

## CURRICULUM VITAE

### JIANWU WANG

#### EDUCATION

Ph.D.	2007	Chinese Academy of Sciences, Computer Software and Theory
B.A.	2001	Tianjin University, Computer Science and Technology

#### Experience in Higher Education

2021 - Present	Associate Professor, Information Systems Department, UMBC
2015 - Present	Director, <a href="#">Big Data Analytics Lab</a> , UMBC
2021 - Present	Affiliated Faculty, the Center for Real-time Distributed Sensing and Autonomy (CARDS), UMBC
2018 - Present	Affiliated Faculty, the Joint Center for Earth Systems Technology (JCET), UMBC
2018 - Present	Affiliated Faculty, the NSF Center for Accelerated Real Time Analytics (CARTA), UMBC
2015 - 2021	Assistant Professor, Information Systems Department, UMBC
2012 - 2017	Adjunct Professor, North China University of Technology
2014 - 2015	Assistant Director, Research of Workflows for Data Science Center of Excellence, San Diego Supercomputer Center, University of California, San Diego
2015 - 2015	Associate Project Scientist, University of California, San Diego
2014 - 2015	Visiting Assistant Research Scientist, University of Maryland, College Park
2010 - 2015	Assistant Project Scientist, University of California, San Diego
2013 - 2013	Summer Session Lecturer, University of California, San Diego
2008 - 2010	Postdoctoral Researcher, University of California, San Diego
2007 - 2008	Postdoctoral Researcher, Polytechnic University of Turin

#### Honors Received

2020	CAREER Award, NSF
2019	Early-Career Faculty Excellence Award, UMBC

#### Research Support and/or Fellowships

- A. Non-UMBC** (total: \$38,754)
- |             |   |
|-------------|---|
| 2013 - 2014 | Industrial Scale Demonstration of Smart Manufacturing Achieving Transformational Energy, \$27,754, Department of Energy (DOE), Subcontract Co-PI. |
| 2011 - 2013 | Scientific Workflow Scheduling on Cloud, Amazon, \$11,000, PI.  |
- B. External Funding after joining UMBC** (total: \$37,499,314)
- |             |   |
|-------------|---|
| 2022 - 2026 | HDR Institute: HARP- Harnessing Data and Model Revolution in the Polar Regions, \$13,000,000, National Science Foundation (NSF), Co-PI. |
| 2021 - 2025 | AI & Autonomy for Multi-Agent Systems, \$20,000,000, Army Research Lab (ARL), Senior Personnel.   |
| 2021 - 2024 | REU Site: Online Interdisciplinary Big Data Analytics in Science and Engineering, \$293,710, National Science Foundation (NSF), PI.     |

- 2020 - 2025 CAREER: Big Data Climate Causality Analytics, \$583,385, National Science Foundation (NSF), PI.
- 2020 - 2023 Developing Passive Satellite Cloud Remote Sensing Algorithms using Collocated Observations, Numerical Simulation and Deep Learning, \$1,448,779, National Aeronautics and Space Administration (NASA), PI.
- 2020 - 2021 Multi-layered Intrusion Tolerant Byzantine Architecture for Bulk Power System Protective Relays, \$157,771, Department of Energy (DOE), Subcontract PI.
- 2019 - 2022 MRI: Acquisition of a Heterogeneous GPU Cluster to Facilitate Deep Learning Research at UMBC, \$300,000, National Science Foundation (NSF), Senior Personnel.
- 2019 - 2020 Climate Analytics on Google Cloud, \$14,000, Google Cloud Research Credits Program, PI.
- 2018 - 2021 Efficient and Flexible Aggregation and Distribution of MODIS Atmospheric Products based on Climate Analytics-as-a-Service Framework, \$418,058, National Aeronautics and Space Administration (NASA), PI.
- 2017 - 2021 CyberTraining: DSE: Cross-Training of Researchers in Computing, Applied Mathematics and Atmospheric Sciences using Advanced Cyberinfrastructure Resources, \$547,970, National Science Foundation (NSF), PI.
- 2017 - 2020 MRI: Acquisition of Cutting-Edge GPU and Phi Nodes for the Interdisciplinary UMBC High Performance Computing Facility, \$552,353, National Science Foundation (NSF), Co-PI.
- 2018 NASA Satellite Data Analytics, \$31,700, The Earth on AWS Cloud Credits for Research program, PI.
- 2017 - 2018 Big Satellite Data based Climate Analytics, \$20,000, Microsoft Cloud Research Credits Program, PI.
- 2017 - 2018 Low-Code Workflow Software for Life Sciences, \$100,000, Maryland Industrial Partnerships (MIPS) Program, PI.
- 2015 - 2017 Industrial Scale Demonstration of Smart Manufacturing Achieving Transformational Energy, \$31,588, Department of Energy (DOE), Subcontract PI.

**C. Internal Funding at UMBC** (total: \$49,843)

- 2020 Summer Research Faculty Fellowship, UMBC, \$6,000, PI.
- 2019 COEIT Faculty Lab and Equipment Renewal Grant, \$8,217, UMBC, Co-PI.
- 2015 - 2016 Addressing Fundamental Sensing and Data Processing Problems in Sustainable Farms, \$35,626, UMBC COEIT Strategic Plan Implementation Grant, Co-PI.

**Teaching**

**A. Courses Taught Outside of UMBC**

- Fall 2014 CMSC106 - Introduction to C Programming, Computer Science Department, University of Maryland, College Park (UMD)
- Summer 2013 CSE21 - Mathematics for Algorithms and Systems Analysis, Department of Computer Science and Engineering, University of California, San Diego (UCSD)

**B. Courses Taught at UMBC**

- Spring 2021 IS 651 - Distributed Systems
- Fall 2020 IS 651 - Distributed Systems
- Spring 2020 IS410/IS610 - Introduction to Database Design

Spring 2020	IS698/MATH700/PHYS650 - Special topics on Big Data + High-Performance Computing + Atmospheric Sciences, above teaching load course
Fall 2019	IS 789 - Big Data Fundamentals and Techniques
Fall 2019	IS 410 - Introduction to Database Design
Spring 2019	IS 651 - Distributed Systems
Spring 2019	IS698/MATH700/PHYS650 - Special topics on Big Data + High-Performance Computing + Atmospheric Sciences
Fall 2018	Teaching relief because of newborn child
Spring 2018	IS698/MATH700/PHYS650 - Special topics on Big Data + High-Performance Computing + Atmospheric Sciences
Spring 2017	IS 651 - Distributed Systems
Fall 2016	Teaching relief because of newborn child
Spring 2016	IS 651 - Distributed Systems
Fall 2015	IS 651 - Distributed Systems

### **C. Designed Courses**

Spring 2019	Course Designer, IS 789 - Big Data Fundamentals and Techniques, UMBC
Spring 2018	Course Designer, IS698/MATH700/PHYS650 - Special topics on Big Data + High-Performance Computing + Atmospheric Sciences, UMBC
Spring 2018	Course Designer, DATA 603 - Platforms for Big Data Processing, Division of Professional Studies, UMBC

### **D. Teaching Related Certificate Training**

Summer 2020	Participant, COEIT PIVOT plus workshop series for online instruction, UMBC
Summer 2019	Participant, Educational Research Training on Parallel and Distributed Computing Curriculum, NSF-supported Center for Parallel and Distributed Computing Curriculum Development and Educational Resources (CDER)
2017-2019	Participant, Active Learning Inquiry Teaching (ALIT) Certificate Program, Faculty Development Center, UMBC
Spring 2013	Participant, The College Classroom Course for Teaching Certificate Program, Center for Teaching Development, UCSD

### **E. Other Teaching Related Activities**

Spring 2020	Guest Lecturer, Basics of Big Data, PHYS 650 - Special Topic on Application of Artificial Intelligence (AI) in Earth Sciences, JCET Seminar Series Spring 2020, UMBC
Spring 2016	Guest Lecturer, Cracking Big Data: Scalable Workflow Approach, IS 698 - Special topics on Translational Biomedical Informatics, UMBC
Fall 2010	Guest Lecturer, Scientific Workflow Scheduling, CSE 290 - Graduate Students Seminar on Scheduling Algorithms, Department of Computer Science and Engineering, UCSD

### **Ph.D. Students**

Wenbin Zhang	2016 - 2020	Committee Chair
Pei Guo	2017 - 2021	Committee Chair
Arjun Pandya	2018 - Present	Committee Chair
Xin Huang	2020 - Present	Committee Chair
Sahara Ali	2020 - Present	Committee Chair
Xin Wang	2020 - Present	Committee Chair
Tobi Odunsi	2021 - Present	Committee Chair
Xingyan Li	2021 - present	Committee Chair

Seraj Mostafa	2021 - present	Committee Chair
Azim Khan	2022 - present	Committee Chair
Francis Nji	2022 - present	Committee Chair

**Master's Students**

Rishi Sankineni	2016 - 2017	Committee Chair
Savio Kay	2017 - 2019	Committee Chair
Deepak Prakash	2017 - 2019	Committee Chair
Supriya Sangondimath	2019 - 2021	Committee Chair
Muthukumar Thevar	2017	Committee Member (Co-Advisor)
Sai C. Pallaprolu	2017	Committee Member (Co-Advisor)

**Undergraduate Students**

Kai Morton	2020	Research Mentor	LSAMP Program
Sadia Rahman	2020	Research Mentor	
Anu Osunnuyi	2020	Research Mentor	LSAMP Program
Quentin Richards	2020	Research Mentor	LSAMP Program
Uchendu Uchendu	2019-2020	Research Mentor	REU Supplement Grant and LSAMP Program
Christine Abraham	2019-2020	Research Mentor	REU Supplement Grant
Achuna Ofonedu	2019, 2020	Research Mentor	Leadership Alliance Program
Imauri Motorin	2018	Research Mentor	
Jeong Ryu	2016	Research Mentor	

**PUBLICATIONS, PRESENTATIONS, AND CREATIVE ACHIEVEMENTS****Publications****A. Peer-Reviewed Journal Papers or Book Chapters**

1. Ziheng Sun, Laura Sandoval, Robert Crystal-Ornelas, S. Mostafa Mousavi, Jinbo Wang, Cindy Lin, Nicoleta Cristea, Daniel Tong, Wendy Hawley Carande, Xiaogang Ma, Yuhan Rao, James A. Bednar, Amanda Tan, **Jianwu Wang**, Sanjay Purushotham, Thomas E. Gill, Julien Chastang, Daniel Howard, Benjamin Holt, Chandana Gangodagamage, Peisheng Zhao, Pablo Rivas, Zachary Chester, Javier Orduz, Aji John. A Review of Earth Artificial Intelligence, *Computers & Geosciences*, volume 159, 105034, DOI:10.1016/j.cageo.2022.105034, Elsevier, 2022.
2. Jangho Lee, Yingxi R. Shi, Changjie Cai, Pubu Ciren, **Jianwu Wang**, Aryya Gangopadhyay, Zhibo Zhang. Machine Learning Based Algorithms for Global Dust Aerosol Detection from Satellite Images: Inter-Comparisons and Evaluation, *Remote Sensing*. 13(3): 456, <https://doi.org/10.3390/rs13030456>, 2021.
3. Jonathan N. Basalyga, Carlos A. Barajas, Matthias K. Gobbert, **Jianwu Wang**. Performance Benchmarking of Parallel Hyperparameter Tuning for Deep Learning based Tornado Predictions. *Big Data Research*, 25(100212), <https://doi.org/10.1016/j.bdr.2021.100212>, 2021.
4. Weilong Ding, Zhe Wang, Jun Chen, Yanqing Xia, **Jianwu Wang**, Zhuofeng Zhao. Potential Trend Discovery for Highway Drivers on Spatio-temporal Data. Accepted by *Wireless Networks*, Springer, 2020.
5. Weilong Ding, Zhuofeng Zhao, **Jianwu Wang**, Han Li. Task Allocation in Hybrid Big Data Analytics for Urban IoT Applications. *ACM/IMS Transactions on Data Science (TDS)*, 1(3), pages 1-22, ACM, 2020.
6. Wanghu Chen, Bo Yang, Jing Li, **Jianwu Wang**. An Approach to Detecting Diabetic Retinopathy based on Integrated Shallow Convolutional Neural Networks. *IEEE Access*, Vol. 8, pages 178552-178562, IEEE, 2020.
7. Yan Tang, **Jianwu Wang**, Mai Nguyen, Ilkay Altintas. PEnBayes: A Multi-Layered Ensemble Approach for Learning Bayesian Network Structure from Big Data. 19(20), Article 4400. *Sensors*, MDPI, 2019.
8. Hua Song, Jing Tian, Jingfeng Huang, Pei Guo, Zhibo Zhang, **Jianwu Wang**. Hybrid Causality Analysis of ENSO's Global Impacts on Climate Variables based on Data-driven Analytics and Climate Model Simulation. Vol. 7, Article 233. Interdisciplinary Climate Studies Section. *Frontiers in Earth Science*, Frontiers, 2019.
9. Zhibo Zhang, Hua Song, Po-Lun Ma, Vincent E. Larson, Minghuai Wang, Xiquan Dong, **Jianwu Wang**. Subgrid Variations of the Cloud Water and Droplet Number Concentration over the Tropical Ocean: Satellite Observations and Implications for Warm Rain Simulations in Climate Models. *Atmospheric Chemistry and Physics*, 19(2), pages 1077-1096, 2019.
10. Wanghu Chen, Jing Li, Xintian Li, Lizhi Zhang, **Jianwu Wang**. Training Back Propagation Neural Networks in MapReduce on High-Dimensional Big Datasets with Global Evolution. *IEEE Access*, Vol. 7, pages 159855-159867, IEEE, 2019.
11. **Jianwu Wang**, Qiang Duan. Big Data Helps SDN to Manage Traffic. In J. Taheri (eds), *Big Data and Software Defined Networks*. ISBN: 978-1-78561-304-3, pages 375-388, The Institution of Engineering and Technology, 2018.
12. Prakashan Korambath, Hari S. Ganesh, **Jianwu Wang**, Michael Baldea, Jim Davis. Use of On-Demand Cloud Services to Model the Optimization of an Austenitization Furnace. *Smart and Sustainable Manufacturing Systems*, Vol. 2, No. 1, pages 165-179, 2018.
13. Lina Zhou, Shimei Pan, **Jianwu Wang**, Athanasios V. Vasilakos. Machine Learning on Big Data: Opportunities and Challenges. Vol. 237, pages 350-361, *Neurocomputing*, Elsevier Press, 2017.

14. Zhuofeng Zhao, Weilong Ding, **Jianwu Wang**, Yanbo Han. A Hybrid Processing System for Large-Scale Traffic Sensor Data, in *IEEE Access*, Vol. 3, pages 2341-2351, 2015.
15. Chen Liu, **Jianwu Wang**, Yanbo Han. Discovery of Service HyperLinks with User Feedbacks for Situational Data Mashup. *International Journal of Database Theory and Application*. 8(4), pages 71-80, 2015.
16. Jim Davis, Thomas Edgar, Robert Graybill, Prakashan Korambath, Brian Schott, Denise Swink, **Jianwu Wang**, Jim Wetzel. Smart Manufacturing Technology. *Annual Review of Chemical and Biomolecular Engineering*. Vol. 6, pages 141-160, 2015.
17. **Jianwu Wang**, Daniel Crawl, Ilkay Altintas, Weizhong Li. Big Data Applications using Workflows for Data Parallel Computing. *Computing in Science & Engineering*, 16(4), pages 11-22, July-Aug, IEEE, 2014.
18. Zhuohui Gan, **Jianwu Wang**, Nathan Salomonis, Jennifer C. Stowe, Gabriel G. Haddad, Andrew D. McCulloch, Ilkay Altintas, Alexander C. Zambon. MAAMD: A Workflow to Standardize Meta-Analyses and Comparison of Affymetrix Microarray Data, *BMC Bioinformatics Journal*. 15(1), 69, 2014.
19. Chen Liu, **Jianwu Wang**, Yanbo Han. Mashroom+: An Interactive Data Mashup Approach with Uncertainty Handling. *Journal of Grid Computing*, 12(2), pages 221-244, Springer. DOI: 10.1007/s10723-013-9280-5, Springer, 2014.
20. Xiaoyu Yang, David Wallom, Simon Waddington, **Jianwu Wang**, Arif Shaon, Brian Matthews, Michael Wilson, Yike Guo, Li Guo, Jon Blower, Athanasios V. Vasilakos, Philip Kershaw. Cloud Computing in e-Science: Research Challenges and Opportunities. *Journal of Supercomputing*, August, pages 408-464, DOI: 10.1007/s11227-014-1251-5, 2014.
21. Marcin Plociennik, Tomasz Zok, Ilkay Altintas, **Jianwu Wang**, Daniel Crawl, David Abramson, Frederic Imbeaux, Bernard Guillerminet, Marcos Lopez-Caniego, Isabel Campos Plasencia, Wojciech Pych, Pawel Ciecielag, Bartek Palak, Michal Owsiak, Yann Frauel. Approaches to Distributed Execution of Scientific Workflows in Kepler. In *Fundamenta Informaticae*, 128 (3), pages 281-302, 2013.
22. **Jianwu Wang**, Prakashan Korambath, Seonah Kim, Scott Johnson, Kejian Jin, Daniel Crawl, Ilkay Altintas, Shava Smallen, Bill Labate, Kendall N. Houk. Facilitating E-Science Discovery Using Scientific Workflows on the Grid. In X. Yang, L. Wang, W. Jie (eds), *Guide to e-Science: Next Generation Scientific Research and Discovery*. ISBN: 978-0-85729-438-8, pages 353-382. Springer, 2011.
23. **Jianwu Wang**, Wanghu Chen, Yanbo Han. Domain-oriented and Customizable Service Model. *Journal of Computer Engineering*, 34(4), pages 122-124, 2008.
24. Chen Liu, Yanbo Han, Wanghu Chen, **Jianwu Wang**. MINI: An Ontology Evolution Algorithm for Reducing Impact Ranges. *Chinese Journal of Computers*, 31(5), 2008, pages 711-720, 2008.
25. Wanghu Chen, Yanbo Han, Jing Wang, Chen Liu, **Jianwu Wang**. Approach to Adaptive Service Matchmaking. *Journal of Southeast University*, 23(3), pages 408-412, 2007.
26. Yanbo Han, Hongcui Wang, **Jianwu Wang**, Shuying Yan, Cheng Zhang. An End-User-Oriented Approach to Exploratory Service Composition. *Journal of Computer Research and Development*, 43(11), pages 1895-1903, 2006.
27. Wanghu Chen, Chen Liu, Houfu Li, **Jianwu Wang**. An Approach to Dynamically Forming Semantic Infrastructure for Virtual Organizations. *Chinese Journal of Computers*, 19(7), pages 1127-1136, 2006.
28. Donglai Li, Yanbo Han, **Jianwu Wang**, Jian Yu. Research on Service Availability and Its Related Exceptions within Service-Oriented Applications. *Journal of Computer Research and Development*, 41(12), pages 2101-2107, 2004.
29. Zhuofeng Zhao, Yanbo Han, Jian Yu, **Jianwu Wang**. A Service Virtualization Mechanism for Business User Programming. *Journal of Computer Research and Development*, 41(12), pages 2224-2230, 2004.

30. Yanbo Han, Zhuofeng Zhao, Gang Li, Dongshan Xing, Qingzhong Lu, **Jianwu Wang**, Jinhua Xiong, Hao Liu. CAFISE: An Approach to Enabling Adaptive Configuration of Service Grid Applications. *Journal Computer Science and Technology*. 18(4), pages 484-494, 2003.

#### **B. Peer-Reviewed Major Conference Papers**

1. Xin Huang, Sahara Ali, Chenxi Wang, Zeyu Ning, Sanjay Purushotham, **Jianwu Wang**, and Zhibo Zhang. Deep Domain Adaptation based Cloud Type Detection using Active and Passive Satellite Data. In Proceedings of the *2020 IEEE International Conference on Big Data (BigData 2020)*, pages 1330-1337, IEEE, 2020.
2. Manzhu Yu, Julie Bessac, Ling Xu, Aryya Gangopadhyay, Yingxi Shi, **Jianwu Wang**. Image Segmentation for Dust Detection using Semi-supervised Machine Learning. In Proceedings of the *2020 IEEE International Conference on Big Data (BigData 2020)*, pages 1745-1754, IEEE, 2020.
3. Arjun Pandya, Tobi Odunsi, Chen Liu, Alfredo Cuzzocrea, **Jianwu Wang**. Adaptive and Efficient Streaming Time Series Forecasting with Lambda Architecture and Spark. In Proceedings of the *2020 IEEE International Conference on Big Data (BigData 2020)*, pages 5182-5190, IEEE, 2020.
4. Wenbin Zhang, Mingli Zhang, Ji Zhang, Zhen Liu, Zhiyuan Chen, **Jianwu Wang**, Edward Raff, Enza Messina. Flexible and Adaptive Fairness-aware Learning in Non-stationary Data Streams. In Proceedings of the *32nd International Conference on Tools with Artificial Intelligence (ICTAI 2020)*, pages 399-406, IEEE, 2020.
5. **Jianwu Wang**, Xin Huang, Jianyu Zheng, Chamara Rajapakshe, Savio Kay, Lakshmi Kandoor, Thomas Maxwell, Zhibo Zhang. Scalable Aggregation Service for Satellite Remote Sensing Data. In Proceedings of the *20th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP 2020)*, pages 184-199, Springer, 2020.
6. Pei Guo, Achuna Ofonedu, **Jianwu Wang**. Scalable and Hybrid Ensemble-Based Causality Discovery. In Proceedings of the *2020 IEEE International Conference on Smart Data Services (SMDS 2020)*, pages 72-80, IEEE, 2020. (Best Student Paper Award)
7. **Jianwu Wang**, Matthias Gobbert, Zhibo Zhang, Aryya Gangopadhyay. Team-Based Online Multidisciplinary Education on Big Data + High-Performance Computing + Atmospheric Sciences. In Proceedings of the *16th International Conference on Frontiers in Education: Computer Science and Computer Engineering (FECS 2020)*, Springer, 2020.
8. Carlos A. Barajas, Matthias K. Gobbert, **Jianwu Wang**. Tornado Storm Data Synthesization using Deep Convolutional Generative Adversarial Network. Accepted by the *16th International Conference on Data Science (ICDATA 2020)*, Springer, 2020.
9. Ping Hou, Peng Wu, Pei Guo, **Jianwu Wang**, Aryya Gangopadhyay, Zhibo Zhang. A Deep Learning Model for Detecting Dust in Earth's Atmosphere from Satellite Remote Sensing Data. In Proceedings of the *2020 IEEE International Conference on Smart Computing (SMARTCOMP 2020)*, pages 196-201, IEEE, 2020.
10. Pei Guo, Chen Liu, Yan Tang, **Jianwu Wang**. Parallel Gradient Boosting based Granger Causality Learning. In Proceedings of the *2019 IEEE International Conference on Big Data (BigData 2019)*, pages 2845-2854, IEEE, 2019.
11. Peichang Shi, Qianqian Song, Janita Patwardhan, Zhibo Zhang, **Jianwu Wang**, Aryya Gangopadhyay. A Hybrid Algorithm for Mineral Dust Detection using Satellite Data. In Proceedings of the *15th IEEE International Conference on eScience (eScience 2019)*, pages 39-46, IEEE, 2019.
12. Shouli Zhang, Chen Liu, **Jianwu Wang**, Zhongguo Yang, Yanbo Han. Latency-Aware Deployment of IoT Services in a Cloud-Edge Environment. In Proceedings of the *17th International Conference on Service Oriented Computing (ICSOC 2019)*, pages 231-236, Springer, 2019.
13. Pei Guo, Raymond Peterson, Paul Paukstelis, **Jianwu Wang**. Cloud-based Life Sciences Manufacturing System: Integrated Experiment Management and Data Analytics via Amazon Web

- Services, In Proceedings of *the 2019 INFORMS Conference on Service Science* (INFORMS-CSS 2019), pages 149-159, Springer, 2019.
14. Hailun Lin, Yong Liu, Peng Zhang, **Jianwu Wang**. Representation Learning of Taxonomies for Taxonomy Matching. In Proceedings of *the 2019 International Conference on Computational Science* (ICCS 2019), pages 383-397, Springer, 2019.
  15. **Jianwu Wang**, Chen Liu, Meiling Zhu, Pei Guo, Yapeng Hu. Sensor Data based System-level Anomaly Prediction for Smart Manufacturing. In Proceedings of *the 2018 IEEE 8th International Congress on Big Data* (BigData Congress 2018), pages 158-165, IEEE, 2018.
  16. Wenbin Zhang, **Jianwu Wang**, Daeho Jin, Lazaros Oreopoulos, Zhibo Zhang. A Deterministic Self-Organizing Map Approach and its Application on Satellite Data based Cloud Type Classification, In Proceedings of *the 2018 IEEE International Conference on Big Data* (BigData 2018), pages 2026-2033, IEEE, 2018.
  17. Wenbin Zhang, **Jianwu Wang**. Content-bootstrapped Collaborative Filtering for Medical Article Recommendations. In Proceedings of the *2018 IEEE International Conference on Bioinformatics and Biomedicine* (BIBM 2018), pages 1184-1188, IEEE, 2018.
  18. Peng Zhang, Yan Li, Hailun Lin, **Jianwu Wang**, Chuang Zhang, A Periodic Task-Oriented Scheduling Architecture in Cloud Computing, In Proceedings of *the 16th IEEE International Symposium on Parallel and Distributed Processing with Applications* (IEEE ISPA 2018), pages 788-794, IEEE, 2018.
  19. Shouli Zhang, Xiaohong Li, **Jianwu Wang**, Shen Su. Curve-Registration-Based Feature Extraction for Predictive Maintenance of Industrial Equipment, In Proceedings of *the 13th EAI International Conference on Collaborative Computing: Networking, Applications and Worksharing* (CollaborateCom 2017), pages 253-263, Springer, 2017.
  20. Meiling Zhu, Chen Liu, **Jianwu Wang**, Shen Su, Yanbo Han. An Approach to Modeling and Discovering Event Correlations for Service Collaboration. In Proceedings of *the 15th International Conference on Service-Oriented Computing* (ICSOC 2017), pages 191-205, Springer, 2017.
  21. Wenbin Zhang, **Jianwu Wang**, A Hybrid Learning Framework for Imbalanced Stream Classification. In Proceedings of *2017 IEEE 6th International Congress on Big Data* (BigData Congress 2017), pages 480-487, IEEE, 2017.
  22. Sai C. Pallaprolu, Rishi Sankineni, Muthukumar Thevar, George Karabatis, **Jianwu Wang**. Zero-day Attack Identification in Streaming data using Semantics and Spark. In Proceedings of *2017 IEEE 6th International Congress on Big Data* (BigData Congress 2017), pages 121-128, IEEE, 2017.
  23. Meiling Zhu, Chen Liu, **Jianwu Wang**, Shen Su, Yanbo Han. Service Hyperlink: Modeling and Reusing Partial Process Knowledge by Mining Event Dependencies Among Sensor Data Services, In Proceedings of *2017 IEEE 24th International Conference on Web Services* (ICWS 2017), pages 902-905, IEEE, 2017.
  24. Meiling Zhu, Chen Liu, **Jianwu Wang**, Xiongbin Wang, Yanbo Han. A Service-Friendly Approach to Discover Traveling Companions based on ANPR Data Stream, In Proceedings of the *13th IEEE International Conference on Services Computing* (SCC 2016), pages 171-178, IEEE, 2016.
  25. Zhichuan Huang, Tiantian Xie, Ting Zhu, **Jianwu Wang**, and Qingquan Zhang. Application-Driven Sensing Data Reconstruction and Selection Based on Correlation Mining and Dynamic Feedback, In Proceedings of the *2016 IEEE International Conference on Big Data* (Big Data 2016), pages 1322-1327, IEEE, 2016.
  26. Meiling Zhu, Chen Liu, **Jianwu Wang**, Xiongbin Wang, Yanbo Han. Instant Discovery of Moment Companion Vehicles from Big Streaming Traffic Data, In Proceedings of the *2015 International Conference on Cloud Computing and Big Data* (CCBD 2015), pages 73-80, IEEE, 2015.
  27. Yu Qian, Hyunsoo Kim, Shweta Purawat, **Jianwu Wang**, Rick Stanton, Alexandra Lee, Weijia Xu, Ilkay Altintas, Robert Sinkovits, and Richard H. Scheuermann. FlowGate: towards extensible and scalable web-based flow cytometry data analysis. In Proceedings of the *2015 XSEDE Conference*:



- Scientific Advancements Enabled by Enhanced Cyberinfrastructure* (XSEDE 2015). ACM, New York, NY, USA, Article No. 5, 2015.
28. **Jianwu Wang**, Yan Tang, Mai Nguyen, Ilkay Altintas. A Scalable Data Science Workflow Approach for Big Data Bayesian Network Learning. In Proceedings of the *2014 IEEE/ACM International Symposium on Big Data Computing* (BDC 2014), pages 16-25, 2014.
  29. **Jianwu Wang**, Prakashan Korambath, Ilkay Altintas, Jim Davis, Daniel Crawl. Workflow as a Service in the Cloud: Architecture and Scheduling Algorithms. In Proceedings of the *14th International Conference on Computational Science* (ICCS 2014), pages 546-556, Elsevier, 2014.
  30. Zhuofeng Zhao, Weilong Ding, **Jianwu Wang**. A Spatio-temporal Parallel Processing System for Traffic Sensory Data. In Proceedings of the *2014 Asia-Pacific Services Computing Conference* (APSCC 2014), pages 48-54, IEEE, 2014.
  31. Chen Liu, **Jianwu Wang**, Yan Wen, and Yanbo Han. A Unified Data and Service Integration Approach for Dynamic Business Collaboration. In Proceedings of the *IEEE First International Conference on Services Economics* (SE 2012), pages 54-61, IEEE, 2012.
  32. **Jianwu Wang**, Jian Yu, Paolo Falcarin, Yanbo Han, Maurizio Morisio. An Approach to Domain-Specific Reuse in Service-Oriented Environments. In Proceedings of *10th International Conference on Software Reuse* (ICSR 2008), pages 221-232, Springer, 2008.
  33. Jun Han, Yanbo Han, Yan Jin, **Jianwu Wang**, Jian Yu. Personalized Active Service Spaces for End-User Service Composition. In Proceedings of the *2006 IEEE International Conference on Services Computing* (SCC 2006), pages 198-205, IEEE, 2006.
  34. He Huang, Zhongzhi Shi, **Jianwu Wang** and Rui Huang. DDL: Embracing Actions into Semantic Web. In Proceedings of *2006 IFIP International Conference on Intelligent Information Processing* (IIP 2006), pages 81-90, Springer, 2006.
  35. Jian Yu, Tan Phan Manh, Jun Han, Yan Jin, Yanbo Han, **Jianwu Wang**. Pattern Based Property Specification and Verification for Service Composition. In Proceedings of the *Seventh International Conference on Web Information Systems Engineering* (WISE 2006), pages 156-168, Spring, 2006.
  36. Jian Yu, Jun Fang, Yanbo Han, **Jianwu Wang**, Cheng Zhang. An Approach to Abstracting and Transforming Web Services for End-user-doable Construction of Service-Oriented Applications. In Proceedings of the *Second International Conference on Grid Services Engineering and Management* (GSEM'05). Lecture Notes in Informatics, 2005.
  37. Zhuofeng Zhao, Yanbo Han, **Jianwu Wang**, Kui Huang. A Reflective Approach to Keeping Business Characteristics in Business-End Service Composition. In Proceedings of the *Fifth International Conference on Web Information Systems Engineering* (WISE 2004), pages 479-490, Springer, 2004.
  38. Gang Li, **Jianwu Wang**, Jing Wang, Yanbo Han, Zhuofeng Zhao, Roland M. Wagner, Haitao Hu. MASON: A Model for Adapting Service-Oriented Grid Applications. In Proceedings of *2003 Grid and Cooperative Computing Conference* (GCC 2003), LNCS 3032, pages 99-107, Springer, 2003.

### C. Other Peer-Reviewed Papers

1. Weilong Ding, Zhe Wang, **Jianwu Wang**, Yanbo Han. Trend Drift Discovery for Individual Highway Drivers through Ensemble Learning. In Proceedings of the *9th SIGKDD International Workshop on Urban Computing (UrbComp 2020)* at 2020 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2020), 2020.
2. Xin Huang, Sahara Ali, Sanjay Purushotham, **Jianwu Wang**, Chenxi Wang and Zhibo Zhang. Deep Multi-Sensor Domain Adaptation on Active and Passive Satellite Remote Sensing Data. In Proceedings of the *1st SIGKDD Workshop on Deep Learning for Spatiotemporal Data, Applications, and Systems (DeepSpatial 2020)* at 2020 ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2020), 2020.

3. Wenbin Zhang, Xuejiao Tang, **Jianwu Wang**. On Fairness-Aware Learning for Non-discriminative Decision-Making. In Proceedings of the *2019 International Conference on Data Mining Workshops (ICDMW 2019)*, pages 1072-1079, IEEE, 2019.
4. Wanghu Chen, Chao Wang, Jing Li, Bo Yang, Yang Liu, **Jianwu Wang**. Benchmarking Discretisation Level of Continuous Attributes: Theoretical and Experimental Approaches. In Proceedings of the *Third IEEE International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2019)* at IEEE Big Data Conference (IEEE BigData 2019), pages 3623-3631, IEEE, 2019.
5. Carlos Barajas, Matthias Gobbert, **Jianwu Wang**. Performance Benchmarking of Data Augmentation and Deep Learning for Tornado Prediction. In Proceedings of the *Third IEEE International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2019)* at IEEE Big Data Conference (IEEE BigData 2019), pages 3607-3615, IEEE, 2019.
6. Zhong Liu, **Jianwu Wang**, Shimei Pan, David Meyer. Improving Reproducibility in Earth Science Research. *Eos*, 100, <https://doi.org/10.1029/2019EO136216>, 2019.
7. Hua Song, **Jianwu Wang**, Jing Tian, Jingfeng Huang, Zhibo Zhang. Spatio-Temporal Climate Data Causality Analytics - an Analysis of ENSO's Global Impacts. In Proceedings of the *8th International Workshop on Climate Informatics (CI 2018)*, pages 45-48, 2018.
8. Arjun Pandya, Chaitanya Kulkarni, Kunal Mali, **Jianwu Wang**. An Open Source Cloud-based NoSQL and NewSQL Database Benchmarking Platform for IoT Data. In Proceedings of *2018 BenchCouncil International Symposium on Benchmarking, Measuring and Optimizing (Bench 18)*, pages 65-77, Springer, 2018.
9. Carlos Barajas, Pei Guo, Lipi Mukherjee, Susan Hoban, **Jianwu Wang**, Daeho Jin, Aryya Gangopadhyay, Matthias K. Gobbert. Benchmarking Parallel Implementations of K-Means Cloud Type Clustering from Satellite Data. In Proceedings of *2018 BenchCouncil International Symposium on Benchmarking, Measuring and Optimizing (Bench 18)*, pages 248-260, Springer, 2018.
10. Wanghu Chen, Xiaoyan Liang, Jing Li, Hongwu Qin, Yuxiang Mu, **Jianwu Wang**. Blockchain based Provenance Sharing of Scientific Workflows. In Proceedings of the *Second International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2018)* at IEEE Big Data Conference (IEEE BigData 2018), pages 3814-3820. IEEE, 2018.
11. Pei Guo, **Jianwu Wang**, Zhiyuan Chen. A Comparison of Big Data Application Programming Approaches: A Travel Companion Case Study. In Proceedings of the *First International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2017)* at IEEE Big Data Conference (IEEE BigData 2017), pages 2787-2796, IEEE, 2017.
12. Wanghu Chen, Xintian Li, Jing Li, **Jianwu Wang**. Enhancing the MapReduce Training of BP Neural Networks Based on Local Weight Matrix Evolution, In Proceedings of the *First International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2017)* at IEEE Big Data Conference (IEEE BigData 2017), pages 2747-2753, IEEE, 2017.
13. **Jianwu Wang**, Matthias Gobbert, Zhibo Zhang, Aryya Gangopadhyay and Glenn Page. Multidisciplinary Education on Big Data + HPC + Atmospheric Sciences, In Proceedings of the *Workshop on Education for High-Performance Computing (EduHPC-17)* at SC'2017, 2017.
14. **Jianwu Wang**, Zhichuan Huang, Wenbin Zhang, Ankita Patil, Ketan Patil, Ting Zhu, Eric J Shiroma, Mitchell A Schepps, and Tamara B Harris. Wearable Sensor based Human Posture Recognition, In Proceedings of the *3rd Annual Workshop on Big Data Analytic Technology for Bioinformatics and Health Informatics (KDDBHI 2016)* at 2016 IEEE International Conference on Big Data (Big Data 2016), pages 3432-3438, IEEE, 2016.
15. **Jianwu Wang**, Moustafa AbdelBaky, Javier Diaz-Montes, Shweta Purawat, Manish Parashar, and Ilkay Altintas. Kepler + CometCloud: Dynamic Scientific Workflow Execution on Federated Cloud Resources, In Proceedings of the *Third International Workshop on Advances in the Kepler Scientific*

- Workflow System and Its Applications (Kepler 2016)* at the International Conference on Computational Science 2016 (ICCS 2016), pages 700-711, Elsevier, 2016.
16. George Karabatis, **Jianwu Wang**, Ahmed AlEroud. Towards Adaptive Big Data Cyberattack Detection via Semantic Link Networks. In Proceedings of the *First Workshop of Mission-Critical Big Data Analytics Workshop (MCBDA 2016)*, 2016.
  17. Prakashan Korambath, **Jianwu Wang**, Ankur Kumar, Jim Davis, Robert Graybill, Brian Schott, and Michael Baldea. A Smart Manufacturing Use Case: Furnace Temperature Balancing in Steam Methane Reforming Process via Kepler Workflows. In Proceedings of the *International Conference on Computational Science 2016 (ICCS 2016)*, pages 680-689, Elsevier, 2016.
  18. **Jianwu Wang**, Daniel Crawl, Shweta Purawat, Mai Nguyen, Ilkay Altintas. Big Data Provenance: Challenges, State of the Art and Opportunities, In Proceedings of the *Second Workshop on Advances in Software and Hardware for Big Data to Knowledge Discovery (ASH 2015)* at the 2015 IEEE Conference on Big Data (BigData 2015), pages 2323-2330, IEEE, 2015.
  19. Prakashan Korambath, **Jianwu Wang**, Ankur Kumar, Lorin Hochstein, Brian Schott, Robert Graybill, Michael Baldea, and Jim Davis. Deploying Kepler Workflows as Services on a Cloud Infrastructure for Smart Manufacturing. In Proceedings of the *Second International Workshop on Advances in the Kepler Scientific Workflow System and Its Applications* at the 14th International Conference on Computational Science (ICCS 2014), pages 2254-2259, Elsevier, 2014.
  20. Wanghu Chen, Ilkay Altintas, **Jianwu Wang** and Jing Li. Enhancing Smart Re-run of Kepler Scientific Workflows based on Near Optimum Provenance Caching in Cloud, In Proceedings of by *IEEE 2014 Eighth International Symposium on Scientific Workflows and Big Data Science (SWF 2014)*, at the 2014 Congress on Services (SERVICES 2014), pages 378-384, IEEE, 2014.
  21. Zhuofeng Zhao, Jun Fang, Weilong Ding, **Jianwu Wang**. An Integrated Processing Platform for Traffic Sensor Data and Its Applications in Intelligent Transportation Systems, In Proceedings of *IEEE 2014 Second International Workshop on Service and Cloud Based Data Integration (SCDI 2014)*, at the 2014 Congress on Services (SERVICES 2014), pages 161-168, IEEE, 2014.
  22. Ruijuan Chen, Xiaohua Wan, Albert Lawrence, **Jianwu Wang**, Daniel Crawl, Sébastien Phan, Ilkay Altintas, Mark Ellisman. EPiK - a Workflow for Electron Tomography in Kepler. In Proceedings of the *Second International Workshop on Advances in the Kepler Scientific Workflow System and Its Applications* at the 14th International Conference on Computational Science (ICCS 2014), pages 2295-2305, Elsevier, 2014.
  23. Pek U. Jeong, Jesper Sorensen, Prasantha L. Vemu, Celia W. Wong, Ozlem Demir, Nadya P. Williams, **Jianwu Wang**, Daniel Crawl, Robert V. Swift, Robert D. Malmstrom, Ilkay Altintas, Rommie E. Amaro. Progress towards automated Kepler scientific workflows for computer-aided drug discovery and molecular simulations. In Proceedings of the *Second International Workshop on Advances in the Kepler Scientific Workflow System and Its Applications* at the 14th International Conference on Computational Science (ICCS 2014), pages 1745-1755, Elsevier, 2014.
  24. **Jianwu Wang**, Daniel Crawl, Ilkay Altintas, Kostas Tzoumas, Volker Markl. Comparison of Distributed Data-Parallelization Patterns for Big Data Analysis: A Bioinformatics Case Study. In Proceedings of the *Fourth International Workshop on Data Intensive Computing in the Clouds (DataCloud 2013)* at International Conference for High Performance Computing, Networking, Storage and Analysis (SC'13), 2013.
  25. Chen Liu, **Jianwu Wang**, Yanbo Han. Situation-Aware Data Service Composition Based on Service Hyperlinks. In Proceedings of the *Sixth International Workshop on Personalization in Cloud and Service Computing (PCS 2013)* at the 14th International Conference on Web Information System Engineering (WISE 2013), pages 153-167, 2013.
  26. Cheng Zhang, **Jianwu Wang**, Xiaofang Zhao and Yanbo Han. An Item-Targeted User Similarity Method for Data Service Recommendation. In Proceedings of the *First International Workshop on*

- Service and Cloud Based Data Integration (SCDI 2012)*, at the 2012 IEEE 16th International Enterprise Distributed Object Computing Conference (EDOC 2012), pages 172-178, 2012.
27. **Jianwu Wang**, Ilkay Altintas. Early Cloud Experiences with the Kepler Scientific Workflow System. In Proceedings of *the First International Workshop on Advances in the Kepler Scientific Workflow System and Its Applications* at the 12th International Conference on Computational Science (ICCS 2012), pages 1630-1634, 2012.
  28. **Jianwu Wang**, Daniel Crawl, Ilkay Altintas. A Framework for Distributed Data-Parallel Execution in the Kepler Scientific Workflow System. In Proceedings of *the First International Workshop on Advances in the Kepler Scientific Workflow System and Its Applications* at the 12th International Conference on Computational Science (ICCS 2012), pages 1620-1629, 2012.
  29. Zhuohui Gan, **Jianwu Wang**, Nathan Salomonis, Ilkay Altintas, Andrew D. McCulloch, Alex Zambon. MAAMD: A Workflow to Standardize Meta-Analyses of Affymetrix Microarray Data. In Proceedings of *2012 IEEE Second International Conference on Healthcare Informatics, Imaging and Systems Biology (HISB 2012)*, pages 120-120, doi: 10.1109/HISB.2012.45, 2012.
  30. Ilkay Altintas, **Jianwu Wang**, Daniel Crawl, Weizhong Li. Challenges and Approaches for Distributed Workflow-Driven Analysis of Large-Scale Biological Data. In Proceedings of *the Workshop on Data analytics in the Cloud (DanaC2012)* at EDBT/ICDT 2012 Conference, pages 73-78, 2012.
  31. Daniel Crawl, **Jianwu Wang**, Ilkay Altintas. Provenance for MapReduce-based Data-Intensive Workflows. In Proceedings of *the Sixth Workshop on Workflows in Support of Large-Scale Science (WORKS11)* at Supercomputing 2011 (SC2011) Conference, pages 21-30, 2011.
  32. **Jianwu Wang**, Prakashan Korambath, Ilkay Altintas. A Physical and Virtual Compute Cluster Resource Load Balancing Approach to Data-Parallel Scientific Workflow Scheduling. In Proceedings of *IEEE 2011 Fifth International Workshop on Scientific Workflows (SWF 2011)* at 2011 Congress on Services (SERVICES 2011), pages 212-215, IEEE, 2011.
  33. **Jianwu Wang**, Prakashan Korambath, Seonah Kim, Scott Johnson, Kejian Jin, Daniel Crawl, Ilkay Altintas, Shava Smallen, Bill Labate, Kendall N. Houk. Theoretical Enzyme Design Using the Kepler Scientific Workflows on the Grid. In Proceedings of *the Fifth Workshop on Computational Chemistry and Its Applications (5th CCA)* at International Conference on Computational Science (ICCS 2010), 2010.
  34. **Jianwu Wang**, Daniel Crawl, Ilkay Altintas. Kepler + Hadoop : A General Architecture Facilitating Data-Intensive Applications in Scientific Workflow Systems. In Proceedings of *the Fourth Workshop on Workflows in Support of Large-Scale Science (WORKS09)* at Supercomputing 2009 (SC2009) Conference, 2009.
  35. **Jianwu Wang**, Ilkay Altintas, Parvies R. Hosseini, Derik Barseghian, Daniel Crawl, Chad Berkley, Matthew B. Jones. Accelerating Parameter Sweep Workflows by Utilizing Ad-hoc Network Computing Resources: an Ecological Example. In Proceedings of *IEEE 2009 Third International Workshop on Scientific Workflows (SWF 2009)* at 2009 Congress on Services (Services 2009), pages 267-274, 2009.
  36. **Jianwu Wang**, Ilkay Altintas, Chad Berkley, Lucas Gilbert, Matt B. Jones. A High-Level Distributed Execution Framework for Scientific Workflows. In Proceedings of *workshop SWBES08: Challenging Issues in Workflow Applications* at the Fourth IEEE International Conference on e-Science (e-Science 2008), pages 634-639, 2008.
  37. Yanbo Han, **Jianwu Wang**, Jun Fang, Guiling Wang. Domain oriented Business Service Modeling and Service Virtualization. *Communications of China Computer Federation*, 4(4), pages 56-63, 2008.
  38. **Jianwu Wang**, Jian Yu. A Business-Level Service Model Supporting End User Customization. In Proceedings of *the First International Workshop on Telecom Service Oriented Architectures (TSOA-07)* at the Fifth International Conference on Service-Oriented Computing (ICSOC 2007), pages 295-303, Springer, 2007.

39. Hailue Lin, Chen Liu, **Jianwu Wang**, Jun Fang, Houfu Li. A Business Domain Oriented Service Modeling Approach and its Supporting Framework, *Information Technology Letter*. 4(3), pages 10-17, 2006.
40. Jian Yu, **Jianwu Wang**, Yanbo Han, Shaohua Yang, Liyong Zhang. Developing End-User Programmable Service-Oriented Applications with VINCA. In Kurt Sandkuhl, Alexander Smirnov, and Herbert Weber (eds.), *The Knowledge Gap in Enterprise Information Flow: Information Logistic concepts and technologies for improving information flow in networked organizations: The 2nd Ljungby Workshop on Information Logistics*, Ljungby, Sweden, ISBN 91-975604-2-1, pages 26-42, 2005.
41. **Jianwu Wang**, Jian Yu, Yanbo Han. A Service Modeling Approach with Business-Level Reusability and Extensibility. In Proceedings of *IEEE International Workshop on Service-Oriented System Engineering (SOSE 2005)*, pages 23-28, IEEE, 2005.
42. **Jianwu Wang**, Yanbo Han, Jing Wang, Gang Li. An Approach to Dynamically Reconfiguring Service-Oriented Applications from a Business Perspective, In Proceedings of *Advanced Workshop on Content Computing (AWCC 2004)*, LNCS 3309, pages 357-368, Springer, 2004.
43. Gang Li, Yanbo Han, Zhuofeng Zhao, **Jianwu Wang**, Roland M. Wagner. An Adaptable Service Connector Model. In Proceedings of *the First International Workshop on Semantic Web and Databases (SWDB 2003)* at VLDB 2003 Conference, 2003, pages 79-90, 2003.

#### **D. Non-Peer-Reviewed Works**

1. Achala W. Denagamage, Sahara Ali, Neranga Hannadigee, Xin Huang, Pei Guo, **Jianwu Wang**. Evaluation of Tropical Cloud Simulations between CMIP6 Models and Satellite Observations. Technical Report HPCF-2020-13, UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2020.
2. Yiyi Huang, Matthäus Kleindessner, Alexey Munishkin, Debvrat Varshney, Pei Guo, **Jianwu Wang**. Benchmarking of Data-Driven Causality Discovery Approaches in the Interaction between Arctic Sea Ice and Atmosphere. Technical Report HPCF-2020-16, UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2020.
3. Carlos A. Barajas, Matthias K. Gobbert, **Jianwu Wang**. Tornado Storm Data Synthesization using Deep Convolutional Generative Adversarial Network (DCGAN): Related Works and Implementation Details, Technical Report HPCF-2020-19, UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2020.
4. Reetan Majumder, Redwan Walid, Jianyu Zheng, Carlos Barajas, Pei Guo, Chamara Rajapakshe, Aryya Gangopadhyay, Matthias K. Gobbert, **Jianwu Wang**, Zhibo Zhang, Kel Markert, Amita Mehta, Nagaraj K. Neerchal. Assessing Water Budget Sensitivity to Precipitation Forcing Errors in Potomac River Basin Using the VIC Hydrologic Model. Technical Report HPCF-2019-11, UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2019.
5. Steven Randal Hussung, Mengxi Wu, Akila Sampath, Suhail Mahmud, Pei Guo, **Jianwu Wang**. Evaluation of Data-Driven Causality Discovery Approaches among Dominant Climate Modes. Technical Report HPCF-2019-12, UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2019.
6. Carlos Barajas, Lipi Mukherjee, Pei Guo, Susan Hoban, Daeho Jin, Aryya Gangopadhyay, **Jianwu Wang**. Benchmarking Parallel Implementations of Cloud Type Clustering from Satellite Data, Technical Report HPCF-2018-12, UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2018.
7. Peichang Shi, Qianqian Song, Janita Patwardhan, Zhibo Zhang, **Jianwu Wang**. Mineral Dust Detection Using Satellite Data, Technical Report HPCF-2018-13, UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2018.

8. Hua Song, Jing Tian, Jingfeng Huang, **Jianwu Wang**, Zhibo Zhang. Causality Analysis of ENSO's Global Impacts on Climate Variables based on Data-driven Analytics and Climate Model Simulation, Technical Report HPCF-2018-14, UMBC High Performance Computing Facility, University of Maryland, Baltimore County, 2018.
9. Yanbo Han, **Jianwu Wang**. Guest Editors' Introduction: Special Issue on Service and Cloud Based Data Integration. *Journal of Grid Computing*, 12(2), pages 187-189, 2014.

## Presentations

### **A. Conference/Poster Presentations (Juried/Refereed, Selected)**

1. Achala Denagamage, Zhibo Zhang, Michal Segal Rozenhaimer, **Jianwu Wang**, Sahara Ali. Evaluation of Low-Cloud and Warm Rain Simulation in CMIP6 Models through Comparisons with Satellite Observations, 13th Symposium on Aerosol - Cloud - Climate Interactions, American Meteorological Society (AMS) Annual Meeting, 2021
2. Yiyi Huang, Matthias Kleindessner, Alexey Munishkin, Debvrat Varshney, Pei Guo, **Jianwu Wang**. Benchmarking of Data-Driven Causality Discovery Approaches in the Interactions of Arctic Sea Ice and Atmosphere, 20th Conference on Artificial Intelligence for Environmental Science, American Meteorological Society (AMS) Annual Meeting, 2021
3. **Jianwu Wang**, Jianyu Zheng, Xin Huang, Chamara Rajapakshe, Supriya Sangondimath, Sukhada Deshpande, Thomas Maxwell, Zhibo Zhang. Scalable Aggregation Service for MODIS Satellite Remote Sensing Data, Seventh Symposium on High Performance Computing for Weather, Water, and Climate, American Meteorological Society (AMS) Annual Meeting, 2021
4. Steve Hussung, Suhail Mahmud, Akila Sampath, Mengxi Wu, Pei Guo, **Jianwu Wang**. Evaluation of Data-Driven Causality Discovery Methods among Dominant Climate Modes, 19th Conference on Artificial Intelligence for Environmental Science, American Meteorological Society (AMS) Annual Meeting, Oral Presentation, Boston, MA. 2020.
5. Hua Song, **Jianwu Wang**, Jing Tian, Jingfeng Huang, Zhibo Zhang. Causality Analysis of ENSO's Global Impacts on Climate Variables based on Data-driven Analytics and Climate Model Simulation. The 1st NOAA Workshop on Leveraging AI in the Exploitation of Satellite Earth Observations & Numerical Weather Prediction, Poster, College Park, MD, 2019.
6. **Jianwu Wang**, Zhibo Zhang, Matthias K. Gobbert, and Aryya Gangopadhyay. Multidisciplinary Education on Big Data + High-Performance Computing+ Atmospheric Sciences. NSF EarthCube 2018 All Hands Meeting, Poster, Washington DC, 2018.
7. Zhong Liu, Shimei Pan, **Jianwu Wang**, Angela Li, David Meyer. Improving NASA Earth Science Data and Information Access Through Natural Language Processing Based Data Analysis and Visualization. NASA Goddard Workshop on Artificial Intelligence, Presentation, Greenbelt, MD, 2018.
8. Hua Song, **Jianwu Wang**, Jing Tian, Jingfeng Huang, Zhibo Zhang. Spatiotemporal Climate Data Causality Analytics: An Analysis of ENSO's Global Impacts, NASA Goddard Workshop on Artificial Intelligence, Poster, Greenbelt, MD, 2018.
9. Hua Song, Jing Tian, Jingfeng Huang, **Jianwu Wang**, Zhibo Zhang. Causality Analysis of ENSO's Global Impacts on Climate Variables based on Data-driven Analytics and Climate Model Simulation. American Geophysical Union (AGU) Fall Meeting, Oral Presentation, Washington DC, 2018.
10. **Jianwu Wang**, Zhibo Zhang, Matthias K. Gobbert, and Aryya Gangopadhyay. Multidisciplinary Education on Big Data + High-Performance Computing+ Atmospheric Sciences. American Geophysical Union (AGU) Fall Meeting, Oral Presentation, Washington DC, 2018.

11. Amrita Anam, **Jianwu Wang**, Qian Zhu, Aryya Gangopadhyay. Analyzing Large-scale Drug Related Data Supported by Graph Modeling: Preliminary Results, AMIA 2016 Annual Symposium, Chicago, IL, 2016.
12. Ilkay Altintas, Daniel Crawl, **Jianwu Wang**. A Distributed Data-Parallel Execution Framework in the Kepler Scientific Workflow System, The Eleventh Biennial Ptolemy Miniconference, Presentation, University of California, Berkeley, Berkeley, CA, 2015.
13. Ilkay Altintas, **Jianwu Wang**, Daniel Crawl, Shweta Purawat. bioKepler: A Comprehensive Bioinformatics Scientific Workflow Module for Distributed Analysis of Large-Scale Biological Data, The Eleventh Biennial Ptolemy Miniconference, Presentation, University of California, Berkeley, Berkeley, CA, 2015.
14. Mai Nguyen, Daniel Crawl, **Jianwu Wang**, Ilkay Altintas. Machine Learning Module for Big Data Analysis in Kepler. The Eleventh Biennial Ptolemy Miniconference, Presentation, University of California, Berkeley, Berkeley, CA, 2015.
15. Ilkay Altintas, **Jianwu Wang**, Mai Nguyen, Tolga Oztan, Douglas White. Workflow-driven science for the synthesis of ecology, biology and ethnographic data. Complex Systems Digital Campus (CS-DC) World e-Conference, ASU-SFI Center for Biosocial Complex Systems, Presentation, Phoenix, Arizona, USA, 2015.
16. Daniel Crawl, **Jianwu Wang**, Shweta Purawat, Ilkay Altintas. Bioinformatics Scientific Workflow Module for Distributed Analysis of Large-Scale Biological Data, DNA Day 2015, Poster, San Diego, CA, 2015.
17. **Jianwu Wang**, Daniel Crawl, Ilkay Altintas, Chad Berkley, Matt Jones. Distributed Execution Architectures in Kepler, The Ninth Biennial Ptolemy Miniconference. Presentation, University of California, Berkeley, Berkeley, CA, 2011

**B. Conference/Poster Presentations (Non-Juried/Refereed, Selected)**

1. **[Invited Talk]** Big Climate Data Analytics and Climate Causality Discovery. The International Workshop on Big Data Analytics, SSN College of Engineering, India, Invited Presentation, 2020
2. **[Invited Talk]** Facilitate Parallel Computation using Kepler Workflow System on Virtual Resource. The University of California Cloud (UCCloud) 2011 Summit, UCLA, Invited Presentation, 2011
3. **[Invited Talk]** Accelerating the Scientific Exploration Process with Kepler Scientific Workflow System, The University of California Grid (UCGrid) 2009 Summit, UCLA, Invited Presentation, 2009

**C. Other Professional Presentations (Selected)**

1. **[Invited Talk]** Evaluation of Data-Driven Causality Discovery Methods for El Niño-Southern Oscillation, UMBC 2020 Earth Day Symposium, Invited Presentation, 2020.
2. **[Invited Talk]** Evaluation of Data-Driven Causality Discovery Methods for El Niño-Southern Oscillation, The Statistical and Applied Mathematical Sciences Institute (SAMSI) Causal Discovery Working Group, Invited Presentation, 2020.
3. **[Invited Talk]** Towards Open Smart Manufacturing, National Institute of Standards and Technology (NIST), Gaithersburg, MD, Invited Presentation, 2018.
4. **[Invited Talk]** Embracing Big Data using Scalable Workflows. Intelligent Automation, Inc. (IAI), Rockville, MD, Invited Presentation, 2016.
5. **[Invited Talk]** **Jianwu Wang**. Embracing Big Data using Scalable Workflows. Bowie State University, Invited Presentation, 2015.

**SERVICE TO THE DEPARTMENT, UNIVERSITY, COMMUNITY AND PROFESSION****Services to the Department**

Fall 2020 - Spring 2021	Committee Member, Graduate Committee
Fall 2019 - Spring 2021	Committee Member, Assessments Committee
Fall 2017 - Spring 2020	Committee Member, Online Master Graduate Committee
Fall 2017 - Spring 2019	Committee Member, Research Committee
Fall 2018	Invited Panelist, Intro to TechResearch Session & Panel session, Information Systems Council of Majors (ISCOM)
Spring 2018	Department Representor, the UMBC Table Fair Experience for High School Students
Fall 2016 - Spring 2017	Committee Member, Faculty Search Committee (Data Science position)

**Services to the College**

Spring 2020	Committee Member, Evaluation Committee for Summer Undergraduate Research Program from the Leadership Alliance Consortium
Fall 2019 - Spring 2020	Committee Member, Faculty Search Committee (GPD for engineering DPS programs)

**Services to the University**

2016 - Present	Member of Governance Committee, the UMBC High Performance Computing Facility (HPCF)
2019, 2020	Research Mentor, Summer LSAMP Research Experience, USM Louis Stokes Alliances for Minority Participation (LSAMP) Program

**Services to the Community**

2020	Research Mentor, High School Student Research via Ingenuity Innovation Practicum, the Ingenuity Project, Baltimore, MD
2019, 2020	Research Mentor, Summer Undergraduate Research Program, the Leadership Alliance Consortium
2020	Team Mentor, Data Exploration for a Sustainable Planet, UMD Data Challenge 2020, College Park, MD
2018	Team Mentor, Tech + Research: Welcoming Women to Computing Research, College Park, MD

**Services to the Profession****A. Editorship**

2020	Book Editor, Use of AI, Robotics, and Modern Tools to Fight Covid-19, River Publishers
2020	Guest Editor, Special Issue on Benchmarking, Performance Tuning and Optimization for Big Data Analytics, Big Data Research, Elsevier Press
2020	Guest Associate Editor, Special Section on Computational Intelligence and Big Data for Scientific and Technological Resources and Services, IEICE Transactions on Information and Systems
2018 - Present	Editor, Frontiers in Big Data, Frontiers Press
2016 - 2019	Editor, Future Generation Computer Systems (FGCS), Elsevier Press
2015 - 2017	Editor, Services Transactions on Internet of Things (STIOT)
2013 - 2016	Associate Editor, International Journal of Computers and Their Applications (IJCA)



- 2012 - 2015      Editor, Cluster Computing, Springer Press  
2017 - 2018      Guest Editor, Special Issue on Big Data in Ubiquitous Computing, IEEE Transaction on Big Data  
2014              Guest Editor, Special Issue on Service and Cloud Based Data Integration, Journal of Grid Computing, Springer Press

**B. Workshop Co-Chair**

1. The Fourth International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2020)
2. The Third International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2019)
3. The Second International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2018)
4. The First International Workshop on Benchmarking, Performance Tuning and Optimization for Big Data Applications (BPOD 2017)
5. The Third International Workshop on Advances in the Kepler Scientific Workflow System and Its Applications (Kepler 2016)
6. The Second International Workshop on Service and Cloud Based Data Integration (SCDI 2014)
7. The First International Workshop on Service and Cloud Based Data Integration (SCDI 2012)
8. The Second International Workshop on Advances in Data and Information Management: Recent Advances of Cloud Computing in Data and Information Management (ADIM 2011)

**C. Conference Organization Committee**

1. Workshop Chair, 2021 IEEE International Conference on Big Data (IEEE BigData 2021)
2. Poster Chair, 2020 IEEE International Conference on Big Data (IEEE BigData 2020)
3. Student Travel Award Chair, 2019 IEEE International Conference on Big Data (IEEE BigData 2019)
4. Poster Chair, 2019 IEEE 15th International eScience Conference (IEEE eScience 2019)
5. Student Travel Award Chair, 2017 IEEE International Conference on Big Data (IEEE BigData 2017)
6. Short Paper Track Chair, The Sixth IEEE International Congress on Big Data (BigDataCongress 2017)
7. Area Chair, Scientific Workflows, The 13th IEEE International Conference on Services Computing (SCC 2016)
8. Track Chair, Internet of Things (IoT) and Collaboration, The 13th EAI International Conference on Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom 2017)
9. Poster Chair, 2016 IEEE International Conference on Big Data (IEEE BigData 2016)
10. Journal Special Issue Chair, The 14th IEEE International Conference on Ubiquitous Intelligence and Computing (IEEE UIC 2017)

**D. Proposal/Panel Review**

1. National Science Foundation (NSF), 2016, 2017, 2018, 2019, 2020, 2021
2. Army Research Office (ARO), 2019
3. Austrian Science Fund (FWF), 2019
4. National Aeronautics and Space Administration (NASA), 2018
5. Ontario Genomics Institute, Canada, 2014

**E. Conference Program Committee Member (Selected)**

1. 2020 IEEE International Conference on Big Data (IEEE BigData 2020)
2. The 18th International Conference on Service Oriented Computing (ICSOC 2020)
3. 2020 IEEE Global Communications Conference (IEEE Globecom2020)
4. 2019 IEEE International Conference on Big Data (IEEE BigData 2019)

5. The 15th IEEE International Conference on eScience (IEEE eScience 2019)
6. The 48th International Conference on Parallel Processing (ICPP 2019)
7. IEEE International Congress on Big Data (IEEE BigDataCongress 2019)
8. The International Conference on Computational Science (ICCS 2019)
9. The 17th International Conference on Service Oriented Computing (ICSOC 2019)
10. The 47th International Conference on Parallel Processing (ICPP 2018)
11. IEEE International Congress on Big Data (IEEE BigDataCongress 2018)
12. The International Conference on Computational Science (ICCS 2018)
13. The 16th International Conference on Service Oriented Computing (ICSOC 2018)
14. The 46th International Conference on Parallel Processing (ICPP-2017)
15. The 14th IEEE International Conference on Ubiquitous Intelligence and Computing (UIC 2017)
16. The 14th IEEE International Conference on Services Computing (SCC 2017)
17. The Second IEEE International Congress on Internet of Things Services (ICIOT 2017)
18. IEEE International Conference on Data Engineering (ICDE 2017)
19. The Third IEEE International Conference on Big Data Computing Service and Applications (IEEE BigDataService 2017)
20. 2016 IEEE International Conference on Big Data (IEEE BigData 2016)
21. IEEE Fifth International Congress on Big Data (IEEE BigDataCongress 2016)
22. The 12th International Conference on Service Oriented Computing (ICSOC 2016)
23. The 12th IEEE International Conference on eScience (eScience 2016)
24. The Second IEEE International Conference on Big Data Computing Service and Applications (IEEE BigDataService 2016)
25. The First International Conference on Internet of Things Services (S2 IOTS 2016)
26. The 18th International Conference on Information Integration and Web-based Applications & Services (iiWAS 2016)
27. The International Conference on Computational Science (ICCS 2016)
28. The 10th International Conference on Asia-Pacific Services Computing (APSCC 2016)
29. The Third IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (BDCAT 2016)
30. International IEEE Symposium on Big Data Management and Analytics (BIDMA 2016)
31. The 21st IEEE International Conference on Parallel and Distributed Systems (ICPADS 2015)
32. IEEE Fourth International Congress on Big Data (BigData Congress 2015)
33. The 11th IEEE International Conference on eScience (IEEE eScience 2015)
34. The 27th International Conference on Scientific and Statistical Database Management (SSDBM 2015)
35. The First IEEE International Conference on Big Data Computing Service and Applications (IEEE BigDataService 2015)
36. The IEEE Sixth International Conference on Cloud Computing Technology and Science, (CloudCom 2014)
37. The 2014 Asia-Pacific Services Computing Conference (APSCC 2014)
38. IEEE Third International Congress on Big Data (BigData Congress 2014)
39. The 12th International Conference on Service Oriented Computing (ICSOC 2014)
40. The 11th International Conference on Service Oriented Computing (ICSOC 2013)
41. The Tenth International Conference on Service Computing (SCC 2013)
42. IEEE Second International Congress on Big Data (BigData Congress 2013)
43. The Tenth International Conference on Service Oriented Computing (ICSOC 2012)
44. The Ninth International Conference on Service Computing (SCC 2012)
45. The Ninth International Conference on Mobile Web Information Systems (MobiWIS 2012)
46. The 21st International Conference on Collaboration Technologies and Infrastructures (WETICE-2012)
47. The Seventh IEEE International Conference on e-Science (e-Science 2011)

48. The Third International Conference on Advances in Databases, Knowledge, and Data Applications (DBKDA 2011)
49. The Sixth IEEE International Conference on e-Science (e-Science 2010)
50. The 22nd the International Conference on Scientific and Statistical Database Management (SSDBM 2010)

**F. Workshop Program Committee Member (Selected)**

1. The Third Big Data Analytic Technology for Bioinformatics and Health Informatics Workshop (KDDDBHI 2016)
2. The Third International Workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR 2016)
3. The Second International Workshop on Machine Learning, Optimization and Big Data (MOD 2016)
4. International Symposium on Foundations and Applications of Big Data Analytics (FAB 2015)
5. The First International Workshop on Machine learning, Optimization and Big Data (MOD 2015)
6. The Second International Workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR 2015)
7. The Seventh International Workshop on Context-Awareness and Personalization in Cloud and Service Computing (PCS 2014)
8. IEEE 2014 Eighth International Workshop on Scientific and Engineering Workflows: Advances in Data and Event-Driven Workflows (SWF 2014)
9. The Fourth International Workshop on e-Science and Social Network (eSoN 14)
10. The Sixth International Workshop on Personalization in Cloud and Service Computing (PCS 2013)
11. The Third International Workshop on Analyzing and Improving Collaborative eScience with Social Networks (eSoN 13)
12. The International Workshop on Sensor Data Processing and Integration (SDPI 2013)
13. IEEE 2013 Seventh International Workshop on Scientific and Engineering Workflows: Advances in Data and Event-Driven Workflows (SWF 2013)
14. The Fifth International Workshop on Workflow Management in Service and Cloud Computing (WMSC2013)
15. The Second international workshop on Scalable Workflow Enactment Engines and Technologies (SWEET'13)
16. The Second International Workshop on Workflow Models, Systems, Services and Applications in the Cloud (CloudFlow2013)
17. The Fourth International Workshop on Workflow Management in Service and Cloud Computing (WMSC2012)
18. Analyzing and Improving Collaborative eScience with Social Networks (eSoN 12)
19. The Sixth International Workshop on Scientific Workflows (SWF 2012)
20. The First international Workshop on Scalable Workflow Enactment Engines and Technologies (SWEET'12)
21. The First International Workshop on Workflow Models, Systems, Services and Applications in the Cloud (CloudFlow2012)
22. The First IEEE/ACM Workshop on the application of Social Networking concepts to Cluster, Cloud, Grid and Services Computing (SN4CCGridS)
23. The Fifth International Workshop on Scientific Workflows (SWF 2011)
24. The Third International Workshop on Workflow Management in Service and Cloud Computing (WMSC 2011)
25. The Fourth International Workshop on Scientific Workflows (SWF 2010)
26. The Second International Workshop on Workflow Management in Service and Cloud Computing (WMSC 2010)

27. The First International Workshop on Workflow Management in Service and Cloud Computing (WMSC 2009)

**G. Conference Session Chair (Selected)**

1. 2016 IEEE International Conference on Big Data (IEEE BigData 2016)
2. The International Conference on Computational Science (ICCS 2016)
3. The 13th International Conference on Service Computing (SCC 2016)
4. IEEE Ninth International Conference on Web Services (ICWS 2011)

**H. Book Editorial Advisory Board Member**

1. Principles, Methodologies, and Service-Oriented Approaches for Cloud Computing, IGI Global Press, 2013
2. Service-Driven Approaches to Architecture and Enterprise Integration, IGI Global Press, 2013

**I. Journal Reviewer (Selected)**

1. ACM Computing Surveys
2. Journal of Grid Computing, Springer Press
3. IEEE Transactions on Services Computing
4. IEEE Transactions on Automation Science and Engineering
5. IEEE Transactions on Emerging Topics in Computing
6. IEEE Transactions on Cloud Computing
7. IEEE/ACM Transactions on Computational Biology and Bioinformatics
8. Information Systems Frontiers, Springer Press