM	- Keynote Address <i>Nicole LeBoeuf (NOAA, NOS Acting Assistant Administrator)</i>
1:45 PM - 2:00 PM	- NOAA AI Implementation Plan <i>Bill Michaels (NOAA, NMFS)</i>
2:00 PM - 2:20 PM	- Efforts in NOAA to Leverage Modern AI techniques for Satellite Data Exploitation and NWP <i>Sid Boukabara (NOAA/NESDIS, STAR Principal Scientist)</i>
2:20 PM - 2:40 PM	- Machine Learning at ECMWF <i>Peter Dueben (ECMWF)</i>
2:40 PM - 3:15 PM	- Panel Discussion (facilitated by H. Cikanek) <i>Panelists: Dr. Stephen Volz, Dr. James Sims, Nicole LeBoeuf, Bill Michaels</i>

Thursday, 6 August 2020

Session 2 (S2): Fundamentals of AI, Part 1

Chairs: Dave Turner (NOAA, ESRL), Jebb Stewart (NOAA, ESRL)

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| 12:00 PM - 12:35 PM | - Data Science and Machine Learning at the UK Met Office
<i>Samantha Adams (UKMO)</i> |
| 12:35 PM - 12:55 PM | - Recent Machine Learning Research at NCAR
<i>Sue Ellen Haupt (NCAR)</i> |
| 12:55 PM - 1:20 PM | - Data-driven (super-) parametrization using deep learning:
Experimentation with a multi-scale Lorenz 96 system and transfer learning
<i>Ashesh Chattopadhyay (Rice U.)</i> |
| 1:20 PM - 1:45 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Thursday, 13 August 2020

Session 3 (S3): Looking Ahead (Using AI for NOAA mission), Part 1

Chairs: Bill Michaels (NOAA, NMFS), John Ten Hoeve (Office of Organizational Excellence)

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| 12:00 PM - 12:30 PM | - NOAA Center for AI (NCAI) Introduction
<i>Bill Michaels (AI S&T Chair), Mary Wohlgemuth (NCEI Director), Eric Kihn (NCEI CCOG Director), Rob Redmon (NCAI LCDP Acting Lead)</i> |
| 12:30 PM - 1:00 PM | - NCAI Community of Practice (CoMP)
<i>Eric Kihn (NCEI CCOG Director), Rob Redmon (NCAI LCDP Acting Lead)</i> |
| 1:00 PM - 1:30 PM | - NCAI CoMP Capabilities Discussion |

Thursday, 20 August 2020

Session 4 (S4): AI/ML for Post-Processing and Data dissemination, Part 1

Chairs: Greg Dusek (NOAA/NOS), Andre van der Westhuysen (IMSG at NWS/NCEP/EMC)

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| 12:00 PM - 12:40 PM | - Artificial Intelligence for Advanced Earth Science Information Systems
<i>Jacqueline Le Moigne (NASA)</i> |
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12:40 PM - 1:10 PM	- Using Random Forests to Create Probabilistic Next-Day Severe Weather Guidance from NWP Ensembles <i>Eric Loken (OU CIMMS/OU)</i>
1:10 PM - 1:40 PM	- Modeling Clouds From Sub-grid to Global Scales with Deep Generative Models <i>Tianle Yuan (NASA GSFC/UMBC JCET)</i>
1:40 PM - 2:00 PM	- Panel Discussion <i>Panelists: Session Chairs & Speakers</i>

Thursday, 27 August 2020

Session 5 (S5): AI/ML for Environmental Data, Image, and Signal Processing, Part 1

Chairs: Imme Ebert-Uphoff (CIRA), Ryan Lagerquist (CIRA/NOAA-GSD)

12:00 PM - 12:40 PM	- Combining data assimilation and machine learning for weather forecasting <i>Alan Geer (ECMWF)</i>
12:40 PM - 1:00 PM	- Viewing Climate Signals through an AI Lens <i>Elizabeth Barnes (CSU)</i>
1:00 PM - 1:20 PM	- Video and Image Analytics for Marine Environments (VIAME), a Do-it-yourself AI Toolkit <i>Matthew Dawkins (Kitware Inc)</i>
1:20 PM - 1:40 PM	- Generating High Temporal and Spatial Microwave Hurricane Image Products Using Artificial intelligence and Machine Learning Technique <i>Likun Wang (RTi at NESDIS/STAR)</i>
1:40 PM - 2:00 PM	- Panel Discussion <i>Panelists: Session Chairs & Speakers</i>

Thursday, 3 September 2020

Session 6 (S6): AI/ML for Information Extraction from Data, Part 1

Chairs: Philippe Tissot (Texas A&M University, Corpus Christi), Jebb Stewart (NOAA, ESRL)

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| 1:00 PM - 1:20 PM | - AI Quality Control of NOAA Tide Gauge Observations
<i>Gregory Dusek (NOAA/NOS)</i> |
| 1:20 PM - 1:40 PM | - Artificial Intelligence and Deep Machine learning for Passive Acoustic Monitoring at NOAA Fisheries
<i>Ann Allen, Manuel Castellote, Shannon Rankin (NOAA/NMFS/PIFSC, NOAA/NMFS/AFSC, NOAA/NMFS/SWFSC)</i> |
| 1:40 PM - 2:00 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Thursday, 10 September 2020

Session 7 (S7): Fundamentals of AI, Part 2

Chairs: Amy McGovern (OU), David Hall (NVIDIA)

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| 12:00 PM - 12:25 PM | - Trustworthy AI for High Impact Weather Prediction
<i>Amy McGovern (OU)</i> |
| 12:25 PM - 12:50 PM | - Data Assimilation and Machine Learning Science at ECMWF
<i>Massimo Bonavita (ECMWF)</i> |
| 12:50 PM - 1:15 PM | - Ensemble Oscillation Correction (EnOC): Leveraging oscillatory modes to improve forecasts of chaotic systems
<i>Eviatar Bach (UMD)</i> |
| 1:15 PM - 1:40 PM | - Cost Sensitive Loss Function for Machine Learning
<i>Richard Berk (U. Penn)</i> |
| 1:40 PM - 2:00 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Thursday, 17 September 2020

Session 8 (S8): Machine Learning Tools and Best Practices, Part 1

Chairs: Sue Haupt (NCAR), Jason Hickey (Google)

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| 12:00 PM - 12:25 PM | - Which strategies did my neural network learn?
<i>Imme Ebert-Uphoff (CIRA)</i> |
| 12:25 PM - 12:50 PM | - ClimateNet: an expert-labelled open dataset and Deep Learning architecture for enabling high-precision analyses of extreme weather
<i>Karthik Kashinath (Lawrence Berkeley National Lab)</i> |
| 12:50 PM - 1:15 PM | - The AI for Earth System Science Hackathon: Challenge Problems and Lessons Learned
<i>David Gagne (NCAR)</i> |
| 1:15 PM - 1:40 PM | - "AI for Science" program at Argonne NL
<i>Ian Foster (ORNL)</i> |
| 1:40 PM - 2:00 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Tuesday, 22 September 2020

Session 9 (S9): Tutorial 1

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| 12:00 PM - 2:00 PM | - Tutorial on Video and Image Analytics for Marine Environments (VIAME), a Do-It-Yourself AI Toolkit
<i>Matthew Dawkins (Kitware), Anthony Hoogs (Kitware)</i> |
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Thursday, 24 September 2020

Session 10 (S10): AI/ML for Post-Processing and Data dissemination, Part 2

Chairs: Nikunj Oza (NASA), Allen Huang (UW-Madison)

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| 12:00 PM - 12:20 PM | - The role of machine learning in a seamless modeling approach from weather to climate time scales
<i>V. Balaji (NOAA/GFDL)</i> |
| 12:20 PM - 12:40 PM | - Elucidating Ecological Complexity: Unsupervised Learning determines global marine eco-provinces
<i>Maike Sonnewald (NOAA/GFDL)</i> |

12:40 PM - 1:00 PM	- Accelerating Google's Flood Forecasting Initiative with Tensor Processing Units <i>Vova Anisimov, Anudhyan Boral, Lily Hu, Sella Nevo, Damien Pierce, Yusef Shafi (Google Research)</i>
1:00 PM - 1:20 PM	- Predicting global cloud ceiling values with machine learning <i>Mihai Alexe (Spire Global)</i>
1:20 PM - 1:45 PM	- Panel Discussion <i>Panelists: Session Chairs & Speakers</i>

Tuesday, 29 September 2020

Session 11 (S11): Poster Session I

Chairs: Kevin Garrett (NOAA/NESDIS/STAR)

12:00 PM - 2:00 PM	- Modelling runoff from green roofs using Deep Neural Networks <i>Elhadi Abdalla (NTNU)</i>
	- Fine-Delineated Tropical Cyclone Detection from Geostationary Satellites and IBTrACS data using Advanced Neural Networks <i>Ata Akbari Asanjan (Universities Space Research Association)</i>
	- Pixel-wise Deep Sequence learning for wildfire spread prediction in Alberta, Canada <i>Xinli Cai (University of Alberta)</i>
	- Using deep super-resolution for high resolution precipitation images <i>Xinli Cai (University of Alberta)</i>
	- Lightning prediction in the Atlantic offshore region <i>John Cintineo (University of Wisconsin -- Madison)</i>
	- Connecting ocean physical and biogeochemical properties with the spatial distribution of mesopelagic fish abundance <i>Donglai Gong (Virginia Institute of Marine Science - William & Mary)</i>
	- Using Data Mining Decision Tree Method to Identify the Optimal Fire Detection Thresholds <i>Yingxin Gu (IMSG at NOAA/NESDIS/STAR)</i>
	- Application of Advanced Deep Learning Algorithms in Precipitation Estimation from Multiple Sources of Information <i>Negin Hayatbini (University of California, Irvine)</i>
	- Low Cloud Detection for the GOES ABI using a Random Forest Classifier <i>John Haynes (CIRA / Colorado State University)</i>
	- 3D Convolutional Deep Learning for Coastal Fog Predictions <i>Hamid Kamangir (Texas A&M University-Corpus Christi)</i>
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- Verification of a Machine Learning Algorithm in the Prediction of Flash Flooding
Mark Klein (NWS/Weather Prediction Center)
- Utilizing CNN's to produce Quantitative Precipitation Estimates
Micheal Simpson (University of Oklahoma)
- Refining aerosol optical depth retrievals over land by constructing the relationship of spectral surface reflectances through deep learning: application to Himawari-8
Tianing Su (UMD)

Thursday, 1 October 2020

Session 12 (S12): AI/ML for Models Parameterization, Emulation, and Hybrid Model/AI Construct, Part 1

Chairs: Vladimir Krasnopolsky (NOAA/NCEP/EMC), Kayo Ide (UMD)

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| 12:00 PM - 12:30 PM | - First steps toward a machine-learning based moist physics parameterization by coarse-graining
<i>Jeremy McGibbon (Vulcan)</i> |
| 12:30 PM - 12:50 PM | - Operational In-Field Forecasting using Online Sequential Extreme Learning Machines
<i>Carlos Gaitan (Benchmark Labs)</i> |
| 12:50 PM - 1:10 PM | - Representing Aerosol-Cloud Interactions Using Machine Learning Techniques in Energy Exascale Earth System Model
<i>Po-Lun Ma (PNNL)</i> |
| 1:10 PM - 1:30 PM | - Robustness of NN Emulations of Radiative Transfer Parameterizations in a State-of-the-Art GCM
<i>Alex Belochitski (IMSG at NOAA/NCEP/EMC)</i> |
| 1:30 PM - 2:00 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Week of Monday, 5 October 2020

WEEK OF ECMWF WORKSHOP

Thursday, 15 October 2020

Session 13 (S13): AI/ML for Data Fusion/Assimilation, Part 1

Chairs: Peter Jan van Leeuwen (CSU), Steve Penny (NOAA PSD/CIRES)

12:00 PM - 12:20 PM	- Overview of AI activities at IBM Weather <i>John Williams (IBM Weather)</i>
12:20 PM - 12:40 PM	- Overview of AI activities at Google <i>Jason Hickey (Google)</i>
12:40 PM - 1:00 PM	- Integrating AI/ML with Data Assimilation for Prediction Applications at NOAA <i>Stephen Penny (NOAA PSD/CIRES)</i>
1:00 PM - 1:20 PM	- Automated Analysis of Satellite Imagery in Support of Severe Weather Nowcasting <i>Michael Pavolonis (NOAA/NESDIS/STAR)</i>
1:20 PM - 1:40 PM	- Keynote Address, Dr Neil Jacobs (NOAA Administrator)
1:40 PM - 2:00 PM	- Panel Discussion <i>Facilitator: Harry Cikanek, STAR</i> <i>Panelists: Session Chairs & Speakers</i>

Tuesday, 20 October 2020

Session 14 (S14): Tutorial 2

12:00 PM - 2:00 PM	- Learning the Fundamentals of Machine Learning through Forecasting El Niño <i>Karthik Kashinath, Ankur Mahesh (LBL, ClimateAI)</i>
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Thursday, 22 October 2020

Session 15 (S15): AI for Innovation: New Ways to Exploit Environmental Data, Part 1

Chairs: Christina Kumler (CIRES/NOAA/GSL), Jeremy McGibbon (Vulcan)

12:00 PM - 12:25 PM	- Neural Networks for Postprocessing Ensemble Weather Forecasts <i>Sebastian Lerch (KIT)</i>
12:25 PM - 12:45 PM	- What is "AI-Ready" Open Data? <i>Tyler Christensen (NOAA/NOS/IMO)</i>

12:45 PM - 1:05 PM	- Precipitation typology with GOES-R observations using insights from the Multi-Radar / Multi-Sensor (MRMS) system <i>Shruti A. Upadhyaya (CIMMS)</i>
1:05 PM - 1:25 PM	- Improving Passive Acoustic Monitoring Applications to the Endangered Cook Inlet Beluga Whale <i>Ming Zhong (Microsoft)</i>
1:25 PM - 1:45 PM	- Leveraging NWP for Operational Machine Learning Predictions for Coastal and Environmental Stakeholders <i>Philippe Tissot (Texas A&M University, Corpus Christi)</i>
1:45 PM - 2:00 PM	- Panel Discussion <i>Panelists: Session Chairs & Speakers</i>

Thursday, 29 October 2020

Session 16 (S16): AI/ML for Post-Processing and Data dissemination, Part 3

Chairs: John K. Williams (The Weather Company, an IBM Business), Maike Sonnewald (NOAA/GFDL)

12:00 PM - 12:25 PM	- AI and Clouds at Microsoft <i>Justin Worriow (Microsoft)</i>
12:25 PM - 12:50 PM	- Improving CFS Precipitation and 2m Temperature Anomaly Outlooks from Week-1 to Week-6 with Machine Learning <i>Yun Fan (NCEP/CPC)</i>
12:50 PM - 1:15 PM	- Shifting to AI for Passive Acoustic Monitoring of the Endangered Cook Inlet Beluga Whale <i>Manuel Castellote (NOAA AFSC and UW)</i>
1:15 PM - 1:40 PM	- Machine Learning Based Whether Precipitation Prediction with NWP model <i>Se-Young Yun (KAIST)</i>
1:40 PM - 2:00 PM	- Panel Discussion <i>Panelists: Session Chairs & Speakers</i>

Thursday, 5 November 2020

Session 17 (S17): AI/ML for Post-Processing and Data dissemination, Part 4

Chairs: Andre van der Westhuysen (IMSG at NWS/NCEP/EMC), William Collins (LBNL, UC Berkeley)

12:00 PM - 12:40 PM	- NIMS R&D strategy for Alpha Weather <i>Hyesook Lee (KMA)</i>
12:40 PM - 1:00 PM	- ML for post processing model output at EMC <i>Vladimir Krasnopolsky (NOAA/NCEP/EMC)</i>
1:00 PM - 1:30 PM	- Applying satellite observations of tropical cyclone internal structures to rapid intensification forecast with machine learning <i>Hui Su (JPL/Caltech)</i>
1:30 PM - 2:00 PM	- Panel Discussion. <i>Panelists: Session Chairs & Speakers</i>

Tuesday, 10 November 2020

Session 18 (S18): Tutorial 3

12:00 PM - 2:00 PM	- A Practical Introduction to Deep Learning. Detecting strong storms on the Earth and Sun. <i>David Hall (NVIDIA)</i>
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Thursday, 12 November 2020

Session 19 (S19): AI/ML for Environmental Data, Image, and Signal Processing, Part 2

Chairs: Imme Ebert-Uphoff (CIRA), Ryan Lagerquist (CIRA/NOAA-GSD)

12:00 PM - 12:30 PM	- Machine learning for detection of climate extremes: New approaches to uncertainty quantification. <i>William Collins (LBNL, UC Berkeley)</i>
12:30 PM - 1:00 PM	- Analysis of Multispectral Land Surface Reflectance Time-Series for Detecting and Classifying Land Cover Change <i>Srija Chakraborty (NASA GSFC/ USRA)</i>
1:00 PM - 1:30 PM	- Super-Resolution of VIIRS-Measured Ocean Color Products Using Deep Convolutional Neural Network <i>Xiaoming Liu (NOAA/NESDIS/STAR)</i>
1:30 PM - 1:50 PM	- Panel Discussion <i>Panelists: Session Chairs & Speakers</i>

Thursday, 19 November 2020

Session 20 (S20): Looking Ahead (Using AI for NOAA mission), Part 2

Chairs: Michael Pavolonis (NESDIS/STAR), Philippe Tissot (Texas A&M University, Corpus Christi)

12:00 PM - 12:30 PM	- Exploring the Frontiers of Deep Learning for Earth and Space <i>David Hall (NVIDIA)</i>
12:30 PM - 12:50 PM	- Accelerating biodiversity surveys with computer vision: successes and challenges <i>Dan Morris (Microsoft AI for Earth)</i>
12:50 PM - 1:10 PM	- Counting Belugas from Space: Can we use very high resolution satellite imagery to accurately assess the critically endangered beluga whale population in Cook Inlet, Alaska? <i>Kimberly Goetz (NOAA/NMFS/AFSC/MML)</i>
1:10 PM - 1:30 PM	- Tackling challenges of Ocean Exploration with Machine Learning and Artificial Intelligence <i>Matt Dornback (NOAA/OAR/OER)</i>
1:30 PM - 2:00 PM	- Panel Discussion <i>Panelists: Session Chairs & Speakers</i>

Week of Monday, 23 November 2020

WEEK OF THANKSGIVING (USA)

Tuesday, 1 December 2020

Session 21 (S21): Tutorial 4

12:00 PM - 2:00 PM	- Traditional Machine Learning Pipeline Applied to NWP Model Data <i>Amanda Burke (OU)</i>
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Thursday, 3 December 2020

Session 22 (S22): AI/ML for Models Parameterization, Emulation, and Hybrid Model/AI Construct, Part 2

Chairs: Likun Wang (ESSIC, University of Maryland), Ashesh Chattopadhyay (Rice University)

12:00 PM - 12:20 PM	- Using Neural Networks as Model Physics Components in Numerical Weather Prediction <i>Vladimir Krasnopolsky (NOAA/NCEP/EMC)</i>
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12:20 PM - 12:40 PM	<ul style="list-style-type: none"> - Challenges associated with training a machine-learning based moist physics parameterization by coarse-graining in a model with topography <i>Spencer Clark (Vulcan, Inc./NOAA GFDL)</i>
12:40 PM - 1:00 PM	<ul style="list-style-type: none"> - Exploring Various Machine Learning Techniques for Emulating Simplified Physical Parameterizations in the Community Atmosphere Model <i>Garrett Limon (University of Michigan)</i>
1:00 PM - 1:20 PM	<ul style="list-style-type: none"> - Predicting Algal Bloom Toxicity in Lake Erie: Lessons From Machine Learning <i>Theodore A.D. Slawacki (LimnoTech)</i>
1:20 PM - 1:40 PM	<ul style="list-style-type: none"> - Stable machine-learning parameterization of subgrid processes for climate modeling at a range of resolutions <i>Janni Yuval (MIT)</i>
1:40PM- 2:00 PM	<ul style="list-style-type: none"> - Panel Discussion <i>Panelists: Session Chairs & Speakers</i>

Week of Monday, 7 December 2020

WEEK OF AGU

Session 23 (S23): Poster Session II

Chairs: Katherine Lukens (NESDIS/STAR)

12:00 PM - 2:00 PM

- Cloud classification with unsupervised deep learning
Takuya Kurihana (University of Chicago)
- Convection Classification in a Future Climate: What did Deep Learning Really Learn?
Maria Molina (National Center for Atmospheric Research)
- Engaging Freshmen Undergraduates in AI on Cloud Imagery and Model Output
Alexandra Jones (UMD)
- Preparing for the Future: Development of an Open-Source Workflow for AI driven Acoustic Data Analysis
Shannon Rankin (Southwest Fisheries Science Center, NMFS)
- AI in the US Inland Waterways industry
David Sathiaraj (Trabus Technologies)
- Online bias correction of weather models using machine learning
Oliver Watt-Meyer (Vulcan, Inc.)
- Automatic Extraction of Internal Wave Signature from Multiple Satellite Sensors based on Deep Convolutional Neural Networks
Shuangshang Zhang (University of Maryland Eastern Shore)
- Development of machine learning based downscaling methods for wildfire risk
Rackhun Son (Gwangju Institute of Science and Technology)
- Combining spatio-temporal weather and crop data for network-based inference on the international wheat trade
Srishti Vishwakarma (University of Maryland Center for Environmental Science Appalachian Laboratory)
- MLOps platforms to address the complexities of delivering a ML/AI product
Pamela Perez (GAMA-1 Technologies)
- Unlocking GOES: A Statistical Framework for Quantifying the Evolution of Convective Structure in Tropical Cyclones
Trey McNeely (Carnegie Mellon University)

Thursday, 17 December 2020

Session 24 (S24): AI/ML for Environmental Data, Image, and Signal Processing, Part 3

Chairs: Harry Cikanek (NOAA/NESDIS/STAR) and Xiaoming Liu ((NOAA/NESDIS/STAR)

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| 12:00 PM - 12:20 PM | - A Deep Learning Approach for Intelligent Thinning of Satellite Data
<i>Sarvesh Garimella (ACME AtronOmatic)</i> |
| 12:20 PM - 12:40 PM | - Automation-assisted segmentation to expedite 3D coral mapping
<i>Hugh Runyan (SIO/UCSD)</i> |
| 12:40 PM - 1:00 PM | - A Storm Event Imagery Dataset for Deep Learning Applications in Radar and Satellite Meteorology
<i>Mark Veillette (MIT Lincoln Laboratory)</i> |
| 1:00 PM - 1:20 PM | - Precipitation downscaling using conditional super-resolution based deep neural network.
<i>Jiali Wang (Argonne National Laboratory)</i> |
| 1:20 PM - 1:50 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Week of Monday, 21 December 2020

WINTER HOLIDAYS WEEK

Week of Monday, 28 December 2020

WEEK OF NEW YEAR'S

Thursday, 7 January 2021

Session 25 (S25): AI/ML for Data Fusion/Assimilation, Part 2

Chairs: Steve Penny (NOAA PSD/CIRES), Kayo Ide (UMD)

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| 12:00 PM - 12:20 PM | - Using Deep Learning to Generate Synthetic Radar Fields from GOES ABI and GLM
<i>Kyle Hilburn (CIRA/CSU)</i> |
| 12:20 PM - 12:50 PM | - Deep Multi-Sensor Domain Adaptation on Active and Passive Satellite Remote Sensing Data
<i>Sanjay Purushotham (UMBC)</i> |
| 12:50 PM - 1:10 PM | - A satellite-station blended daily surface air temperature dataset for the Tibetan Plateau
<i>Yuhan (Douglas) Rao (CISS/NCICS/NCSS)</i> |
| 1:10 PM - 1:40 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Week of Monday, 11 January 2021

WEEK OF AMS

Thursday, 21 January 2021

Session 26 (S26): AI/ML for Information Extraction from Data, Part 2

Chairs: Shannon Rankin (Southwest Fisheries Science Center, NMFS), Matt Dornback (NOAA/OAR/OER)

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| 12:00 PM - 12:20 PM | - Retrieving Chlorophyll concentration from GOES-16 ABI using Deep Learning Techniques
<i>Guangming Zheng (NOAA/NESDIS/STAR)</i> |
| 12:20 PM - 12:40 PM | - Kick: Shift-N-Overlap Cascades of Transposed Convolutional Layer for Better Autoencoding Reconstruction on Remote Sensing Imagery
<i>Seungkyun Hong (Korea Institute of Science and Technology Information)</i> |
| 12:40 PM - 1:00 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Thursday, 28 January 2021

Session 27 (S27): AI/ML for Information Extraction from Data, Part 3

Chairs: Guangming Zheng (NOAA/NESDIS/STAR) and Mark Veillette (MIT-LL)

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| 12:00 PM - 12:20 PM | - Deriving Fire Radiative Power from Numerical Weather Models and Satellites using Machine Learning Methods
<i>Christina Kumler (CIRES/NOAA/GSL)</i> |
| 12:20 PM - 12:40 PM | - Effects of Balancing Dataset on Support Vector Machine Performance for Tropical Cyclone Intensity Predictions
<i>Mu-Chieh Ko (NOAA/AOML/HRD)</i> |
| 12:40 PM - 1:00 PM | - What can we learn from Random Forest in the context of the tropical cyclone rapid intensification problem?
<i>Chris Slocum (NOAA/NESDIS/STAR)</i> |
| 1:00 PM - 1:20 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Thursday, 4 February 2021

Session 28 (S28): Machine Learning Tools and Best Practices, Part 2

Chairs: Sanjay Purushotham (UMBC) and Mu-Chieh Ko (NOAA/AOML/HRD)

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| 12:00 PM - 12:20 PM | - Cloud Cover Nowcasts from Process-Based Statistical Models
<i>Chuyen Nguyen (Naval Research Laboratory)</i> |
| 12:20 PM - 12:40 PM | - Radiant MLHub: Advancing Utilization of AI Applications on Earth Observations with Benchmark Training Datasets
<i>Hamed Alemohammad (Radiant Earth Foundation)</i> |
| 12:40 PM - 1:00 PM | - Toward the Creation of Widely Applicable Multi-Step Machine Learning Forecasting: An Investigation into ML Modeling Strategies
<i>Daniel Vassallo (University of Notre Dame)</i> |
| 1:00 PM - 1:30 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |
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Thursday, 11 February 2021

Session 29 (S29): AI/ML for Environmental Data, Image, and Signal Processing, Part 4

Chairs: Chris Slocum (NOAA/NESDIS/STAR) and Jitendra Kumar (Oak Ridge National Laboratory)

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| 12:00 PM - 12:20 PM | - Convolutional Neural Networks for Hydrometeor Classification using Dual Polarization Doppler Radars
<i>Jitendra Kumar (Oak Ridge National Laboratory)</i> |
| 12:20 PM - 12:40 PM | - Machine Learning for Earth Science Data Systems
<i>Manil Maskey (NASA)</i> |
| 12:40 PM - 1:00 PM | - CoralNet: AI for Automatic Annotation of Benthic Imagery
<i>David Kriegman (UCSD)</i> |
| 1:00 PM - 1:20 PM | - How NOAA Fisheries Leveraged Competitions and Collaboration to Automate the Identification of Right Whales using Deep Learning
<i>Christin Khan (NOAA/NMFS/NEFSC/READ/PSB)</i> |
| 1:20 PM - 1:40 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Thursday, 18 February 2021

Session 30 (S30): AI/ML for Environmental Data, Image, and Signal Processing, Part 5

Chairs: Manil Maskey (NASA), George Cutter (NOAA Fisheries)

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| 12:00 PM - 12:20 PM | - Mapping Arctic Vegetation using Hyperspectral Airborne Remote Sensing Data
<i>Venkata S. Konduri - Northeastern University & Oak Ridge National Laboratory</i> |
| 12:20 PM - 12:40 PM | - RU-net for precipitation retrieval from passive microwave observations
<i>Yeji Choi (SI Analytics)</i> |
| 12:40 PM - 1:00 PM | - A spatiotemporal quantification of the relative importance of indicator inputs for drought estimation
<i>Soni Yatheendradas (UMD/ESSIC & NASA/GSFC)</i> |
| 1:00 PM - 1:20 PM | - Development of a Machine Learning-Based Radiometric Bias Correction for NOAA's Microwave Integrated Retrieval System (MiRS)
<i>Yan Zhou (UMD/ESSIC/CISESS)</i> |
| 1:20 PM - 1:40 PM | - Radar Reflectivity Surface Rainfall Retrieval with cGAN Algorithm: An Idealized Study
<i>Shujia Zhou (NASA GSFC)</i> |
| 1:40 PM - 2:00 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

Tuesday, 23 February 2021

Session 31 (S31): Tutorial 5

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| 11:00 AM - 1:00 PM | - Leveraging Azure AI in Environmental Sciences
<i>Lead TBA (Microsoft)</i> |
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Thursday, 25 February 2021

Session 32 (S32): AI for Innovation: New Ways to Exploit Environmental Data, Part 2

Chairs: Forrest M. Hoffman (Oak Ridge National Laboratory) and Soni Yatheendradas (UMD/ESSIC & NASA/GSFC)

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| 12:00 PM - 12:20 PM | - Energy efficiency and security aspects of Smart Homes
<i>Olivera Kotevska (Oak Ridge National Laboratory)</i> |
| 12:20 PM - 12:40 PM | - Conditional Generative Adversarial Networks (cGANs) for Precipitation Estimation and Forecast from Multiple sources of information
<i>Negin Hayatbini (Scripps/CW3E/UCSD)</i> |
| 12:40 PM - 1:00 PM | - Benefits of modeling interdependent environmental variables, streamflow and stream temperature, with deep learning
<i>Jeffrey Sadler (USGS)</i> |
| 1:00 PM - 1:30 PM | - Panel Discussion
<i>Panelists: Session Chairs & Speakers</i> |

MEETING ADJOURNS

Tutorials To Be Scheduled

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| | - TBA
<i>Kevin Jorissen (AWS)</i> |
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Talks to reschedule:

Intra-day Forecast of Ground Horizontal Irradiance Using Long Short-Term Memory Network (LSTM)
Xianglei Huang (University of Michigan at Ann Arbor)