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Education

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|---|---------------|-------|------|
| Washington University in St. Louis | Physics | Ph.D. | 2008 |
| Washington University in St. Louis | Physics | M.S. | 2003 |
| University of Science & Technology of China | Space Physics | B.A. | 2000 |

Appointments

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| 09/2022–present | Director | Digital Twin Lab, Texas A&M Institute of Data Science |
| 09/2022–present | Affiliated Faculty | Department of Multidisciplinary Engineering, Texas A&M University |
| 09/2021–present | Assistant Professor | Visual Computing and Computational Media Section, School of Performance, Visualization & Fine Arts, Texas A&M University |
| 11/2021–present | Affiliated Faculty | Department of Nuclear Engineering, Texas A&M University |
| 09/2021–present | Assistant Director | Texas A&M Institute of Data Science |
| 09/2019–present | Affiliated Faculty | Department of Electrical & Computer Engineering, Texas A&M University |
| 09/2021–08/2022 | Assistant Professor | Department of Visualization, Texas A&M University |
| 01/2020–01/2022 | iHESP Scientist | International Laboratory for High Resolution Earth System Prediction, Texas A&M University |
| 01/2021–08/2021 | Associate Director | Scientific Machine Learning Lab, Texas A&M Institute of Data Science |
| 11/2018–08/2021 | Research Scientist | Texas A&M Institute of Data Science |
| 11/2016–08/2021 | Research Scientist | High Performance Research Computing, Texas A&M University |
| 11/2016–08/2021 | Research Scientist | Texas A&M Engineering Experiment Station |
| 06/2011–11/2016 | Research Scientist | Center for Computation & Technology, Louisiana State University |
| 09/2008–05/2011 | Postdoc | Center for Computation & Technology, Louisiana State University |
| 08/2000–08/2008 | Teaching Assistant | Physics Department, Washington University in St. Louis |

Honors & Awards

- **Office for Academic Innovation (Fall 2022):** A gift from the Office of Academic Innovation for the efforts to leverage the digital learning environment in teaching in Fall 2022.
- **ADVANCE National Center for Faculty Diversity and Development Faculty Success Fellow (Spring 2023):** Awards in the amount of \$2500 to support participation in the Faculty Success Program offered by the National Center for Faculty Diversity and Development (NCFDD).
- **Texas A&M Institute of Data Science Career Initiation Fellow (2022):** Research grant of \$10,000 for early career support to work in areas involving Data Science.
- **GM/SAE AutoDrive Challenge (2020 - 2021):** Second in the overall cumulative score ranking at the 2020 AutoDrive Challenge (the top team in the United States) as one of the faculty advisors of the Texas A&M 12th Unmanned Team.
- **SCC 2018 (2018):** Finalist of the Student Cluster Competition at the Supercomputing Conference 2018 (Dallas, Texas, USA) as the primary advisor of the Texas A&M University team.
- **ASC 2018 (2018):** Finalist of the 2018 ASC Student Cluster Challenge (Nanchang, Jiangxi, China) as the primary advisor of the Texas A&M University team.
- **SPEC CPU2017 (2008 - 2017):** Cash award and a free SPEC CPU2017 benchmark license from the Standard Performance Evaluation Corporation (SPEC) for two benchmarks *507.cactuBSSN_r* and *607.cactuBSSN_s*
- **SCALE 2016 (2016):** First prize (Tsinghua team) at IEEE International Scalable Computing Challenge (SCALE 2016) with *Benchmark GPU Accelerated PPMLR-MHD Simulations for Space Weather Forecast*
- **SCALE 2009 (2009):** First prize (LSU team) at IEEE International Scalable Computing Challenge (SCALE 2009) with *Large Scale Problem Solving Using Automatic Code Generation and Distributed Visualization*

Grants & Fundings

- **TAMIDS Thematic Lab 2022. PI,** Digital Twin Lab. (around \$300,000 w/o IDC awarded for 2 years, 10/2022 – 10/2024)
- **NIST Public Safety Innovation Accelerator Program 2022 (PSIAP-2022). PI,** A Digital-Twin Enabled Testbed for Public Safety Communication Technologies. (\$1,200,000 awarded for 2 years, 06/2022 – 05/2024)
- **General Dynamics Information Technology. Co-PI,** Priority Telecommunications (PTS III) Program. (\$99,557 awarded for 6 months, 04/2022 – 10/2022) (PI: Walter Magnussen).
- **TAMIDS Data Science Course Development Grant Program 2022. PI,** Introduction to Digital Twins. (\$10,000 awarded for 1 year, 02/2022 – 01/2023).

- **NIST Public Safety Innovation Accelerator Program: Artificial Intelligence for IoT Information (AI3) Prize Competition 2022.** Co-PI, Smart Communities, Smart Responders: An Ai for IoT Prize Competition. (\$1,199,206 awarded for 2 years, 02/2022 – 01/2024) (PI: Walter Magnussen).
- **SAE International 2021.** Co-PI, AutoDrive Challenge Graduate Funding Request. (\$174,000 awarded for 4 year, 09/2021 – 08/2025). (PI: Dezhen Song).
- **DOD-Air Force-Office of Scientific Research 2020.** Co-PI, Expanding Applications for AI Automation and Augmentation. (\$159,494 awarded for one year, 10/2020 – 09/2021). (PI: Stephen Cambone).
- **Intel FPGA University Program 2019.** Awardee. The Intel FPGA University Program provides hardware, software, and teaching materials to help introduce students to digital technology.
- **Dell Seed Unit Program 2019.** Awardee. One PowerEdge R740 server with 384GB memory and 112TB raw storage space for research and educational activities on data science at Texas A&M University.
- **NSF-MERIF Travel Award 2019.** Awardee. Financial support from NSF to attend NSF MERIF (Midscale Experimental Research Infrastructure Forum) Education Workshop, 2019.
- **Dell Seed Unit Program 2018.** Awardee. Four PowerEdge R740 servers with two NVIDIA Tesla V100 PCIe GPU cards and one Mellanox ConnectX-4 Dual-Port EDR Infiniband card each for the Texas A&M Student Cluster Competition Team.
- **NVIDIA DLI University Ambassador (2018 – present).** Awardee. Financial support from NVIDIA to host NVIDIA Deep Learning Institute Workshops at Texas A&M University.
- **NSF IIS 2017.** PI, BD Spokes-Big Data Regional I: SimHUB: Enabling Multidisciplinary Collaboration with Containerization Technologies (\$17,999 awarded for one year, 12/2017–11/2018).
- **NSF IIS 2013.** PI, BIGDATA: Small: DCM: Collaborative Research: An scalable, and portable storage system for scientific data containers. (\$150,000 awarded for 3 years, 07/2013–06/2016).
- **CUDA Research Center Program 2012.** Co-PI, NVIDIA Corporation: CUDA Research Center at LSU (04/2012–2016). (PI: Honggao Liu).
- **Louisiana BOR 2010.** Co-PI, High Performance Computing (HPC) R&D Demonstration Projects for Oil Spill Disaster Response 2010: Modeling and Visualization of the Effect of Severe Storms on Oil Spill Trajectories with the Cactus Framework and LONI. (\$10,000 awarded for 3 months, 05/2010–08/2010). (PI: Qin J. Chen).
- **NSF ACI, NSF Blue Waters Petascale Project Subaward 2012:** Cactus Petascale Enhancements. PI: Peter Diener. (\$75,000 for 1 year)
- **LONI HPC Allocation 2011-2016 renewal.** Co-PI: Numerical Modeling of Coastal Hazards and Their Impacts on the Northern Gulf Coast. PI: Qin J. Chen. (1,000,000+ SUs (Service Units) awarded for each year)

- **LSU HPC Allocation 2011-2016 renewal. Co-PI:** Numerical Modeling of Coastal Hazards and Their Impacts on the Northern Gulf Coast. PI: Qin J. Chen. (1,000,000+ SUs awarded for each year)
- **ANL Director's Discretionary Allocation 2009. PI:** Automatic Code Generation for Massive Parallel Scientific Applications. (5,000,000 SUs awarded for 3 months)
- **LONI HPC Allocation 2009–2012 renewal. Co-PI:** Towards a Highly Efficient Computational Infrastructure for Petascale Scientific Applications LONI Large Resource Allocation Proposal. PI: Gabrielle Allen. (530,000+ SUs awarded for each year)
- **NSF Teragrid LRAC 2008. Co-PI:** Astrophysical Applications of Numerical Relativity: Coalescing Binary Systems and Stellar Collapse Single Year Large Resource Allocation Proposal, Renewal. (5,920,000 SUs awarded for 1 year)
- **IPAM Travel Award. Awardee:** Financial support from IPAM to attend the Relativistic Astrophysics Workshop (Part of the Long Program Grand Challenge Problems in Computational Astrophysics) at UCLA, 2005.
- **SDSC Travel Award. Awardee:** Financial support from the San Diego Supercomputer Center (SDSC) to attend the 11th Annual Computing Institute for Scientists and Researchers at SDSC, 2005.

Projects Involved

- **NIST PSCR 2021 (SI):** NIST Public Safety Innovation Accelerator Program: Public Safety Radio Data (PSRD): Creating a Shared Public Safety Radio Data Set for Sharing and Analysis. PI: Walter Magnussen (\$904,806 awarded for 2 years, 09/2021 – 08/2023)
- **NSF OIA 2021 (SI):** NSF Convergence Accelerator Track E: Combining global high-resolution climate simulations with ocean biogeochemistry, fisheries and decision-making models to improve sustainable fisheries. PI: Piers Chapman (\$749,548 for 1 year)
- **NSF OAC 2021 (SI):** Category II: ACES - Accelerating Computing for Emerging Sciences. PI: Honggao Liu (\$5,000,000 for 5 years)
- **Catalyst Fund Projects 2021 (SI),** Development of Research Intelligence Tools that Contribute to the VIVO Platform: An Open-Source Software Development Project. PI: Bruce Herbert (\$30,000 for 1 year, 09/2021 – 08/2022).
- **DHHS-NIH-National Institute of General Medical Science 2020 (SI):** IMSD at Texas A&M University: Initiative for Maximizing Student Diversity in Biomedical Sciences. PI: Karen Butler-Purry (\$1,328,493 for 5 years).
- **NSF MRI 2020 (SI):** MRI: Acquisition of FASTER - Fostering Accelerated Sciences Transformation Education and Research. PI: Honggao Liu (\$3,090,000 for 3 years)
- **NSF CC* Team 2019 (SI):** CC* Team: SWEETER – SouthWest Expertise in Expanding, Training, Education and Research. PI: Dhruva Chakravorty (\$1,416,000 for 3 years)

- **NSF CCF 2015 (SI):** CyberSEES: Type 2: A Coastal Resilience Collaboratory: Cyber-enabled Discoveries for Sustainable Deltaic Coasts. PI: Qin J. Chen (\$1,199,154 for 4 years)
- **NSF ACI 2014 (SI),** Collaborative Research: Petascale Simulations of Core-Collapse Supernovae and Hypermassive Neutron Stars. PI: Peter Diener (\$22,139 for 3 years).
- **NSF MRI 2013 (SI):** Acquisition of SuperMIC - A Heterogeneous Computing Environment to Enable Transformation of Computational Research and Education in the State of Louisiana. PI: Honggao Liu (\$3,924,181 for 3 years)
- **NSF Blue Waters Petascale Project Subaward 2012 (SI):** Cactus Petascale Enhancements. PI: Peter Diener. (\$75,000 for 1 year)
- **NSF CRI 2012 (SI):** IINEW: Shelob A Heterogeneous Computing Platform to Enable Transformation of Computational Research and Education in the State of Louisiana. PI: Honggao Liu. (\$539,999 for 3 years)
- **NSF PRAC 2009 (SI):** Enabling Science at the Petascale: From Binary Systems and Stellar Core Collapse to GammaRay Bursts. PI: Erik Schnetter. (\$36,000 for 3 years)
- **NSF PIF 2007 (postdoc researcher):** XiRel, A Next Generation Infrastructure for Numerical Relativity. PI: Gabrielle Allen. (\$250,000 for 3 years)

Skills & Expertise

Fortran, C++, C, Python, Julia, LaTeX, CUDA, OpenCL, MPI, OpenMP, LSF, PBS, SLURM, TensorFlow, PyTorch, High Performance Computing, Digital Twin, Computational Framework, Numerical Modeling and Analysis, Data Analytics, Natural Language Processing, Machine Learning and Deep Learning Algorithms, Remote Sensing, Computational Fluid Dynamics, and Numerical Relativity

Teaching & Academic Services

- Faculty Development
 - Enrolled in the 25-week Course in Effective Teaching Practices offered by the Association of College and University Educators (ACUE) and endorsed by the American Council on Education (ACE) (Fall 2022, Spring 2023).
 - Enrolled in the ADVANCE National Center for Faculty Diversity and Development Faculty Success Fellow Program (Spring 2023)
- Credit Courses
 - *Special Topics: Digital Twin Technologies*
VIST 689 (Spring 2023)
 - *Computing for Visualization II*
VIST 271 (Fall 2022, Summer 2022, Spring 2022)

- *Data Science Fundamentals for Energy I*
ICPE 638 (Fall 2021), ICPE 689 (Fall 2020)
- *Data Science Fundamentals for Energy II*
ICPE 689 (Summer 2022, Spring 2021)
- *AggiE-Challenge Project: A Virtualized Environment For Developing Level 4 Autonomous Vehicles*
ENGR 491-511 (Fall 2021, Fall 2020), ENGR 491-523 (Spring 2021)
- *AggiE-Challenge Project: Power-aware High Performance Computing Technologies In Addressing Real World Engineering Applications*
ENGR 491-523 (Spring 2020, Spring 2019, Spring 2018), ENGR 491-504 (Fall 2019), ENGR 485-515 (Fall 2018)
- *Special Topics: High Performance Computing*
ENGR 489-504 (Spring 2019)
- *Special Topics: Computational Data Science*
ECEN 489-504 (Fall 2019, Spring 2020)
- *Research Course*
ECEN 491-552 (Fall 2020), ECEN 691-688 (Fall 2021)
- Short Courses (2 hours 30 minutes long courses offered regularly at Texas A&M until 2021)
 - Introduction to Fortran 90
 - Introduction to CUDA Programming
 - Intermediate CUDA Programming
 - Python for MATLAB Users
 - Introduction to MATLAB Programming
 - Introduction to Julia
 - Introduction to Deep Learning with TensorFlow
 - Introduction to Quantum Computing
 - Introduction to PySpark
 - Introduction to Deep Learning with PyTorch
 - Introduction to Scientific Machine Learning
- Tutorials and Workshops (offered regularly at Texas A&M)
 - NVIDIA Deep Learning Institute (DLI) University Ambassador Program: Deep Learning for Computer Vision Workshop - offers hands-on training for developers, data scientists, and researchers looking to solve challenging problems with deep learning and accelerated computing.
 - Bring Your Own Code (BYOC) Workshop (offered until 2021) - provides hands-on support to help Texas A&M researchers to port their software to high performance computing facilities at Texas A&M and beyond.

- Bring Your Own Data (BYOD) Workshop/Consultancy - helps Texas A&M researchers carry out data analysis on high performance computing facilities at Texas A&M and beyond.
- TAMIDS Scientific Machine Learning Lab Workshop - helps Texas A&M researchers and students get started on Scientific Machine Learning projects.
- Workshops for Professional Development (sponsored events)
 - iDiscovery Workshop on Data Science Foundations and Computational Practice - aims to equip participants with diverse skills and knowledge to utilize in their professional practice of data science. This was a week-long event that was offered in collaboration with other scholars at Texas A&M Institute of Data Science (May 2021).
- Competitions / Hackathons
 - 2023 TAMIDS Student Data Science Competition: Wildfire Data Science Challenge - Organizer (Feb 2023)
 - 2022 TAMIDS Student Data Science Competition: Texas A&M and the World: Exploring the Networks and Impact of Texas A&M's Research - Organizer (Mar 2022)
 - TAMUHack - Judge (Jan 2022)
 - The Harold L. Adams Interdisciplinary Charrette for Undergraduates - Juror (Feb 2022)
 - NOAA GPU Hackathon 2021 - a member of the TAMU/GCOOS team to develop a deep neural network model to classify planktons (Aug 2021)
 - Discovery Hackathon on Materials Design with Graph Learning - explores potential applications of graph learning in materials design. It was a week-long hackathon that was sponsored by Chevron and Texas A&M Institute of Data Science (April 2021).
 - Food for Thought: Using NLP and Machine Learning to Link Food and Nutrition Databases - leading the Texas A&M team to participate the international competition to use machine learning and natural language processing to link food and nutrition databases on a large scale (Nov 2021)
- Webinars and Tutorials (offered regularly at Texas A&M)
 - TAMIDS Data Science Webinar Series
 - * Introduction to Data Science
 - * Graph Analytics with NetworkX
 - * Exploratory Data Analysis with pandas and matplotlib
 - * Machine learning with Scikit-learn
 - * Deep Learning with Keras
- Student Cluster Competition (primary advisor of the Texas A&M Team)
 - Student Cluster Competition (2018 – 2019) sponsored by Dell, NVIDIA, Mellanox, and Intel
 - ASC Student Supercomputer Challenge (2018 – 2020) sponsored by Inspur

- AutoDrive Challenge Competition (member of the faculty leadership team)
 - GM/SAE AutoDrive Challenge (2020 – present) sponsored by GM, SAE, Intel, MathWorks, Velodyne LiDAR, etc.

Professional Activities

- IEEE Member
- ACM Lifetime Member
- NSF Panelist: 2018, 2019, 2020, 2021, 2022
- Programm Committee Member
 - 1st IEEE World Forum on Public Safety Technology (2024)
 - 9th IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (BDCAT2022)
- Chair/Co-Chair
 - FUPUSE4ALL - Future Public Safety For All Workshop at the Cyber-Physical Systems and Internet-of-Things Week (FUPUSE4ALL 2023)
- Journal Reviewer:
 - Applied Mathematical Modelling
 - Applied Sciences
 - Applied Soft Computing
 - Computer Physics Communications
 - Future Generation Computer Systems
 - IEEE Software
 - Information
 - International Journal of Simulation and Process Modelling
 - Microprocessors and Microsystems
- XSEDE Campus Champion (2019 - 2022)
- NVIDIA University Ambassador (2018 - 2023)

Presentations

- 2/2023 *Research Activites of TAU Group*, 2023 the School of Performance, Visualization & Fine Arts Research & Creative Works Day, Texas A&M University.

- 2/2023 *Smart Communities, Smart Responders: An AI for IoT (AI3) Prize Competition - Phase 2 Webinar*, Co-host, Online.
- 2/2023 *Projects @ TAMIDS Digital Twin Lab*, CSCE 421 Machine Learning Course, Texas A&M University.
- 1/2023 *Lossy Compression of High-Resolution Climate Modeling Data*, TCCS - High-Resolution Modeling Workshop, Texas Center for Climate Studies.
- 12/2022 *Application of Uncertainty Quantification in Digital Twins*, 2022 Uncertainty Quantification Workshop, Texas A&M Institute of Data Science.
- 11/2022 *Roadmap for a Digital-Twin Enabled Testbed for Public Safety Communication Technologies*, Invited Speaker, 2022 5th IEEE 5G Workshop on First Responder and Tactical Network, Johns Hopkins University Applied Physics Lab.
- 10/2022 *Smart Communities, Smart Responders: An AI for IoT (AI3) Prize Competition - Phase 1 Webinar*, Co-host, Online.
- 06/2022 *V-RELLIS - a 3D Virtual Environment for Self-driving Cars*, 2022 HPRC Summer Camp, Texas A&M High Performance Research Computing.
- 03/2022 *Introduction to Natural Language Processing*, 2022 Student Data Science Competition, Texas A&M Institute of Data Science.
- 02/2022 *A Virtual 3D Environment for Self-driving Cars*, Digital Twin Workshop, Texas A&M Institute of Data Science.
- 12/2021 *TAMU Research Dashboard (RDASH)*, TAMIDS 2021 Research Conference, Texas A&M Institute of Data Science.
- 12/2021 *Towards a Smart and Sustainable Campus - Energy Consumption Analysis and Anomaly Detection of a Building at Texas A&M*, 2021 Energy Conference, Texas A&M Energy Research Society, Texas A&M University.
- 10/2021 *Machine Learning, Data Analytics, Visualization, and Digital Twins*, Graduate Seminar, Department of Visualization.
- 08/2021 *DS+X: an Immersive and Interdisciplinary Approach for Data Science Education*, South Big Data Hub, Online
- 07/2021 *Application of Advanced Computing and Data-Driven Methods in Modeling and Simulation*, Visual Computing Seminar, Department of Visualization.
- 11/2019 *Deep Learning Institute (DLI) and University Ambassador Program*, NVIDIA Theater - Supercomputing Conference 2019, Denver, Colorado
- 03/2019 *SimHUB - a Cloud-based Computational Platform*, NSF-JST Big Data Kyoto Meeting, Kyoto, Japan

- 03/2018 *XSEDE ECSS Symposium: Panel of PIs Share Experience with ECSS*, XSEDE ECSS Symposium, Webinar.
- 02/2018 *High Performance Computing @ Texas A&M*, Information Science and Systems Seminar, Texas A&M University.
- 12/2017 *Collaborative Research with a Cloud-based Computational Platform*, NSF-JST Big Data Tokyo Meeting, Tokyo, Japan
- 07/2017 *Study on parallelization of components' proportion calculation for three dimensional thermal anisotropy model of urban targets based on linux cluster*, 2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2017), Fort Worth, Texas.
- 07/2017 *Research on the implementation of multi-source remote sensing image management system based on b/s architecture*, 2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2017), Fort Worth, Texas.
- 06/2017 *Collaborative Research with SIMULOCEAN Science Gateway*, HPRC Research Computing Week 2017, College Station, Texas.
- 07/2016 *Orchestrating Containerized Scientific Applications with SIMULOCEAN*, 6th Digital Earth Summit, Beijing, China.
- 07/2016 *Automatic Code Generation for Solving Partial Differential Equations*, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China.
- 05/2016 *Orchestrating Containerized Scientific Applications with SIMULOCEAN*, Container Strategies for Data & Software Preservation that Promote Open Science, University of Notre Dame, Notre Dame, Indiana.
- 05/2016 *Running Coastal Models on Cloud Platforms*, Data Flow 2016, LSU, Baton Rouge, Louisiana.
- 04/2015 *Continuous-time Quantum Monte Carlo - Hybridization-expansion Algorithm for Fermions (I)*, LA-SiGMA/CCT TESC Meeting, LSU.
- 11/2014 *Simulocean - a web-based scientific application deployment and visualization framework for coastal modeling and beyond*, presentation and demonstration at CCT booth, Supercomputing 2014, New Orleans, Louisiana.
- 05/2014 *Earth & Space*, Merrydale Elementary School, Baton Rouge, Louisiana.
- 03/2014 *Computational Hierarchy for Engineering Model-Oriented Re-adjustable Applications (CHEMORA)*, LA-SiGMA/CCT TESC Meeting, LSU.
- 06/2013 *Chemora & Cyberinfrastructure Development*, LA-SiGMA/CCT GPU Meeting, LSU.

- 05/2013 *Enabling Science at the Petascale: From Binary Systems and Stellar Core Collapse to Gamma-Ray Bursts*, Blue Waters Symposium, National Center for Supercomputing Applications, Urbana, Illinois.
- 07/2012 *Chemora Project*, LSU REU/RET Meeting, LSU
- 01/2012 *CaKernel - Unleash The Power Of The Cactus Computational Framework On Heterogeneous Systems*, CCT Tech Talk Series, CCT, LSU.
- 01/2011 *Constructing Scientific Applications with CFD Toolkit*, SCALA 2011, New Orleans, Louisiana.
- 11/2010 *A Cyberinfrastructure for Large Scale Collaborative Projects*, the kickoff meeting at the North Gulf Coastal Hazard Collaboratory, New Orleans, Louisiana.
- 09/2009 *Efforts Towards an Open Numerical Relativity Code*, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sciences at Beijing, China.
- 08/2009 *Automatic Code Generation for Large Scale Scientific Applications*, the 6th Joint Meeting of Chinese Physicists Worldwide International Conference on Physics Education and Frontier Physics at Lanzhou, China.
- 06/2009 *Automating the Development of Parallel Multidisciplinary Scientific Applications*, Argonne Leadership Computing Facility at Argonne National Lab.
- 04/2008 *Poster: Binary Neutron Star Evolution with Adaptive Mesh Refinement Methods*, 2008 American Physical Society (APS) meeting at St. Louis, Missouri.
- 11/2006 *Compare Neutron Star Inspiral and Premature Collapse*, the 16th Midwest Relativity Meeting at Washington University in St. Louis.
- 05/2005 *Binary Neutron Star Evolution with AMR*, Workshop for Relativistic Astrophysics at the Institute for Pure and Applied Mathematics (IPAM) at Los Angeles, California.
- 08/2004 *An XML Descriptor for Cactus*, summer project review, CCT at LSU.
- 03/2004 *Efforts on Building Cactus Portal*, invited talk at CCT at LSU.
- 02/2004 *A Synchrotron Toy Model for Radio Jets*, Washington University in St. Louis Graduate Student Seminar.

Publications

Data Science, Machine Learning, and Remote Sensing (total: 13)

- S. V. Eslahi, **J. Tao**, and J. Ji. ERNAS: An evolutionary neural architecture search for magnetic resonance image reconstructions. *arXiv preprint arXiv:2206.07280*, 2022.

- P. Maedgen, B. Wellons, S. Prasad, and **J. Tao**. Improving pulse shape discrimination in organic scintillation detectors by understanding underlying data structure. *Nuclear Technology*, 1–18, 2022.
- B. Lin, L. Zou, N. Duffield, A. Mostafavi, H. Cai, B. Zhou, **J. Tao**, M. Yang, D. Mandal, and J. Abedin. Revealing the linguistic and geographical disparities of public awareness to covid-19 outbreak through social media. *International Journal of Digital Earth*, 15(1):868–889, 2022.
- Z. He, **J. Tao**, L. M. Perez, and D. K. Chakravorty. Technology laboratories: Facilitating instruction for cyberinfrastructure infused data sciences. *The Journal of Computational Science Education*, 13:44–49, Apr. 2022.
- F. Huang, J. Lu, **J. Tao**, L. Li, X. Tan, and P. Liu. Research on optimization methods of ELM classification algorithm for hyperspectral remote sensing images. *IEEE Access*, 7:108070–108089, 2019.
- F. Huang, Y. Chen, L. Li, J. Zhou, **J. Tao**, X. Tan, and G. Fan. Implementation of the parallel mean shift-based image segmentation algorithm on a gpu cluster. *International Journal of Digital Earth*, 12(3):328–353, 2019.
- B. Tie, F. Huang, **J. Tao**, J. Lu, and D. Qiu. A parallel and optimization approach for land-surface temperature retrieval on a windows-based pc cluster. *Sustainability*, 10(3):621, 2018.
- F. Huang, B. Lan, **J. Tao**, Y. Chen, X. Tan, J. Feng, and Y. Ma. A parallel nonlocal means algorithm for remote sensing image denoising on an intel xeon phi platform. *IEEE Access*, 5:8559–8567, 2017.
- L. Li, F. Huang, Y. Chen, **J. Tao**, J. Zhou, and G. Fan. Study on parallelization of components' proportion calculation for three dimensional thermal anisotropy model of urban targets based on linux cluster. In *Geoscience and Remote Sensing Symposium (IGARSS), 2017 IEEE International*, pages 3441–3444. IEEE, 2017.
- F. Huang, **J. Tao**, Y. Xiang, P. Liu, L. Dong, and L. Wang. Parallel compressive sampling matching pursuit algorithm for compressed sensing signal reconstruction with OpenCL. *Journal of Systems Architecture*, 72:51–60, 2017.
- Q. Zhu, F. Huang, J. Lu, **J. Tao**, J. Zheng, L. Li, and B. Lan. Research on the implementation of multi-source remote sensing image management system based on B/S architecture. In *Geoscience and Remote Sensing Symposium (IGARSS), 2017 IEEE International*, pages 5233–5236. IEEE, 2017.
- F. Huang, Q. Zhu, J. Zhou, **J. Tao**, X. Zhou, D. Jin, X. Tan, and L. Wang. Research on the parallelization of the DBSCAN clustering algorithm for spatial data mining based on the spark platform. *Remote Sensing*, 9(12):1301, 2017.
- F. Huang, J. Zhou, **J. Tao**, X. Tan, S. Liang, and J. Cheng. PMODTRAN: A parallel implementation based on MODTRAN for massive remote sensing data processing. *International Journal of Digital Earth*, 9(9):819–834, 2016.

Computational Science and High Performance Computing (total: 21)

- F. Huang, H. Yang, **J. Tao**, J. Wang, and X. Tan. Preliminary study on the automatic parallelism optimization model for image enhancement algorithms based on intel's® xeon phi. *Concurrency and Computation: Practice and Experience*, page e6260, 2021.
- P. Chang, S. Zhang, G. Danabasoglu, S. G. Yeager, H. Fu, H. Wang, F. S. Castruccio, Y. Chen, J. Edwards, D. Fu, et al. An unprecedented set of high-resolution earth system simulations for understanding multiscale interactions in climate variability and change. *Journal of Advances in Modeling Earth Systems*, 12(12):e2020MS002298, 2020.
- F. Huang, H. Yang, **J. Tao**, and Q. Zhu. Universal workflow-based high performance geo-computation service chain platform. *Big Earth Data*, pages 1–26, 2020.
- F. Huang, B. Tie, **J. Tao**, X. Tan, and Y. Ma. Methodology and optimization for implementing cluster-based parallel geospatial algorithms with a case study. *Cluster Computing*, pages 1–32, 2019.
- X. Guo, B. Tang, **J. Tao**, Z. Huang, and Z. Du. Large scale gpu accelerated ppmlr-mhd simulations for space weather forecast. In *Cluster, Cloud and Grid Computing (CCGrid), 2016 16th IEEE/ACM International Symposium on*, pages 576–581. IEEE, 2016.
- F. Huang, S. Bu, **J. Tao**, and X. Tan. Opencl implementation of a parallel universal kriging algorithm for massive spatial data interpolation on heterogeneous systems. *ISPRS International Journal of Geo-Information*, 5(6):96, 2016.
- Q. Yang, Z. Du, Z. Cao, **J. Tao**, and D. A. Bader. A new parallel method for binary black hole simulations. *Scientific Programming*, 2016:6, 2016.
- G. Fan, F. Huang, **J. Tao**, J. Wu, S. Yuan, D. Jin, and B. Lan. Study on a cross-platform linux pc cluster monitoring system based on c/s architecture. *International Journal of Advancements in Computing Technology*, 7(4):38, 2015.
- **J. Tao**, W. Benger, K. Hu, E. Mathews, M. Ritter, P. Diener, C. Kaiser, H. Zhao, G. Allen, and Q. Chen. An HPC framework for large scale simulations and visualizations of oil spill trajectories. *Coastal Hazards*, (2):13, 2013.
- M. Blazewicz, I. Hinder, D. M. Koppelman, S. R. Brandt, M. Ciznicki, M. Kierzynka, F. Löffler, E. Schnetter, and **J. Tao**. From physics model to results: An optimizing framework for cross-architecture code generation. *Scientific Programming*, 21(1):1-16, 2013.
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