

Honggao Kelvin Liu

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Qualification:

- Served as Principle Investigator (PI) and Co-PI on over \$33.8 millions of sponsored research grants, and participated as Senior Investigator (SI) on over \$144 millions of grants from various sources.
- Led Texas A&M University (TAMU) to become a Service Provider on the NSF XSEDE program, and a Resource Provider on the NSF ACCESS program.
- Led TAMU High Performance Research Computing (HPRC) to become a nationally competitive and recognized research computing center.
- Successful efforts resulted in LSU becoming a Top 50 supercomputing site in the world, and inclusion in the NSF TeraGrid and XSEDE programs.
- Experience serving on NSF Review Panels, Journal paper reviews, Conference program committees, Advisory Councils, and HPC Resources Allocations Committees.
- Demonstrated ability to build and lead teams at the local, state and national level and to secure funding for research projects, as well as to work creatively, collaboratively, and productively with stakeholders.
- Innovative leader capable of controlling costs and meeting deadlines. Proven track record supervising research, technical, professional and clerical staff on large, complex projects with interdependent time lines.
- Broad experience across the spectrum of higher education, built through over 25-years of leadership and management experience through numerous roles and projects.
- Broad research interest in computational and data-enabled sciences and engineering, AI, data science, and advanced cyberinfrastructure.
- Background includes computational fluid dynamics, reservoir simulation, numerical modeling and simulations, high performance computing, cloud computing; deployment of large scale supercomputing clusters, research computing center operations; scientific computation consulting; Linux, AIX and Windows server management; user support; advanced application development; deployment and management of HPC and enterprise systems; business continuity planning; vendor relationship management; and evaluation of bleeding and leading edge technologies.

Education:

- Ph.D., Chemical Engineering (GPA: 4.0/4.0), Louisiana State University, Baton Rouge, LA. 12/2002*
- MS, Chemical Engineering (GPA: 4.0/4.0), Louisiana State University, Baton Rouge, LA. 05/2001
- MS, Organic Chemical Technology, Tianjin University, Tianjin, P.R.China. 03/1997
- BS, Chemical Engineering, Xi'an Jiaotong University, Xi'an, P.R.China. 07/1994

Current and Past Grants:

- Category II: ACES - Accelerating Computing for Emerging Sciences, NSF, 10/01/2021-09/30/2026, **PI, \$12,249,999.**
- MRI: Acquisition of FASTER - Fostering Accelerated Sciences Transformation Education and Research, NSF, 09/01/2020-08/31/2023, **PI, \$3,090,000 (plus \$1,324,286 TAMU costs share).**
- Accelerating Credentials of Purpose and Value Grant Program FY 2022 - Texas A&M University, Texas Higher Education Coordinating Board, 01/15/2022 – 9/30/2022, **Co-PI, \$301,450.**
- UTRGV GPU-based Stackable Accelerated Credentials, Texas Higher Education Coordinating Board, 01/15/2022 – 9/30/2022, **SI, \$1,245,000**, Subaward to TAMU: **PI, \$100,000.**

* It should be noted that I would have obtained a M.S. in System Science when I was in Department of Chemical Engineering, except for a Department Policy that prevents me from obtaining dual degrees during the time I am fully supported by chemical engineering. I had finished all the requirements for a M.S. degree in System Science except the Design Project by May 2002.

- CC* CIRA: Building Research Innovation at Community Colleges, NSF, 07/01/2020-06/30/2022, **Co-PI, \$250,000.**
- Computation for the Endless Frontier, NSF, 09/01/2018-2/29/2024, **SI, \$66,999,135.**
- Operations & Maintenance for the Endless Frontier, NSF, 10/01/2019-9/30/2024, **SI, \$72,249,998,** Sub award to TAMU: **PI, \$500,000.**
- CyberTraining: CIC: The Texas A&M University Computational Materials Science Summer School (CMS3), NSF, 08/01/2018- 07/31/2021, **Co-PI, \$499,000.**
- Texas Virtual Data Library (Tx-ViDaL): A Secure Data Infrastructure for Population Informatics, Texas A&M Research Development Fund (RDF), 7/1/2018-6/30/2023, **Co-PI, \$1,400,000.**
- CC* Network Design: Improve Network on Campus for Research and Education in Agriculture, Science, and Engineering at Prairie View A&M University, NSF, 08/15/2018- 07/31/2021, \$499,964; Subaward to TAMU: **PI, \$65,000.**
- Intel Parallel Computer Center at Texas A&M University (IPCC @ TAMU) in the focus area of “OpenFOAM for the modeling of flow transport phenomena in the void spaces.” **INTEL Corporation, 4/1/2016-8/31/2017, PI, \$150,000.**
- Cybertraining: CIP: CiSE-ProS: Cyberinfrastructure Security Education for Professionals and Students, NSF, 08/01/17 - 07/31/2021, **SI, \$499,996.**
- CyberSEES: Type 2: A Coastal Resilience Collaboratory: Cyber-enabled Discoveries for Sustainable Deltaic Coasts, NSF, 10/1/15-9/30/2021, **Co-PI, \$1,199,154.**
- Intel Parallel Computer Center at Louisiana State University (IPCC @ LSU) in the focus area of “OpenFOAM for the modeling of flow transport phenomena in the void spaces.” **INTEL Corporation, 4/1/2014-3/31/2016, PI, \$150,000 as a gift.**
- MRI: Acquisition of SuperMIC -- A Heterogeneous Computing Environment to Enable Transformation of Computational Research and Education in the State of Louisiana, **NSF, 10/1/2013 – 9/30/2018, PI, \$3,924,181 (plus \$1,681,792 LSU match).**
- CC-NIE Network Infrastructure: CADIS -- Cyberinfrastructure Advancing Data-Interactive Sciences, NSF, 01/01/13 – 12/31/15, **PI and Project Director, \$499,758.**
- II-NEW: Shelob - A Heterogeneous Computing Platform to Enable Transformation of Computational Research and Education in the State of Louisiana, NSF, 07/01/12 – 06/30/17, **PI, \$539,999.**
- TeraGrid Extension: Bridging to XD, NSF through the University of Chicago, 04/01/10 – 03/31/13, **LSU/LONI PI, \$1,045,000.**
- Research and Education Cyberinfrastructure Investments to Develop the Coastal Hazards Collaboratory in the Northern Gulf Coast, NSF through the Board of Regents, 10/01/10 – 09/30/13, **Co-PI, \$1,348,656.**
- MRI: Development of Melete: an interaction-oriented, software-rich compute cluster with tangible interface support for collaborative research and the classroom, NSF, 09/01/11 – 08/31/15, **SI, \$900,000.**
- BIPAS - Bifurcated Infrastructure Promoting the Advance of Science: Revitalizing LSU's Data Network Infrastructure, NSF, 07/15/10 – 12/31/12, **SI, \$1,998,000.**
- LONI Grid - Leveraging HPC Resources of the Louisiana Optical Network Initiative for Science and Engineering Research and Education, NSF through BoR, 10/01/07 – 03/31/13, **PI, \$2,593,956.**
- SCI: ETF Grid Infrastructure Group: Providing System Management and Integration for the TeraGrid, NSF through the University of Chicago, 08/01/08 – 07/31/10, **LSU/LONI PI, \$241,271.**

Experience:

- **Executive Director (09/2020-present), Director (01/2016-08/2020), High Performance Research Computing (HPRC), Texas A&M University**
 - Transform HPRC, formerly known as Supercomputing Facility, from a mere service facility to an interdisciplinary research center advancing computational and data-enabled science and engineering with a broad mission for advancing research, education, outreach and training.
 - Secure funding of over \$8.3 million within Texas A&M to purchase the university flagship supercomputer - Grace which offers almost 20 times the processing power of its predecessor Ada.
 - Develop strategies to build a nationally competitive and recognized center for computational and data sciences.
 - Oversee, manage, and coordinate all research, service, enablement, education, outreach and training activities related to cyberinfrastructure at all levels and across all regions – Texas A&M campus, Texas, national, etc.
 - Guide and facilitate the HPRC’s efforts to establish and develop strong international research collaborations.

- Interface effectively with all Cyberinfrastructure activities of Texas A&M and lead the HPRC's efforts to develop strategies to satisfy these needs of computational and data sciences research community.
 - Serve as the PI and Co-PIs on several NSF grants. Serve as the Director of Intel Parallel Computing Center at Texas A&M University.
 - Serve as a Graduate Faculty and Thesis Committee member at the Department of Geography.
 - Guide decisions regarding HPRC hardware/software upgrades and acquisitions based on needs articulated by Texas A&M faculty, the broader user community and lead development of proposals to acquire or upgrade HPRC hardware/software.
 - Secure funding of \$2.3 million from College of Geosciences, Division of Research, Texas A&M Transportation Institute, and two faculty to purchase the Terra supercomputer which offers 10 times the processing power of its predecessor Eos.
 - Initiate a computational and data sciences seminar/lecture series which provide opportunities for researchers from different disciplines to share ideas and collaborate.
- **Deputy Director (12/2010-12/2015), Center for Computation and Technology (CCT), Louisiana State University**
 - Work closely with the CCT Director in developing strategies to build an internationally competitive and recognized center for computational sciences and be responsible for the day-to-day activity, operation and management of the CCT, which currently has 70 faculty, 17 research staff with long-term appointments, 13 postdocs, 22 support staff and nearly 60 students drawn from many LSU departments and colleges.
 - Oversee, manage, and coordinate all research & technical training activities, that are funded through the CCT's MRB, at all levels and across all regions – LSU campus, Louisiana, national, etc.
 - Guide and facilitate the CCT's efforts to establish and develop strong international research collaborations.
 - Interface effectively with all Cyberinfrastructure (CI) activities of LSU and the Louisiana Optical Network Initiative (LONI) and lead the CCT's efforts to develop strategies to satisfy these needs of LSU/LONI computational research community.
 - Chair the LSU High-Performance-Computing Resources Allocation Committee.
 - Serve as the Director of Intel Parallel Computing Center at Louisiana State University (IPCC@LSU).
 - Serve as the Principal Investigator (PI) on the recent \$4 million NSF Major Research Instrumentation grant for the acquisition of SuperMIC supercomputer, which connects LSU to the national cyberinfrastructure via NSF's XSEDE program.
 - Serve as the PI of NSF HPCOPS grant and TeraGrid Extension project which extends LONI operations on TeraGrid/XSEDE through March 2013.
 - Guide decisions regarding HPC hardware/software upgrades and acquisitions based on needs articulated by CCT faculty, the broader LSU and Louisiana user community and lead development of proposals to acquire or upgrade HPC hardware/software.
 - Lead a process of performing a refresh of LSU's critical HPC assets and developed a life-cycle replacement funding strategy and a new HPC business model.
 - Lead a team to design, configure, acquire and deploy a large Petascale HPC system (QB2) which replaced LONI's flagship supercomputer, Queen Bee.
 - Implement a new structure for HPC operations, systems administration, and support of the use of this critical asset enabling the advance of research in the institution.
 - Review all LONI startup allocation requests not from LONI-institution that houses one of the LONI compute clusters.
 - Lead the CCT GPU effort and serve as PI of CUDA Research Center by NVIDIA Corporation.
 - Serve as PI of NSF CRI program titled "II-NEW: Shelob – A Heterogeneous Computing Platform to Enable Transformation of Computational Research and Education in the State of Louisiana".
 - Work as a PI or CO-PI on several other projects funded by NSF.
 - Collaborate effectively with key CCT staff regarding facilities strategies, work as the point of contact for the state's construction of a 94,000 ft² building— the Louisiana Digital Media Center (LDMC), and as building coordinator of LDMC which houses the CCT.
 - Collaborate effectively with key CCT staff regarding Economic Development activities.
 - **Director (11/2008-06/2011), High Performance Computing (HPC), Louisiana State University**
 - Oversee all HPC activities at LSU and LONI and provide vision, leadership, direction, and management for HPC at LSU/LONI in support of its mission to provide HPC cycles and related services to researchers.
 - Serve as the PI of NSF HPCOPS grant that allows LONI join TeraGrid, a backbone of national cyberinfrastructure (TeraGrid is a nationwide, NSF-funded research infrastructure that incorporates high-performance computing resources at 11 sites across the country).

- Serve as the PI on LONI's TeraGrid Extension project (Bridging to eXtreme Digital (XD)) which extends LONI operations on TeraGrid through July 2013.
 - Work as the TeraGrid Site Lead for LONI which contributes one half of its centerpiece supercomputer, Queen Bee's, computational cycles to the TeraGrid community as a Resource Provider.
 - Design, configure and acquire one IBM Power7 6.8 TFlops cluster and one Intel Nehalem 3.5 TFlops cluster from Dell, and over 400TB high-performance storage from DataDirect Networks (DDN).
 - Maintain and manage 16 HPC clusters over 10,000 cores and 100 TFlops total computing capacity, and over 500TB storage.
 - Manage 20 HPC professional staff who implement, configure, secure, document, maintain, and support HPC hardware and software resources to provide production HPC cycles and services to researchers on campus, the state, throughout the nation, and across the world.
 - Design the HPC training programs, lead and coordinate the HPC workshops and tutorials held at six LONI member institutions for LONI users and TeraGrid users via Access Grid.
 - Assume the lead responsibility for the acquisition of all HPC equipment and represents LSU/LONI on major equipment negotiation teams.
- **Manager of HPC Enablement (01/2006-10/2008), High Performance Computing, Louisiana State University**
 - Construct an 85 TFlops (trillions of floating point operations per second) Grid, one of Nation's most powerful supercomputing environments, for Louisiana Optical Network Initiative (LONI) that will provide computational power to the nation's research scientists and engineers through the National LambdaRail (NLR).
 - Oversee all HPC user services activities at LSU and LONI and play more of a leadership role in LSU's HPC development efforts.
 - Work on LSU/LONI joining the TeraGrid, a backbone of national cyberinfrastructure (TeraGrid is a nationwide, NSF-funded research infrastructure that incorporates high-performance computing resources at nine sites across the country) by leading the user services, software, documentation, and security working groups.
 - Manage analysts/consultants who implement, configure, secure, document, maintain, and support HPC software resources including, but not limited to various commercial and open source scientific codes, libraries, or applications.
 - Design the HPC training programs, lead and coordinate the HPC workshops and tutorials held at Six LONI member institutions.
 - Work on LSU's NSF National Center's proposal (track 2c) "High Performance Computing System Acquisition: Towards a Petascale Computing Environment for Science and Engineering" (unfunded).
 - Deploy and administer all the LSU and LONI's HPC systems (16 clusters over 100 TFlops total computing capacity) - LSU's supercomputing systems (Tezpur-- a 1440 Intel Xeon 64-bit 2.66 GHz processor cluster. Pelican--a 368 IBM Power5 and Power5+ 1.9 GHz processor cluster. Nemeaux—a 64 Apple Xserve G5 2.0 GHz processor cluster. Santaka—a 32 SGI Itanium 2 1.5 GHz processor cluster) and LONI's supercomputers (Queen Bee – a 5440 Intel Xeon 64-bit 2.33 GHz processor cluster which ranks the 23rd fastest supercomputer in the world in 2007. Six (6) Dell 512 Intel Xeon 64-bit 2.33 GHz processor clusters. Five (5) IBM 112 Power5 1.9 GHz processor clusters).
 - Work on LSU's NSF National Center's proposal (track 2b) "High Performance Computing System Acquisition: Towards a Petascale Computing Environment for Science and Engineering" (unfunded).
 - Develop a proposal for NSF's "High- Performance Computing for Science and Engineering Research and Education: Operations (User Support, System Administration and Maintenance) (HPC-OPS)" solicitation to make LONI's HPC systems available to national science and engineering community without restriction to discipline (funded).
 - Develop a proposal for "NSF EPSCoR Research Infrastructure Improvement: Information Technology" to create advanced services that will place Louisiana among the most sophisticated environments for comprehensive computational science and engineering available (funded).
 - Design and configure a 50 TFlops supercomputer, 300 terabytes of disk storage and six 5 TFlops supercomputers for LONI.

- Represent LSU-HPC in statewide, national, or international forums or partnerships.
 - Research emerging trends in HPC and develop potential HPC solutions for LSU HPC.
- **Manager of Scientific Computing and Applications (08/2005-12/2005), High Performance Computing (HPC), Louisiana State University**
 - Work on LSU's NSF National Center's proposal “High Performance Computing System Acquisition: Towards a Petascale Computing Environment for Science and Engineering” (unfunded)
 - Work on enabling LSU to become a new TeraGrid, is a grid computing project for building the world's largest, most comprehensive distributed infrastructure for open scientific research) partner by integrating SuperMike to TeraGrid
 - Design, implement, configure, document, administer, and maintain performance monitoring and optimization of hardware and software resources within HPC
 - Configure and administer LSU’s supercomputing systems (SuperMike--a cluster of 1,024 Pentium IV 3.0GHz processors and one of the top 100 supercomputers in the world. Casper/Pelican--an IBM SP, RS/6000, pSeries and P5 cluster. SuperHelix--256 Intel Pentium IV 1.8 GHz processor cluster. Nemeaux--64 Apple Xserve G5 2.0 GHz processor cluster. Santaka-- 32 SGI Itanium 2 1.5 GHz processor cluster. MiniMike--32 Pentium IV 3.0GHz processor cluster)
 - Work with researchers to aid their development of effective software for HPC resources and support researchers via a ticketing system to make efficient use of HPC resources for their research
 - Design training programs or seminars based on researcher needs and train them to new technologies
 - Represent LSU-HPC in statewide, national, or international forums or partnerships
 - Research emerging trends in HPC and develop potential HPC solutions for LSU HPC
- **Scientific Computing and Applications Consultant (10/2002—08/2005), High Performance Computing, Louisiana State University**
 - Work with researchers in scientific programming and interdisciplinary computational research and the efficient use of LSU supercomputing facilities.
 - Configure and administer two large supercomputer systems-SuperMike and Casper/Pelican (SuperMike, a cluster of 1,024 Pentium IV 3.0GHz processors and one of the top 100 supercomputers in the world. Casper/Pelican, an IBM SP, RS/6000, pSeries and P5 cluster), and four medium size clusters (SuperHelix--256 Intel Pentium IV 1.8 GHz processor cluster, Nemeaux-- 64 Apple Xserve G5 2.0 GHz processor cluster, Santaka—32 SGI Itanium 2 1.5 GHz processor cluster, and MiniMike--32 Pentium IV 3.0GHz processor cluster.)
 - Work with researchers to aid their development of effective software for HPC resources and prepares documentation, tutorials and workshops on issues of HPC relevant.
 - Research on Grid Computing by deploying Globus Toolkit and MPICH-G2 on AIX, Linux and Windows machines and implementing applications on the testing grid.
 - Research on High Throughput Computing by using Condor system on AIX, Linux and Windows machines.
 - Work on supporting a wide variety of research projects in the chemistry, biology, physics, astronomy, fluid mechanics, geology, geography, statistics, coastal and environmental studies as well as in engineering and mathematics.
 - Administer and improve High Performance and Parallel Computing installations for scientists, engineers, and students to conduct cutting-edge research on the most complex questions of science, engineering, and technology.

- Monitor emerging scientific computing technologies and assist with the implementation of computing solutions that promote better use of the LSU supercomputing resources.
 - Work with other system managers with deployment and management issues, and coordinate problem resolution and 24-hr availability of UNIX and LINUX services.
 - Coordinate training and support with LSU-OCS HelpDesk personnel.
- **Research Assistant (08/1997-10/2002), Department of Chemical Engineering, Louisiana State University**
 - Developed and implemented a new numerical simulator to model polymer flow and reaction in porous media that has the potential to be used in the manufacture of composite materials, the hydraulic fracturing of oil wells (Enhanced Oil Recovery), and certain types of polymer processing.
 - Developed a new type of algorithm that allows computation of the dynamic molecular weight distribution during polymer processing (as opposed to a single polymer concentration, which was the previously accepted procedure).
 - Discovered a new type of flow instability that can occur under certain combinations of conditions (i.e. certain polymer reaction rates combined with heterogeneity in catalyst packing).
 - Developed a sphere-packing model to generate large-scale sphere pack with given domain size, radius distribution and correlation length.
 - Designed and implemented coreflood experiments to study the effects of polymer-gel treatments on multiphase flow in porous media (Data Acquisition using LabView).
 - **Research Assistant (09/1994-03/1997), Department of Chemical Engineering, Tianjin University, P.R.China**
 - Proposed a new functional group, OCOO, that greatly improved the accuracy of prediction using the UNIFAC model in Vapor-Liquid Equilibrium.
 - Coordinated chemical engineering senior student's internship (76 students) in Beijing Yanshan Petrochemical Corporation, SINOPEC.
 - Researched Vapor-Liquid Equilibrium on special binary systems concerned with Diethyl Oxalate by Vapor phase catalytic coupling of CO.
 - Researched reactant pre-treating and product separation of the preparation of Diethyl Oxalate by Vapor Phase catalytic coupling reaction of CO.
 - Researched separation of dilute organic aqueous solutions by Pervaporation.

Dissertation Research Projects:

- "Reactive polymer flow in porous materials." This project is to study polymer flow and crosslinking reaction in porous media that has the potential to be used in the manufacture of composite materials, the hydraulic fracturing of oil wells (Enhanced Oil Recovery), and certain types of polymer processing. A geological model, which can represent porous media with certain permeability distribution and correlation length using Hybrid-Kriging method, was developed and implemented. A multi-dimensional, multiphase, polymer flow model was developed to study the dynamics of reactive polymer flow in porous media. A new computational modeling technique in which the traditional dependent variables in the conservation equations (i.e., species concentrations) are replaced with moments of the polymer molecular weight distribution was developed. This approach allows for the efficient modeling of polymerization reactions in which orders-of-magnitude polymer molecular weight changes can occur during flow. (08/1998-10/2002)
- "Random sphere packing." A sphere packing model was developed to generate large-scale random sphere packing with given domain size, radius distribution and correlation length. (08/97-08/98)

Computer Skills:

- **Programming Languages:** FORTRAN, C, C++, MPI, OpenMP, VB, MatLab, Shell scripts, HTML, PHP, Perl, and Java.
- **Operating Systems:** UNIX, AIX, LINUX, IRIX, Win 7-10, Win 3.x, Win 9x, Win NT, Win 2000, Win XP, MS- DOS.
- **Applications:** Compilers (Fortran, C, C++), debuggers, MPICH, MVAPICH, OpenMPI, POE, LoadLeveler, PSSP, Maui, Moab, Open PBS, PBS Pro, Condor, Big Brother, Nagios, SAS, MatLab, Gaussian, Jaguar, NWCHEM, Amber, Abaqus, Fluent, Cactus, GridChem, Mathematica, Lotus,

StudioWeb, Globus, MPICH-G2, MPIg, QBank, Gold, GPFS, Lustre, MS Office, Visual Studio, Basic/C++, Apache, GAMS, Maple, PVM, MM5, NCL, FFTW, Texlive, and lots of open source applications.

- **Database Systems:** IBM DB2, POSTGRESQL, MS Access, Oracle8i, SQL, AOL-Server.
- **Data Acquisition: LabView.**

Publications:

- Abhinand Nasari, Hieu Le, Richard Lawrence, Zhenhua He, Xin Yang, Mario Krell, Alex Tsyplikhin, Mahidhar Tatineni, Tim Cockerill, Lisa Perez, Dhruva Chakravorty, Honggao Liu. "Benchmarking the Performance of Accelerators on National Cyberinfrastructure Resources for Artificial Intelligence / Machine Learning Workloads", PEARC '22: Practice and Experience in Advanced Research Computing, July 2022, Article No.: 19, Pages 1–9, <https://doi.org/10.1145/3491418.3530772>
- D. Chakravorty, S. Janes, J. Howell, L. Perez, A. Schultz, M. Goldie, A. Gamble, R Malkan, H. Liu, D. Mireles, Y. Jing, Z. He, T. Cockerill. "Expanding the Reach of Research Computing: A Landscape Study: Pathways Bringing Research Computing to Smaller Universities and Community Colleges", PEARC '22: Practice and Experience in Advanced Research Computing, July 2022, Article No.: 64 Pages 1–4 <https://doi.org/10.1145/3491418.3535169>
- Dhruva K. Chakravorty, Lisa M. Perez, Honggao Liu, Braden Yosko, Keith Jackson, Dylan Rodriguez, Stuti H. Trivedi, Levi Jordan, and Shaina Le. 2021. "Exploring Remote Learning Methods for User Training in Research Computing". The Journal of Computational Science Education 12, no. 2, 11-17. <https://doi.org/10.22369/issn.2153-4136/12/2/2>.
- D. K. Chakravorty, M. Pennings, H. Liu, etc. "Effectively Extending Computational Training Using Informal Means at Larger Institutions", Journal of Computational Science Education 2018, 40-47 DOI 10.22369/issn.2153-4136/10/1/7.
- D. K. Chakravorty, M. Pennings, H. Liu, etc. "Evaluating Active Learning Approaches for Teaching Intermediate Programming at an Early Undergraduate Level", Journal of Computational Science Education 2018, 61-66 DOI 10.22369/issn.2153-4136/10/1/10.
- D. K. Chakravorty, M. Pennings, H. Liu, etc. "Incorporating Complexity in Computing Camps for High School Students – A Report on the Summer Computing Academy Program at Texas A&M University", The Journal of Computational Science Education Volume 11, Issue 1, pp. 12 - 20 <https://doi.org/10.22369/issn.2153-4136/11/1/3>.
- Dhruva K. Chakravorty, Lisa M. Perez, Honggao Liu, etc. "Exploring Remote Learning Methods for User Training in Research Computing", The Journal of Computational Science Education Volume 12, Issue 2, pp. 11 - 17 <https://doi.org/10.22369/issn.2153-4136/12/2/2>.
- Zhi Shang, Honggao Liu. Simulating Multiphase Flows in Porous Media Using OpenFOAM on Intel Xeon Phi Knights Landing Processors. Practice & Experience in Advanced Research Computing (PEARC17), New Orleans, Louisiana, July 9 - 13, 2017, USA.
- Zhi Shang, Honggao Liu, James A. Lupo, "High Performance Computing of Multiphase Flows in Porous Media," *LAP LAMBERT Academic Publishing*, ISBN-13: 978-3-659-80852-4, Book Page 72, Published on 2017-03-16.
- Zhi Shang, Honggao Liu, James A. Lupo, "Evaluation of hybrid MPI-OpenMP on discrete particle modeling for large scale parallel computing with OpenFOAM," Asian Journal of Mathematics and Computer Research, available (in press) at <http://www.ikpress.org/articles-press/44>
- Zhi Shang, Honggao Liu, Krishnaswamy Nandakumar, Mayank Tyagi, James A. Lupo, Karten Thompson. Discrete Particle Model for Porous Media Flow using OpenFOAM at Intel Xeon Phi Coprocessor. American Physical Society, Division of Fluid Dynamics 68th Annual Meeting, Boston, Massachusetts, November 22 - 24, 2015, USA.
- Zhi Shang, Honggao Liu, Krishnaswamy Nandakumar, Mayank Tyagi, James A. Lupo, Karten Thompson. High Performance Computing at Intel Xeon Phi Coprocessor for Discrete Particle Model of OpenFOAM. Society of Exploration Geophysicists (SEG), International Explosion and 85th Annual Meeting, New Orleans, Louisiana, October 18 - 23, 2015, USA.
- Yuan Tian, Cong Xu, Weikuan Yu, Jeffrey S. Vetter, Scott Klasky, Honggao Liu, Saad Biaz, "neCODEC: nearline data compression for scientific applications," Cluster Computing, 1386- 7857, 1-12 (2013).
- Honggao Liu, "The Sustainability of High Performance Computing at Louisiana State University," position paper submitted to NSF Workshop on Sustainable Funding and Business Models for High Performance Computing Centers (2010).
- Daniel S. Katz, Gabrielle Allen, Ricardo Cortez, Carolina Cruz-Neira, Raju Gottumukkala, Zeno D. Greenwood, Les Guice, Shantenu Jha, Ramesh Kolluru, Tevfik Kosar, Lonnie Leger, Honggao Liu,

- Charlie McMahon, Jarek Nabrzyski, Bety Rodriguez-Milla, Ed Seidel, Greg Speyrer, Michael Stubblefield, Brian Voss and Scott Whittenburg, "Louisiana: a model for advancing regional e-Research through cyberinfrastructure," *Phil. Trans. R. Soc. A*, 367, 2459-2469 (2009).
- Honggao Liu, "Numerical Studies of Reactive Polymer Flows in Porous Media," Ph.D. Dissertation (2002).
 - Honggao Liu, and Karsten E. Thompson, "Numerical Modeling of Reactive Polymer Flow in Porous Media," *Comp. Chem. Eng.*, 26 (11), 1595-1610 (2002).
 - Jiaqi Liu, Honggao Liu, and Juntai Li, "Determination and Correlation of Vapor-Liquid Equilibrium for Preparation of Diethyl Oxalate by Coupling Reaction of CO," *Chem. Eng.*, 28 (1), 55-60 (2000).
 - Honggao Liu, Jiaqi Liu, and Juntai Li, "Application of UNIFAC Model in Diethyl Oxalate Synthesis System," *J. Chem. Eng. Chinese Univ.*, 12 (2), 113-117 (1998).
 - Yuhuei Ding, Honggao Liu, and Jiaqi Liu, "Separation of Dilute Organic Aqueous Solutions by Pervaporation," *Chem. Ind. Eng.*, 15 (2), 27-35 (1998).

Professional Affiliations:

- Member of American Institute of Chemical Engineer (AIChE)
- Member of IEEE Computer Society
- Member of Association for Computing Machinery (ACM)
- Member of Special Interest Group on High Performance Computing (SIGHPC).