

Xinlian Liu

http://cs.hood.edu

Email : liu@hood.edu
Phone : +1-240-215-4129

RESEARCH INTERESTS

- **Machine Learning:** Artificial Intelligence, Deep Learning, Computer Vision
- **Visualization:** Scientific Visualization, Virtual Reality, Augmented Reality
- **Parallel & Distributed Computing:** Accelerated Computing
- **Applied Computational Research:** Material Simulation, Computational Digital Humanities, Computational Biology

WORK EXPERIENCE

- **Hood College** Frederick, MD
Associate Professor *Aug 2003 – Present*
 - **Service:** As Department Chair: Led through initial ABET accreditation, the only accredited CS program in Maryland outside the Baltimore-DC corridor. Signed initial departmental articulation agreements with Frederick County Public Schools and Frederick Community College. Started joint Bioinformatics program along Department of Biology. Organized and expanded departmental advisory board. Sought and obtained Maryland Higher Education Commission's approval of a new MS program in Cyber-Security. As Program Director, increased international and domestic enrollment. Rolled out joint computational humanities courses with Humanities program. Pushed for computer literacy across Graduate School.
As faculty, founded the first NVidia CUDA Teaching Center in Maryland, helped organized workshops, tutorials and conferences on campus. Served on numerous campus and community committees as elected or appointed member.
 - **Research:** Conducted computational research in deep learning, artificial intelligence, parallel computing, and scientific visualization. Presented at conferences such as SC, Rocky, and PEARC, etc.
 - **Teaching:** Taught courses in Artificial Intelligence, Machine Learning, Data Mining, Distributed Computing, Computational Methods, Impact of Computing on Societies, Bioinformatics Algorithms, etc.
- **Lawrence Berkeley National Laboratory** Berkeley, CA
Visiting Scholar *June. 2017 – Present*
 - **Summer Internship:** Supervising student teams in research projects
 - **Collaborative Research:** Work with Lab staff scientists on deep learning projects such as protein functional classification and the Million Veteran Program (MVP) through a DOE-wide collaboration with VA
- **National Cancer Institute** Frederick, MD
Guest Scientist *March. 2013 – Present*
 - **Collaborative Research:** Work with Imaging and the Visualization Group of Frederick National Laboratory for Cancer Research on applying deep learning-enabled segmentation and image synthesis techniques

- **Argonne National Laboratory** Argonne, IL
Postdoctoral Appointee *Aug. 2002 – May. 2003*
 - **TeraGrid:** Remote Scientific Visualization through service oriented architecture
 - **Professional Services:** Organized a special track in web services for a professional conference.
- **Control Data Systems, Inc.** Beijing, China
Senior System Engineer *Sept. 1995 – Jan. 1996*
 - **Paging Network:** Set up and configured paging networks for western provinces: Xinjiang, Shanxi, and Gansu
- **National Meteorological Center** Beijing, China
Assistant Engineer *July. 1993 – May. 1996*
 - **Administrative:** Supervised mainframe operators, trained new employees, served on technical supervisory committee of national meteorological satellite communication network
 - **Engineering:** Built an accounting system as part of the Eighth Five Year Research Project
 - **Cray Research:** Assigned as the only NMC hardware engineer in charge of maintenance of Cray supercomputer Y-MP 92 while it was under US export control

VOLUNTEER SERVICES

- **Frederick County Public School Board** Frederick, Maryland
Ethics Panel *2018 – Present*

EDUCATION

- **Louisiana State University** Baton Rouge, LA
PhD in Computer Science with a minor in Electrical Engineering *Aug. 1996 – May. 2002*
- **Huazhong University of Science and Technology** Wuhan, China
Bachelor of Science in Computer Engineering *Aug. 1989 – July. 1993*

PROFESSIONAL DEVELOPMENT

- **Workshop on Outcomes Research in Veterans Suicide Prevention:** Lawrence Berkeley National Laboratory and Los Alamos National Laboratory, July 2018
- **Scalable and Reproducible Structural Bioinformatics Workshop & Hackathon:** University of California San Diego, May 2018
- **IPAM New Deep Learning Techniques Program:** University of California Los Angeles, February 2018
- **Fifth International Workshop Sustainable Scientific Software Development:** University of Manchester, 2016
- **CSinParallel DV16:** Villanova University, 2016
- **Computing Matters:** University of Nebraska, Lincoln, 2015

AWARDS

- **Fulbright Scholar in Data Science:** 2019
- **Lawrence Berkeley National Laboratory SRP Fellow:** 2018
- **DOE Visiting Faculty Fellow:** 2017, 2019
- **NSF XSEDE Fellow:** 2016–2017, 2018–2019
- **Hood College Graduate School Teaching Excellence Award:** 2008–2009

GRANTS

- **CUDA Teaching Center:** NVIDIA, 2010, 2014 (renewal), 2016 (renewal)
- **Finding Cultural Boundaries by Mining Archaeological Data:** Summer Research Institute, 2015
- **CUDA Accelerated Scientific Data Processing:** Undergraduate Petascale Education Program, National Computational Science Institute, 2011
- **GPU Computing:** Summer Research Institute, 2010
- **High Performance Computing on CELL Broadband Engine Platform:** Board of Associates McCardell Award, 2009
- **Simulations of Coordinated Robot Activities in a Dynamic World:** Summer Research Institute, 2008
- **Information Sphere Visualization:** Board of Associates McCardell Award, 2007
- **A Distributed Dynamic Programming Search Algorithm on Extremely Large Data-sets:** Summer Research Institute, 2006

SELECTED PEER REVIEWED PUBLICATIONS

1. Deep Learning Enabled Predicting Modeling of Mortality of Diabetes Mellitus Patients, Wittler, I, Liu, X and Dong, A, In Proceedings of the Practice and Experience on Advanced Research Computing Article, 2019
2. Crum WB, Angello A, Liu X, Champion C. Enabling Interdisciplinary Instruction in Computer Science and Humanities. In: LNCS, Volume 11540. Springer; 2019. p. 389400.
3. Scalable Biomedical Image Synthesis with GAN Canas, K; Ubiera, B; Liu, X; Liu Y Proceedings of the Practice and Experience on Advanced Research Computing Article No. 95 , doi://10.1145/3219104.3229261 (2018)
4. Deep Learning-Enabled Automatic Colorization in Lesion Detection T. Corcoran, K. Canas and X. Liu Proceedings of the 2017 PEARC, New Orleans
5. A Massively Parallel 2D Rectangle Placement Technique M. Moorman and X. Liu Journal of Computing Vol. 1 No. 4
6. Teaching Parallel Computing in a Small College: Meeting a Renewed Demand X. Liu, JCSC 24, 2, 179-188

7. Analysis of a Novel Docking Technique for Autonomous Robots G. Henson, M. Maynard, X. Liu, G. Dimitoglou, Proceedings of the 2008 Performance Metrics for Intelligent Systems, 2008, ACM
8. Algorithms and Performance Analysis for Path Navigation of Ackerman-Steered Autonomous Robots G. Henson, M. Maynard, G. Dimitoglou, X. Liu, Proceedings of the 2008 Performance Metrics for Intelligent Systems, 2008, ACM
9. A Distributed Search Algorithm on Extremely Large Datasets X. Liu Proceedings of the 2008 International Parallel and Distributed Processing Techniques and Applications, CSREA Press
10. A Parallel Genetic Algorithm Scheme of the One-Dimension Cutting Stock Optimization Problem J. Shafer, S. Ullmann, K. Akagi, X. Liu, Proceedings of the 2005 International Conference on Scientific Computing, 243-249, CSREA Press
11. A Scalable Parallel Algorithm for Forest Ecosystem Modeling Problem M. Reed, R. Krull, X. Liu, Proceedings of the 2005 International Conference on Mathematics and Engineering Techniques in Medicine and Biological Sciences, 333-336, CSREA Press
12. Immersive And Interactive Exploration Of Billion-Atom Systems A. Sharma, X. Liu, P. Miller, A. Nakano, R. K. Kalia, P. Vashishta, W. Zhao, T. J. Campbell, and A. Hass (Best paper) Proceedings of 2002 IEEE Virtual Reality Conference, IEEE Computer Society; Republished: Presence: Teleoperators and virtual Environments, 12, 85-95 (2003), MIT Press
13. Improving Visualization Interactivity with Artificial Neural Network Based Instant Self-learning Technique X. Liu, A. Sharma, P. Miller, A. Nakano, R. Kalia, P. Vashishta, W. Zhao The 2002 International Conference on Parallel and Distributed Processing, 4:2025-2028
14. Scalable I/O of Large-Scale Molecular-Dynamics Simulations: a Data-Compression Algorithm A. Omeltchenko, T. J. Campbell, R. K. Kalia, X. Liu, A. Nakano, and P. Vashishta Computer Physics Communications 131, 78-85 (2000)

SELECTED PEER REVIEWED PRESENTATIONS

1. Zamora R, Wang S, Ding C, Khan S, Kingery R, Liu X, et al. Machine Learning Enabled Suicide Prevention Research using ICU Patient Data. In: SIAM CSE. Spokane; 2019.
2. Time-related EHR Healthcare Event Prediction Based on Global Context, C. Ding, X. Liu and S. Crivelli, 2018 University of California and Lawrence Livermore National Laboratory Inaugural Data Science Workshop, August 7–8, 2018, Livermore, California
3. Biomedical Image Synthesis, X. Liu, NIH Bioinformatics SIG Poster Day, May 22, 2018, Bethesda, Maryland

4. Enabling Scalable Deep Learning in Complex Scientific Data, T. Corcoran, R. Zamora-Resendiz, X. Liu and S. Crivelli, Department of Energy Advanced Scientific Computing Research (ASCR) Applied Math, Scientific Machine Learning Study Group, January 23, 2018, Bethesda, Maryland
5. Deep Learning-Enabled Protein Structure Exploration, T. Corcoran, R. Zamora-Resendiz, X. Liu and S. Crivelli, 15th Annual Rocky Mountain Bioinformatics Conference (Rocky17), December 7–9, 2017, Aspen/Snowmass, Colorado
6. A Feature Preserving Spatial Mapping Algorithm for Deep Learning on Ras Proteins, T. Corcoran, R. Zamora, X. Liu and S. Crivelli, The International Conference for High Performance Computing, Networking, Storage and Analysis (SC17), November 12–17, 2017, Denver, Colorado
7. QC Checker and SNP Genotype Editor: Two Application Tools for GWAS, McIntosh, C., Liu, X. and Troyer, J., Great Lakes Bioinformatics Conference, 2013
8. Scientific Computing and Applications in Informatics X. Liu, S. Ravichandran 24th CCSC Eastern Conference 2008 (October 10, 2008, Frederick, Maryland)
9. Introduction to the Theory and Implementation of Computer Graphics X. Liu Computational Science Workshop for Underrepresented Groups (January 8, 2002, Baton Rouge, Louisiana)
10. Scientific Visualization Service Over the Grids X. Liu Illinois Institute of Technology (November 15, 2002, Chicago, Illinois)
11. Immersive And Interactive Exploration of Billion-Atom Systems A. Sharma, P. Miller, and X. Liu IEEE Virtual Reality Conference (March 28, 2002, Orlando, Florida)
12. Multi-Resolution Simulations of Nanostructured Solid and Nanoscale Devices M. Bachlechner, T. Campbell, I. Ebbsjo, A. Madhukar, A. Nakano, R. Kalia, X. Liu, A. Omeltchenko, P. Vashishta, P. Walsh Mardi Gras 2000 Conference on Materials Design: Experimental and Computational Challenges (March 5, 2000, Baton Rouge, Louisiana)
13. Scalable Molecular-Dynamics, Visualization And Data-Management Algorithms For Simulating Nanocomposite Materials A. Nakano, T. J. Campbell, R. K. Kalia, X. Liu, A. Omeltchenko, and P. Vashishta International Materials Research Congress (August 31, 1999, Cancun, Mexico)

SELECTED PRE-PRINTS

- Corcoran, Thomas, Rafael Zamora-Resendiz, Xinlian Liu, and Silvia Crivelli. 2018. A Spatial Mapping Algorithm with Applications in Deep Learning-Based Structure Classification, February. <http://arxiv.org/abs/1802.02532>.

PROFESSIONAL SERVICES

Program Committee, CCSC Southeastern 2011
Program Committee, IADIS Applied Computing 2009, 2010, 2011, 2013
Program Committee, 2009 IEEE International Workshop on Safety, Security and Rescue Robotics
Program Committee, 2009 IEEE International Conference on Cloud Computing (CLOUD 2009)
Conference Committee and Poster Judge, 24th CCSC Eastern 2008
Program Committee, IADIS International Conference Applied Computing 2008
Associated-editor, International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '08)
Associated-editor, International Conference of Grid Computing (CGC '08)
Program Committee, IADIS Virtual Multi Conference on Computer Science and Information systems (MCCSIS 2006)
Poster Judge, 22th CCSC Eastern 2006, XSEDE 2014
Reviewer, Politics and Information Systems, Technologies and Applications, 2011
Reviewer, the Third International Conference on Grid and Cooperative Computing, 2004
Associated-editor, the First International Conference of Web Services (ICWS03)
Editor, International Journal of Web Services
Reviewer, IEEE Transactions on Services Computing
Reviewer, Journal of Supercomputing
Reviewer, Morgan Kaufmann, Elsevier
Reviewer, Future Generation Computer System
Review Panelist, NSF, 2018, 2019

Department Co-Chair 2015–2017
Department Chair 2014–2015
Program Director of Master of Science in Computer Science, 2004–
Program Director of Master of Science in Computer and Information Sciences 2004–2010
Graduate Council, 2004–2017, 2018–
Graduate Council Petition Subcommittee 2014–2016
Graduate Students Mental Health Task Force 2018–
Study Abroad Advisory Committee, 2011–
Humanities Council, 2017–
Faculty Personnel Committee, 2012–2014
Faculty Board of Review, 2009–2011, 2016–2017
Faculty Senate Executive Committee, 2008–2010, Vice President, 2018–2019
Hodson Science and Technology Center Committee, 2003–2007
Faculty Development Committee, 2005–2007
Middle State Self-study Faculty sub-committee, 2005–2006, 2015–2016
Department of Economics and Management Faculty Search Committee, 2006, 2010, 2012
Department of Education Faculty Search Committee, 2008
Bioinformatics Program Director Search Committee, 2016
Library Liaison, 2003–2006

PROFESSIONAL AFFILIATIONS

Member, ACM, ACM SigGraph, ACM SigHPC Edu

Executive Committee Member, IEEE Computer Society DC Chapter

Member, IBM Academic Initiative

Member, The Thalesians

Campus Champion, XSEDE Campus Champion program

Member: XSEDE Use Requirements Evaluation and Prioritization group (UREP)

Member: Phi Kappa Phi