Sunita Chandrasekaran
David L. and Beverly J.C. Mills Career Development Chair
Co-Director - AI Center of Excellence (AICoE)
Associate Professor, Dept. of Computer & Information Sciences
417 FinTech Innovation Hub
591 Collaboration Way, Newark, DE 19713, USA
University of Delaware, Newark, DE, USA
Email: schandra@udel.edu
Computational Research and Programming lab

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Professional Experience (Current)

- **David L. and Beverly J.C. Mills Career Development Chair**; Department of Computer and Information Sciences (CIS), University of Delaware, Newark, USA. *September 2020 – August 2024*
- **Vice Chair**; State of Delaware AI Comission *July 2024 - July 2027*
- **Co-Director**; AI Center of Excellence (AICoE), University of Delaware, Newark, USA. *September 2022 - Present*
- **Advisory Committee Member**; DOE Office of Science Advanced Scientific Computing Advisory Committee (ASCAC) *May 2024 – September 2027*
- **Directorate Advisory Committee Member (DAC);** Oak Ridge National Laboratory's Computing and Computational Sciences Directorate (CCSD) *April 2025 – September 2028*
- **Scientific Advisory Board**; EuroHPC Center of Excellence Plasma-PEPSC *August 2023- August 2025*
- **Associate Professor**; Department of Computer and Information Sciences (CIS), University of Delaware, Newark, USA. *September 2021 – Present*
- **Affiliated Professor**; The Center for Bioinformatics & Computational Biology (CBCB), University of Delaware, Newark, USA. *May 2016 – Present*
- **Affiliated Professor**; Data Science Institute (DSI), University of Delaware, Newark, USA. *Aug 2018 – Present*
- **Board of Directors**; OpenACC Organization. *Spring 2020 – Present*
- **User Representative Chair**; OpenACC Organization. *June 2017 – Present*
- **ACM Senior Member**. *Feb 2022 - Present*
- **IEEE Senior Member**. *Feb 2021 - Present*

Professional Experience (Past)

- **Computational Scientist**, Brookhaven National Laboratory, Upton, NY 11973-5000. September 2021 - March 2024
- **Assistant Professor**; Department of Computer and Information Sciences (CIS), University of Delaware, Newark, USA. *September 2015 – Aug 2021*
- **Postdoctoral Researcher**; Department of Computer Science, University of Houston, Houston, TX, USA. *December 2010 – August 2015*

Education

- Nanyang Technological University (NTU), Singapore, Ph.D., School of Computer Science
  Title: Tools and Algorithms for High Level Algorithm Mapping to FPGA, 2012
- Anna University, Chennai, India, Bachelors of Engineering, Electrical & Electronics
  Final Year Thesis Title: Experimental Studies in Statistical Signal Processing, 2005

Research Interests

- Building predictive models using machine learning and AI to study usability of drugs for rare diseases
- Building compilers and tools for directive-based programming models
- Advancing science of real-world scientific applications spanning biophysics, solar physics, plasma physics by migrating them to large scale supercomputers; opening up research questions

Awards and Honors

- 2023 Walter O. Roberts Scientific & Technical Advancement Award in recognition for the Implementation of MURaM on GPUs
- 2022 SPEC HPG Achievement (Contributor) award
- 2022 IEEE TPDS Award for Editorial Excellence
- 2021 Outstanding Editors Award Recipient of the Future Generation Computer Systems (FGCS)
- IEEE Senior Member, Feb 2021 - Present
- David L. and Beverly J.C. Mills Career Development Chair, Department of Computer & Information Sciences, University of Delaware, September 2020 - August 2024
- College of Engineering Excellence in Teaching Award, University of Delaware, May 2020
- One of the 7 Invited Featured Speakers in the High Performance Computing (HPC) category, GPU Technology Conference (GTC). March 2019. CA, USA
- IEEE TCHPC Award for Excellence for Early Career Researchers in High Performance Computing, November, 2016
- Principal Investigator, NVIDIA GPU Education Center award to University of Delaware, June 2016
- Technical Leadership Award, Standard Performance Evaluation Corporation (SPEC) High Performance Group (HPG), Jan 2016
- Benchmark Project Leadership Recognition Award, SPEC HPG, 2014

Compute Allocation and Research Grant Awards

Compute Allocation Awards

- ORNL: Center for Accelerated Application Preparedness (CAAR), single PI
  Title: Preparing Particle In Cell (PIConGPU) for Frontier at ORNL
  Compute Resources: 60,000 and more node hours on the world's fastest supercomputer, Frontier at ORNL, USA
  Duration: May 2024 —- present

Description: We demonstrate a streaming workflow in which simulation data is streamed directly to a machine-learning (ML) framework, circumventing the file system bottleneck. Data is transformed intransit, asynchronously to the simulation and the training of the model. With the presented workflow, data operations can be performed in common and easy-to-use programming languages, freeing the application user from adapting the application's output routines. As a proof-of-concept we consider a GPU accelerated particle-in-cell (PIConGPU) simulation of the Kelvin- Helmholtz instability (KHI). We employ experience replay to avoid catastrophic forgetting in learning from this non-steady process in a continual manner.

- NERSC at Lawrence Berkeley National Lab (LBNL), single PI
  Title: Porting real-world applications
  Compute Resources: CPU 400 node hours, 1,245 GPU node hours on Perlmutter, USA
  Duration: December 2023 —- present
  Description: This allocation is used for building OpenMP and OpenACC testsuites along with using LLMs to explore generation of tests. We also use the allocation for porting real-world applications to Perlmutter and demonstrating performance/portable solutions.

Research Awards

Active Funding in Research Grants: **$6, 636, 383.12**
Past Funding in Research Grants: **$3, 187, 954**
Grand Total Funding in Research Grants (2015-till date): **$9, 824, 337.12**

- NSF SCIPE, Grant #: 2417814
- DOE Post Exascale Grant, Grant#: DE-FOA-0003177
- Leidos Biomedical Research/NIH, Grant #: 75N91019D00024
- NVIDIA Discretionary Grant
- DOE Exascale Computing Project (ECP) SOLLVE Project, Grant #: 17-SC-20-SC
- UNIDEL - University of Delaware
- Helmholtz Zentrum Dresden Rossendor (HZDR) Germany, Grant #: 20A00644
- NSF CCF, Grant #:1814609
- NSF EAGER-1842623
- National Center for Atmospheric Research (NCAR), Grant #: SUBAWD001808
- Nemours/Alfred I. duPont Hospital for Children, Grant #: 19A00437
- University of Delaware Research Grant
- NVIDIA Curriculum Development Grant

Teaching Activities

CISC/ELEG 1xx-4xx: Undergraduate Courses
CISC 6xx-8xx: Graduate Courses
Courses Taught (Semester, Course Title, Enrolment, Credits):

- **Fall 2024**
  CISC 662 Computer Systems: Architecture
  CISC 187/287/387/487 Vertically Integrated Program: High Performance Computing
  ELEG 187/287/387/487 Vertically Integrated Program: High Performance Computing
- Fall 2023 and Spring 2024 - Sabbatical
- **Fall 2022**
  CISC 662 Computer Systems: Architecture
  CISC 187/287/387/487 Vertically Integrated Program: High Performance Computing
  ELEG 187/287/387/487 Vertically Integrated Program: High Performance Computing
- **Spring 2022**
  CISC 867 co-taught with Arthi Jayaraman NSF NRT course
  CISC 187/287/387/487 Vertically Integrated Program: High Performance Computing
  ELEG 187/287/387/487 Vertically Integrated Program: High Performance Computing
- **Fall 2021**
  CISC 372 Parallel Programming, 2 sections
  CISC 187/287/387/487 Vertically Integrated Program: High Performance Computing
  ELEG 187/287/387/487 Vertically Integrated Program: High Performance Computing
- **Spring 2021**
  CISC 187/287/387/487 Vertically Integrated Program: High Performance Computing
- **Fall 2020**
  CISC 662 Computer Systems: Architecture
  CISC 849 Advance topics in Computer Applications: Data Science and its applicability
  CISC 187/287/387/487 Vertically Integrated Program: High Performance Computing
  ELEG 187/287/387/487 Vertically Integrated Program: High Performance Computing
- **Spring 2020**
  CISC 849 Advance topics in Computer Applications: HPC for Scientific Applications, 14, 3
  CISC 187/487 Vertically Integrated Program: High Performance Computing, 4 = 2 (2 credits), 2 (2 credits)
  ELEG 187 Vertically Integrated Program: High Performance Computing, 2 (1 credit)
- **Fall 2019**
  CISC 372 Parallel Computing, 44, 3
  CISC 187/287/387/487 Vertically Integrated Program: High Performance Computing, 9 = 1 (1 credit), 4 (1 credit), 3 (1 credit), 1 (1 credit)
  ELEG 487 Vertically Integrated Program: High Performance Computing, 2 (2 credits)
- **Spring 2019**
  CISC 849 Advance topics in Computer Applications: HPC for Scientific Applications, 9, 3
  CISC 467 Vertically Integrated Program: High Performance Computing, 10 = 9 (1 credit), 1 (2 credit)
  ELEG 467 Vertically Integrated Program: High Performance Computing, 1 (1 credit)
- **Spring 2018**
  CISC 849 Advance topics in Computer Applications: HPC for Scientific Applications, 9, 3
  CISC 467 Vertically Integrated Program: High Performance Computing, 4 = 3 (1 credit), 1 (2 credits)
  ELEG 467 Vertically Integrated Program: High Performance Computing, 2, 1
- **Fall 2018**
  CISC 360 Computer Architecture, 24, 3
  CISC 662 Computer Systems: Architecture, 22, 3

CISC 467 Vertically Integrated Program: High Performance Computing, 9 = 8 (1 credit), 1 (2 credit)
ELEG 467 Vertically Integrated Program: High Performance Computing, 2 = 1 (1 credit), 1 (1 credit)

- **Spring 2017**
  CISC 849 Advance topics in Computer Applications: Programming heterogeneous systems, 16, 3
  ELEG 467 Vertically Integrated Program: High Performance Computing, 15 = 10 (1 credit), 5(2 credits)
- **Fall 2017**
  CISC 360 Computer Architecture, 44, 3
  CISC 662 Computer Systems: Architecture. 16, 3
  CISC 467 Vertically Integrated Program: High Performance Computing, 8, 1
  ELEG 467 Vertically Integrated Program: High Performance Computing, 4, 1
- **Spring 2016**
  CISC 849 Advance topics in Computer Applications: Programming heterogeneous sytems, 8, 3
- **Fall 2016**
  CISC 360 Computer Architecture, 40, 3
- **Fall 2015**
  CISC 662 Computer Systems: Architecture, 7, 3

Student Research Supervision

Ph.D. Dissertation Advisor (Students In Progress)

- **Aaron Jarmusch**, Spring 2024 -
- **Giorgi Gvalia**, Fall 2024 -
- **Sanhu Li** - Passed Proposal Defense, May 12, 2022
  Thesis title: Designing and developing Next Generation Sequence Alignment algorithms for GPUs

Undergrad Students(Students In Progress)

- Nathan Graddon, sophomore
- Talha Mahmood, graduating Spring 2025
- Jay Patel, graduating Spring 2025
- Raymundo Najera, graduating Spring 2025
- Saieda Ali Zada, Sophomore
- Zachariah Sollenberger, Sophomore
- Zahra Temori, Junior
- Rahul Patel, Junior

Ph.D. Dissertation Advisor (Students Completed)

- **Vineeth Gutta**, Spring 2025
  Thesis Title: Optimizing and Scaling Machine Learning Models for Scientific Applications on Exascale Supercomputers Vineeth works in NVIDIA
- **Fabian Mora**, Fall 2024
  Thesis Title: Designing and developing an extensible compiler for heterogeneous computing using the MLIR infrastructure
  Fabian works in a startup, Brium
- **Eric Wright**, Summer 2023
  Thesis Title: Exploring hierarchical parallelism in directive-based models for efficient GPU execution
  Eric works in Lawrence Livermore National Lab
- **Mauricio Ferrato**, Summer 2023
  Thesis Title: Predicting outcomes for rare diseases using machine learning techniques
  Mauricio works in NVIDIA
- **Robert Searles** (UDEL), March 13, 2019
  Thesis Title: Creating a portable programming abstraction for wavefront pattens targeting HPC systems.
  Robert works in NVIDIA
- **Millad Ghane** (UHouston), July 06, 2019, Co-Advisor.
  Primary Advisor: Prof. Margaret S. Cheung, Dept. of Physics, UH
  Thesis Title: Abstraction of Computation and Data Motion in High-Performance Computing Systems.
  Millad works in Samsung.

Masters Thesis Advisor (Students Completed)

- **Arnov Sinha**, July 13, 2017.
  Master's Thesis Title: High Performance Sparse Fast Fourier Transform Using GPUs.
  Arnov works with Red Violet.
- **Jose Monsalve Diaz**, Feb 12, 2020. Master's Thesis Title: A testsuite design and implementation for OpenMP 4.5 Offloading Features.
  Jose is pursuing PhD in ECE, UDEL.

Masters Research (Non-Thesis) Advisement (Students Completed)

- **Thomas Huber**, 2023, Cornelis Network
- **Evan MacBride**, 2023
- **Vaidhyanathan Ravichandran**, 2023, Nutri Systems
- **Mayara Gimenes**, 2021
- **Nikhil Rao**, 2023, NCAR
- **Joel Bricker**, Fall 2016 (Capital One)
- **Sergio Pena**, Fall 2017 (Cloudreach)
- **Kshitij Srivatsava**, Spring 2017 (ORNL: Summer 2017 - Feb 2019; Uber: March 2019 - till date)

Ph.D. Dissertation Advisor (Students In Progress)

- **Vineeth Gutta**, Fall 2021 - (expected PhD Thesis Defense Jan 2025)
- **Aaron Jarmusch**, Spring 2024 -
- **Giorgi Gvalia**, Fall 2024 -
- **Sanhu Li** - Passed Proposal Defense, May 12, 2022
  Thesis title: Designing and developing Next Generation Sequence Alignment algorithms for GPUs

Undergraduate Research Advisement (Completed)

- **Andrew Kallai**:
  Project and Thesis Title: Statistical Analysis of LLVM IR compilation
  Funded: DOE/ORNL
  Fall 2024
- **Kristina Holsapple**:
  Project Title: Is Exascale Enough? An investigation into the performance of a plasma physics machine learning model on AMD MI250X GPUs
  Funded: DOE/ORNL
  Spring 2023
- **Joshua Davis**: Junior
  Project Title: OpenMP offloading Validation and Verification Testsuite
  Funded: DOE/ORNL
  Spring 2019
- **Kyle Friedline**: Undeclared
  Project Title: OpenACC Validation and Verification Testsuite
  Funded: NVIDIA
  Spring 2016

High School Students Advisement

- David Safro, Spring 2025
- Noah Rossi, Spring 2017 and Fall 2018. (Pursuing Ph.D. in RiceU)

Ph.D. Committee Member - University of Delaware

- PhD Defense Committee for Parinaz Barakhshan. PhD Advisor: Prof. Rudi Eigenmann, Methodologies, tools, and techniques for developing and optimizing science and engineering applications, Dept. of ECE, Fall 2024
- PhD Defense Committee for Nathaniel W. Merrill. PhD Advisor: Prof. Guoquan (Paul) Huang, Guoquan (Paul) Huang, Leveraging deep learning for robust visual and visual-inertial SLAM, Dept. of CIS, Fall 2024
- PhD Defense Committee for Alex Bryer. PhD Advisor: Prof. Juan Perilla, Probing the mechanoelastic mysteries of the HIV-1 capsid: A journey through theoretical and computational biophysics, Spring 2024

- PhD Proposal Defense by Hang Cheng, Prof. Chien-Chung Shen, Towards robust and communication-efficient federated learning with distributed ledger, Dept. of CIS, Fall 2022
- PhD Defense Committee for Akshay Bhosale. PhD Advisor: Prof. Rudi Eigenmann, Compile-time automatic parallelization of subscripted subscripts using recurrence analysis, Dept. of ECE, Spring 2024
- PhD Proposal Defense by Bander Almalki. PhD Advisor: Prof. Li Liao, Transmembrane proteins residues contact prediction using novel machine learning approach and pretrained protein language models, Dept. of CIS, Fall 2024
- Ph.D. Proposal Defense by Wenhao Wu. PhD Advisor: Prof. Stephen Siegel. Functional Verification of Scientific Applications, Department of CIS, May 2020
- Ph.D. Proposal Defense by Dylan Chapp. PhD Advisor: Prof. Michela Taufer. Modeling Non-Determinism in HPC Applications. Department of Computer and Information Sciences, May, 2020
- Ph.D. Proposal Defense by Michael Wyatt. PhD Advisor: Prof. Michela Taufer. Does Data Format Matter? A Study of a Domain-Agnostic Data Format for Domain-Specific Knowledge Extraction. Department of Computer and Information Sciences, May, 2020
- Ph.D. Dissertation by Jonathan Lym. PhD Advisor: PRof. Dion Llachos. Investigation of Reducible Metal Oxide Activity and Stability Using Multiscale Modeling. Department of Chemistry, February 2020
- Prelim Research Exam By Jining Yu. PhD Advisor: Prof. James Clause. Analyzing Class-level Concurrency Documentation. Department of Computer and Information Sciences, May, 2020
- Ph.D. Proposal Defense by Preetha Chatterjee. PhD Advisor: Prof. Lori Pollock. Extracting Archival Knowledge from Software-Related Chats, Department of Computer and Information Sciences, February, 2019
- Ph.D. Proposal Defense by Hao Gao. PhD Advisor: Prof. Chien-Chung Shen. Blockchain-inspired architecture for attribute-based access control and zero knowledge proof based policy, Department of Computer and Information Sciences, September 2019
- Ph.D. Defense By Sean McDaniel. PhD Advisor: Prof. Michela Taufer. Performance Study of Fast Simulations of Large Scale Spike-coupled Neural Networks on High Performance Computing Resources, Department of Computer and Information Sciences, April 2016
- Ph.D. Proposal Defense by Matthew Lambert. PhD Advisor: Prof. David Saunders. Sparse Matrix Multiplication Over Small Finite Fields, Department of Computer and Information Sciences, July 2018
- Ph.D. Defense by Tristan Vanderbruggen. PhD Advisor: Prof. John Cavazos. Application of Deep Learning to Compiler-based Graphs, Department of Computer and Information Sciences, April 2017
- Ph.D. Proposal Defense by Chaoyi Xu. PhD Advisor: Prof. Juan Perilla. Determining the role of the HIV-1 capsid protein during reverse transcription. Department of Chemistry, December 2017
- Ph.D. Proposal Defense by Yuan Xue. PhD Advisor: Prof. Chengmo Yang. Reconfiguration Sepedup and Optimization for Nonvolatile memories based FPGAs, Department of Electrical and Computer Engineering, December 2016
- Ph.D. Proposal by Jaime Arteaga. PhD Advisor: Prof. Guang Gao. Multigrain parallelism: Bridging Coarse-grain parallel programming and fine-grain event-driven multithreading, Department of Electrical and Computer Engineering, April 2016

- Prelim Research Exam By Sean McDaniel. PhD Advisor: Prof. Michela Taufer. Performance Study of Fast Simulations of Large Scale Spike-coupled Neural Networks on High Performance Computing Resources, Department of Computer and Information Sciences, April 2016
- Prelim Research Exam By Stephen Herbein. PhD Advisor: Prof. Michela Taufer. Scalable I/O-Aware Job Scheduling for Burst Buffer Enabled HPC Clusters, Department of Computer and Information Sciences, December 2015

Ph.D. Committee Member - External

- PhD Defense by Adrian Castello Gimeno. PhD Advisor: Dr. Anthony Pena. Title: Unification of Lightweight Thread Solutions and their Application in High Performance Programming Models. Barcelona Supercomputing Center (BSC), Spain, May 2018
- PhD Defense by Peng Sun. PhD Advisor: Barbara Chapman. Title: High Level Programming Model for Heterogeneous Embedded Systems using Multicore Industry Standard API, Dept. of Computer Science, University of Houston, July 2016

Publications

Book & Book Chapters

- **Sunita Chandrasekaran** and Guido Juckeland. OpenACC for Programmers: Concepts and Strategies
  Co-Edited Book published by Pearson Addison-Wesley Professional; 1 edition. ISBN-13: 978-0134694283, November 2017
- **Sunita Chandrasekaran,** Rengan Xu and Barbara Chapman. Using OpenACC for stencil and Feldkamp algorithms
  Co-authored a Chapter in an Edited Book: Parallel Programming with OpenACC Edited by Rob Farber. Morgan Kaufmann. ISBN-13: 978-0124103979, November 2016
- Barbara Chapman, Deepak Eachempati and **Sunita Chandrasekaran**. Chapter on OpenMP
  Co-authored a Chapter in an Edited Book: Programming Models for Parallel Computing Edited by Pavan Balaji, MIT Press. ISBN-13: 978-0262528818, 2015

Please note:
Mentored graduate students are indicated with a (*) in the author list, mentored undergraduate students are indicated with a (+) in the author list. It is my policy that my students' name appear first on publications. In the field of High Performance Computing (HPC), the **corresponding author** is typically the principal investigator of the research project, and is also the person who collaborates closely with other researchers, designs and develops the ideas behind the study. A **contributing** author is when the author has played a specific role in a given project.

Refereed JOURNAL Publications

- Christian Munley*, Aaron Jarmusch, **Sunita Chandrasekaran**. LLM4VV: Developing LLM-driven testsuite for compiler validation. Elsevier Future Generation Computer Systems. 2024. https://doi.org/10.1016/j.future.2024.05.034

- Steiniger, Klaus, Rene Widera, Sergei Bastrakov, Michael Bussmann, **Sunita Chandrasekaran**, Benjamin Hernandez, Kristina Holsapple* et al. "EZ: An efficient, charge conserving current deposition algorithm for electromagnetic particle-in-cell simulations." Computer Physics Communications (CPC) 291: 108849, 2023.
- Vineeth Gutta*, Satish Ganakammal, Sarah Jones, Matthew Beyers, **Sunita Chandrasekaran** (2024) UNNT: A novel Utility for comparing Neural Net and Tree-based models. PLOS Computational Biology 20(4): e1011504, 2024. DOI: https://doi.org/10.1371/journal.pcbi.1011504
- Steiniger, Klaus, Rene Widera, Sergei Bastrakov, Michael Bussmann, **Sunita Chandrasekaran,** Benjamin Hernandez, Kristina Holsapple* et al. "EZ: An efficient, charge conserving current deposition algorithm for electromagnetic particle-in-cell simulations." Computer Physics Communications (CPC) 291: 108849, 2023. DOI: https://doi.org/10.1016/j.cpc.2023.108849
- Matt Leinhauser*, Rene Widera, Sergi Bastrakov, Alex Debus, Michael Bussmann, and **Sunita Chandrasekaran**, Metrics and Design of an Instruction Roofline Model for AMD GPUs. ACM Transactions on Parallel Computing, Volume 9, Issue 1, Article No.:1, pp 1–14, 2022.DOI: https://doi.org/10.1145/350
- Christian Munley*, Aaron Jarmusch*, **Sunita Chandrasekaran** LLM4VV: Developing LLM-driven testsuite for compiler validation. Future Generation Computer Systems 160: 1-13, 2024. DOI: 10.1016/j.future.2024.05.034
- Matt Stack*, Paul Macklin, Robert Searles. **Sunita Chandrasekaran** OpenACC acceleration of an agent-based biological simulation framework. IEEE Computing in Science & Engineering (CiSE), 24(5), 53-63. 2022. DOI: https://doi.org/10.1109/MCSE.2022.322660
- Eric Wright*, Mauricio Ferrato*, Alex Bryer, Robert Searles*, Juan Perilla and **Sunita Chandrasekaran**. Accelerating Prediction of Chemical Shift of Protein Structures on GPUs. PLoS Comput Biol 16(5): e1007877, 2020. DOI: https://doi.org/10.1371/journal.pcbi.1007877
- Robert Searles*, **Sunita Chandrasekaran**, Wayne Joubert and Oscar Hernandez (2019). MPI+ OpenACC: Accelerating Radiation Transport Mini-application, Minisweep, on Heterogeneous Systems. Journal of Computer Physics Communications (CPC). Volume 236, pp.176-187, 2019. DOI: https://doi.org/10.1016/j.cpc.2018.10.007.
- Millad Ghane*, **Sunita Chandrasekaran** and Margaret S. Cheung (2019). Pointerchain: Tracing pointers to their roots: A case study in molecular dynamics simulations. Journal of Parallel Computing (PARCO). Volume 85, pp.190-203. 2019. DOI: https://doi.org/10.1016/j.parco.2019.04.007.
- Jose Manuel Monsalve Diaz*, Kyle Friedline^{+}, Swaroop Pophale, Oscar Hernandez, David Bernholdt and **Sunita Chandrasekaran**. Analysis of OpenMP 4.5 Offloading in Implementations: Correctness and Overhead. Journal of Parallel Computing (PARCO). Volume 89, pp.102546, 2016. DOI: https://doi.org/10.1016/j.parco.2019.102546
- Michael Wolfe, Jungwon Kim, Xiaonan Tian, Rengan Xu, Barbara Chapman and **Sunita Chandrasekaran**. The OpenACC Data Model: Preliminary Study on Its Major Challenges and Implementations. Journal of Parallel Computing (PARCO). Volume 78, pp. 15-27. 2018. DOI: https://doi.org/10.1016/j.parco.2018.07.00
- **Sunita Chandrasekaran**, Guido Juckeland, Meifeng Lin et. al., Best Practices in Running Collaborative GPU Hackathons. Journal of IEEE Computing in Science and Engineering (IEEE CiSE). pp.95-106, 2018. DOI: 10.1109/MCSE.2018.042781332

- Robert Searles*, Stephen Herbein, Travis Johnston, Michela Taufer and **Sunita Chandrasekaran**. Creating a Portable, High-Level Graph Analytics Framework for Compute and Data-Intensive Applications
  In Proceedings of the International Journal of High Performance Computing and Networking (IJHPCN), Vol.13. No.1, pp.105 - 118. 2017. DOI: 0.1504/IJHPCN.2017.10007922
- Xiaonan Tian, Rengan Xu, Yonghong Yan, **Sunita Chandrasekaran**, Deepak Eachempati, and Barbara Chapman. Compiler Transformation of Nested Loops for GPGPUs. Journal of Concurrency and Computation: Practice and Experience. ISSN: 1532-0634, 2015.DOI: http://dx.doi.org/10.1002/cpe.3648
- Rengan Xu, **Sunita Chandrasekaran** and Barbara Chapman. Multi-GPU Support on Shared Memory System using Directive-based Programming Model
  Journal of Scientific Programming.
  DOI: http://dx.doi.org/10.1155/2015/621730, Volume 2015, Article ID 621730, 2015
- **Sunita Chandrasekaran**, Shilpa Shanbagh, Ramkumar Jayaraman, HuiYan Cheah and Douglas Maskell. C2FPGA: A Dependency-Timing Graph Design Methodology.
  Journal of Parallel and Distributed Computing (JPDC)
  DOI: http://dx.doi.org/10.1016/j.jpdc.2012.09.001, Volume 73, Pages 1417-1429. 2012

Refereed CONFERENCE Publications

- Jeffrey Kelling, Vicente Bolea, Michael Bussmann, Ankush Checkervarty, Alexander Debus, Jan Ebert, Greg Eisenhauer, Vineeth Gutta*, Stefan Kesselheim, Scott Klasky, Richard Pausch, Norbert Podhorszki, Franz Pöschel, David Rogers, Jeyhun Rustamov, Steve Schmerler, Ulrich Schramm, Klaus Steiniger, René Widera, Anna Willmann, **Sunita Chandrasekaran**, The Artificial Scientist: in-transit Machine Learning of Plasma Simulations, Accepted to IPDPS 2025
- Scott Atchley, Christopher Zimmer, John Lange, ... **Sunita Chandrasekaran,** ... P. K. Yeung T. Frontier: Exploring Exascale. In Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis, SC23 (pp. 1-16), 2023
- Felix Meyer, Benjamin Hernandez, Richard Pausch, René Widera, David Groß, Sergei Bastrakov, Axel Huebl, Guido Juckeland, Jeffrey Kelling, Matt Leinhauser*, David Rogers, Ulrich Schramm, Klaus Steiniger, Stefan Gumhold, Jeff Young, Michael Bussmann, **Sunita Chandrasekaran,** Alexander Debus, "Hardware-Agnostic Interactive Exascale In Situ Visualization of Particle-In-Cell Simulations." In Proceedings of the Platform for Advanced Scientific Computing Conference (PASC), pp. 1-14. 2023.
  DOI: https://doi.org/10.1145/3592979.3593408
- Eric Wright*, Johannes Doerfert, Shilei Tian, Barbara Chapman, **Sunita Chandrasekaran.** Implementing OpenMP's SIMD Directive in LLVM's GPU Runtime. ACM International Conference on Parallel Processing (ICPP), 2023 DOI:10.1145/3605573.3605640 2023
- Holger Brunst, **Sunita Chandrasekaran,** Florina Ciorba, Nick Hagerty, Robert Henschel, Guido Juckeland, Junjie Li, Veronica G. Melesse Vergara, Sandra Wienke, Miguel Zavala*, "First Experiences in Performance Benchmarking with the New SPEChpc 2021 Suites" In 2022 22nd IEEE International Symposium on Cluster, Cloud and Internet Computing (CCGrid) (pp. 675-684). 2022.
  DOI: 10.1109/CCGrid54584.2022.00077

- Wright, Eric*, Damien Przybylski, Matthias Rempel, Cena Miller, Supreeth Suresh, Shiquan Su, Richard Loft, and **Sunita Chandrasekaran.** "Refactoring the MPS/University of Chicago Radiative MHD (MURaM) model for GPU/CPU performance portability using OpenACC directives." In Proceedings of the Platform for Advanced Scientific Computing Conference (PASC), pp. 1-12. 2021. DOI: https://dl.acm.org/doi/abs/10.1145/3468267.3470576

- Joshua Hoke Davis^{+}, Tao Gao, **Sunita Chandrasekaran**, Heike Jagode, Anthony Danalis, Jack J. Dongarra, Pavan Balaji, Michela Taufer. Characterization of Power Usage and Performance in Data-Intensive Applications Using MapReduce over MPI. Proceedings of the International Conference on Parallel Computing (ParCO). pp. 287-298, September 2019. DOI: 10.3233/APC200053
Conference level on parallel computing. Davis co-mentored by myself and Prof. Michela Taufer. Gao, Jagode, Danalis, Dongarra are collaborators from the University of Tennessee. Balaji from Argonne National Laboratory.

- Robert Searles*, **Sunita Chandrasekaran**, Oscar Hernandez and Wayne Joubert. Abstractions and Directives for Adapting Wavefront Algorithms to Future Architectures. 5th Platform for Advanced Scientific Computing Conference (PASC). pp. 1-10, July 2018. DOI: https://doi.org/10.1145/3218176.3218228

- Jose Monsalve Diaz*, Swaroop Pophale, Kyle Friedline^{+}, Oscar Hernandez, David E. Bernholdt and **Sunita Chandrasekaran**. Evaluating Support for OpenMP Offload Features. 47th International Conference on Parallel Processing Companion (ICPP). pp. 1-10, August 2018. DOI: 10.1145/3229710.3229717

- Millad Ghane*, **Sunita Chandrasekaran**, Robert Searles*, Margaret S. Cheung and Oscar Hernandez. Path forward for softwarization to tackle evolving hardware. The International Society for Optics and Photonics (SPIE), Volume 10652. May 2018. DOI: https://doi.org/10.1117/12.23048132018

- Cheng Wang, **Sunita Chandrasekaran**, and Barbara Chapman, CusFFT: A High-Performance Sparse Fast Fourier Transform Algorithm on GPUs, 30th, IEEE International Parallel & Distributed Processing Symposium (IPDPS). pp. 963-972, May 23-27, 2016. DOI: 10.1109/IPDPS.2016.95

- Rengan Xu, **Sunita Chandrasekaran**, and Barbara Chapman, An Analytical Model-based Auto-tuning Framework for Locality-aware Loop Scheduling, International Supercomputing Conference (ISC), Frankfurt. pp. 3-20, June 19-23, 2016. DOI: 10.1007/978-3-319-41321-1_1

- Peng Sun, **Sunita Chandrasekaran**, and Barbara Chapman, Deploying OpenMP Task Parallelism on Multicore Embedded Systems with MCA Task APIs, IEEE High Performance Computing and Communications (HPCC) pp. 843-847, 2015. DOI: 10.1109/HPCC-CSS-ICESS.2015.88
Acceptance Rate of 21%

Refereed WORKSHOP Publications

- Wael Elwasif, William Godoy, Nick Hagerty, J Austin Harris, Oscar Hernandez, Balint Joo, Paul Kent, Damien Lebrun-Grandie, Elijah Maccarthy, Veronica Melesse Vergara, Bronson Messer, Ross Miller, Sarp Oral, Sergei Bastrakov, Michael Bussmann, Alexander Debus, Klaus Steiniger, Jan Stephan, Rene Widera, Spencer Bryngelson, Henry Le Berre, Anand Radhakrishnan, Jeffrey Young, **Sunita Chandrasekaran**, Florina Ciorba, Osman Simsek, Kate Clark, Filippo Spiga, Jeff Hammond, Stone John, David Hardy, Sebastian Keller, Jean-Guillaume Piccinali, Christian Trott. Application experiences on a gpu-accelerated arm-based hpc testbed. In Proceedings of the HPC Asia 2023 Work-

shops (pp. 35-49). 2023
DOI: https://doi.org/10.1145/3581576.358162

- Jarmusch, A. M., Liu, A., Munley, C., Horta, D.,Ravichandran, V., Denny, J., & **Chandrasekaran, S.** Analysis of Validating and Verifying OpenACC Compilers 3.0 and Above, Pages: 1-10. 2022 Workshop on Accelerator Programming Using Directives (WACCPD), 2022
DOI: 10.1109/WACCPD56842.2022.00006

- Thomas Huber, Swaroop Pophale, Nolan Baker, Michael Carr, Nikhil Rao, Jaydon Reap, Kristina Holsapple, Joshua Hoke Davis, Tobias Burnus, Seyong Lee, David E. Bernholdt, **Sunita Chandrasekaran.** ECP SOLLVE: Validation and Verification Testsuite Status Update and Compiler Insight for OpenMP. IEEE/ACM International Workshop on Performance, Portability and Productivity in HPC (P3HPC at SC22), pp. 123-135. 2022

  DOI:10.1109/P3HPC56579.2022.0001

- Kelling, J., Bastrakov, S., Debus, A., Kluge, T., Leinhauser, M., Pausch, R., Steiniger, K., Stephan, J., Widera, R., Young, J., Bussman, M., Chandrasekaran, S.,& Juckeland, G. (2021). Challenges Porting a C++ Template-Metaprogramming Abstraction Layer to Directive-based Offloading. In International Workshop on Accelerator Programming Using Directives (WACCPD at SC22), pp. 92-111. Springer, Cham, 2022
DOI: https://doi.org/10.1007/978-3-030-97759-7_5

- Davis J.H., Daley C., Pophale S., Huber T., **Chandrasekaran S.**, Wright N.J. (2021) Performance Assessment of OpenMP Compilers Targeting NVIDIA V100 GPUs. Accelerator Programming Using Directives at SC2020. WACCPD 2020. Lecture Notes in Computer Science, vol 12655. Springer, Cham. 2020
DOI: https://doi.org/10.1007/978-3-030-74224-9_2

- Millad Ghane*, **Sunita Chandrasekaran** and Margaret S. Cheung. Towards a portable hierarchical view of distributed shared memory systems: Challenges and Solutions
11th International Workshop on Programming Models and Applications for Multicores and Manycores (PMAM) pp. 1-10, March 2020.
DOI: shttps://doi.org/10.1145/3380536.3380542

- Millad Ghane*, **Sunita Chandrasekaran**, and Margaret S. Cheung. Gecko: Hierarchical Distributed View of Heterogeneous Shared Memory Architectures
10th International Workshop on Programming Models and Applications for Multicores and Manycores (PMAM). pp. 21-30, February 2019.
DOI: https://doi.org/10.1145/3303084.3309489\

- Jose Monsalve Diaz*, Swaroop Pophale, Oscar Hernandez, David E. Bernholdt and **Sunita Chandrasekaran**. OpenMP 4.5 Validation and Verification Suite for Device Offload. 13th International Workshop on OpenMP (IWOMP), Volume 11128, pp. 82-95, September 2018
DOI: https://doi.org/10.1007/978-3-319-98521-3_6

- Kyle Friedline^{+}, **Sunita Chandrasekaran**, Graham Lopez and Oscar Hernandez. OpenACC 2.5 Validation Testsuite targeting multiple architectures. 2nd International Workshop on Performance Portable Programming Models for Accelerators (P3MA), Volume 10524, pp. 557-575, June 2017. (corresponding author) DOI: https://doi.org/10.1007/978-3-319-67630-2_39

- Sergio Pena*, **Sunita Chandrasekaran** and Lori Pollock. Exploring translation of OpenMP to OpenACC 2.5: Lessons Learned. 7th International Workshop on Accelerators and Hybrid Exascale Systems (AsHES) co-located with IPDPS 2017, pp. 673- 682, 2017.

DOI: 10.1109/IPDPSW.2017.84

– Michael Wolfe, Seyong Lee, Jungwon Kim, Xiaonan Tian, Rengan Xu, **Sunita Chandrasekaran** and Barbara Chapman. Implementing the OpenACC Data Model. 7th International Workshop on Accelerators and Hybrid Exascale Systems (AsHES) co-located with IPDPS 2017, pp. 662-672, May 2017.
DOI: 10.1109/IPDPSW.2017.85

– Robert Searles*, Stephen Herbein, **Sunita Chandrasekaran**. A portable, high-level graph analytics framework targeting distributed, heterogeneous systems. 3rd International Workshop on Accelerator Programming Using Directives (WACCPD) co-located with SC16. pp. 79-88, November 2016.
DOI: 10.1109/WACCPD.2016.012

– Suyang Zhu, **Sunita Chandrasekaran**, Peng Sun, Barbara Chapman, Tobias Schuele and Marcus Winter, Exploring Task Parallelism for Heterogeneous Systems Using Multicore Task Management API, 4th Workshop on Runtime and Operating Systems for the Many-core Era co-located with Europar, DOI: https://doi.org/10.1007/978-3-319-58943-5_56
Focused workshop on heterogeneous systems
Zu was Chapman's PhD student at UH. My role was to work with the Multicore Association on Multicore Task Management APIs used in this project.

– Eric Wright, Cena Brown, Damien Przybylski, Matthias Rempel, Supreet Suresh, Sunita Chandrasekaran. Analysis of MURaM, a Solar Physics Application, for Scalability, Performance and Portability. In Proceedings of the SC'23 Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis (pp. 1929-1938). 2023

– Peng Sun, **Sunita Chandrasekaran**, and Barbara Chapman. OpenMP-MCA: Leveraging Multiprocessor Embedded Systems using industry standards. In Proceedings of the 2015 IEEE International Parallel & Distributed Processing Symposium Workshops, (PLC) co-located with IPDPS
DOI: 10.1109/IPDPSW.2015.13, pp. 679-688, Hyderabad, India, 2015

– Guido Juckeland, William Brantley, **Sunita Chandrasekaran**, et al. SPEC ACCEL - A Standard Application Suite for Measuring Hardware Accelerator Performance. In International Workshop on Performance s Modeling, Benchmarking and Simulation of High Performance Computer Systems (PMBS) co-located with SC14, Volume 8966 of the series Lecture Notes in Computer Science, Springer Verlag, pp. 46-67, New Orleans, USA, 2014. *(Acceptance rate 26%) (Workshop level)*

– Rengan Xu, Maxime Hugues, Henri Calandra, **Sunita Chandrasekaran** and Barbara Chapman. Accelerating Kirchhoff Migration on GPU using Directives. In Proceedings of ACM SIGHPC, The first Workshop on Accelerator Programming using Directives (WACCPD 2014) co-located with SC14, pp. 37-46, New Orleans, USA, 2014

– Rengan Xu, Cheng Wang, **Sunita Chandrasekaran**, Barbara Chapman. An OpenACC 1.0 Validation Suite. In Proceedings of the 2014 IEEE Workshop on Multi-threaded Architectures and Applications(MTAAP) co-located with IPDPS, pp. 1407-1416, Phoenix, USA, 2014 (Workshop Level)

– Rengan Xu, Xiaonan Tian, Yonghong Yan, **Sunita Chandrasekaran**, Barbara M. Chapman. Reduction Operations in Parallel Loops for GPGPUs. In Proceedings of ACM, Programming Models and Applications on Multicores and Manycores (PMAM) co-located with PPoPP, pp. 10:10–10:20, Orlando, USA, 2014 (Workshop Level)

– Rengan Xu, Xiaonan Tian, **Sunita Chandrasekaran**, Yonghong Yan and Barbara Chapman. NAS Parallel Benchmarks on GPGPUs using a Directive-based Programming Model. In Proceedings of

Springer Verlag, The 27th International Workshop on Languages and Compilers for Parallel Computing (LCPC), pp. 67-81, Oregon, USA, 2014

– Cheng Wang, **Sunita Chandrasekaran**, Barbara Chapman, Jim Holt. Portable Mapping of OpenMP to Multicore Embedded Systems Using MCA APIs. In Proceedings of the 14th ACM SIGPLAN/SIGBED conference on Languages, compilers and tools for embedded systems (LCTES), pp. 153-162, Seattle, US, 2013

– Cheng Wang, Mauricio Araya, **Sunita Chandrasekaran**, Barbara Chapman, Detlef Hohl. Parallel Sparse FFT. In Proceedings of ACM, The 3rd Workshop on Irregular Applications: Architectures and Algorithms (IA$\hat{3}$), co-located with SC 2013, pp. 10:1–10:8, Colorado, USA, 2013

– Xiaonan Tian*, Rengan Xu*, Yonghong Yan, Zhifeng Yun, **Sunita Chandrasekaran**, and Barbara Chapman. Compiling A High-Level Directive-based Programming Model for Accelerators. In Proceedings of Springer Verlag, 26th International Workshop on Languages and Compilers for High Performance Computing (LCPC), pp. 105-120, San Jose, USA, 2013

– Sayan Ghosh, **Sunita Chandrasekaran**, Barbara Chapman. Statistical Modeling of Power/Energy of Scientific Kernels on a Multi-GPU system. In Proceedings of IEEE, Third International Workshop on Power Measurement and Profiling (PMP) co-located with IGCC, pp.1-6, Virginia, USA, 2013 (Workshop Level)

– Cheng Wang, **Sunita Chandrasekaran**, Barbara Chapman, Jim Holt. libEOMP: a portable OpenMP runtime library based on MCA APIs for embedded systems. In Proceedings of ACM, International Workshop on Programming Models and Applications for Multicores and Manycore (PMAM) co-located with PPoPP, pp 83-92, New Orleans, USA, 2013

– Cheng Wang, v, Barbara Chapman. An OpenMP3.1 Validation testsuite. In Proceedings of IWOMP 2012, LNCS, Volume 7312/2012,p.237-249, Rome, Italy, 2012

– Rengan Xu, **Sunita Chandrasekaran**, Barbara Chapman, Christoph F. Eick. Directive-based Programming Models for Scientific Applications - A Comparison. In Proceedings of IEEE, Second International Workshop on Domain-Specific Languages and High-Level Frameworks for High Performance Computing (Wolfhpc) co-located with Supercomputing (SC), pp 1-9, Salt Lake City, USA, 2012

– Lei Huang, Eric Stotzer, Hangjun Yi, Barbara Chapman, **Sunita Chandrasekaran**. Parallelizing Ultrasound Image Processing using OpenMP on Multicore Embedded Systems. n Proceedings of 2012 IEEE Global High Tech Congress on Electronics (GHTCE), 131-138,
DOI: 10.1109/GHTCE.2012.6490139, Shenzen, China, 2012

– Sayan Ghosh, **Sunita Chandrasekaran**, Barbara Chapman. Energy Analysis of Parallel Scientific Kernels on Multiple GPUs. In Proceedings of IEEE Symposium on Application Accelerators in High Performance Computing (SAAHPC), p.54-63, Chicago , July 2012

– **Sunita Chandrasekaran**, Shilpa Shanbagh, Douglas. L. Maskell. A Dependency Graph based Methodology for Parallelizing HLL Applications on FPGA. In Proceedings of the 18th ACM/SIGDA International Symposium on Field-Programmable Gate Arrays Proceedings (FPGA), Monterey, USA, 2010

– Kevin A. Huck, Oscar Hernandez, Van Bui, **Sunita Chandrasekaran**, Barbara Chapman, Allen D. Malony, Lois Curfman McInnes, Boyana Norris. Capturing Performance Knowledge for Automated Analysis. IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SC), pp. 1-10, Austin, 2008

– **Sunita Chandrasekaran**, Oscar Hernandez, Douglas Maskell, Barbara Chapman, Van Bui. Compilation and Parallelization Techniques with Tool Support to realize Sequence Alignment Algorithm on FPGA and Multicore. IEEE Int. Conf. on High Performance Computing (HiPC), Goa, India, 2007

Invited Technical Reports Not Published Elsewhere

– Mauricio Ferrato*, Erin Crowgey, **Sunita Chandrasekaran**. Developing and Accelerating Predictive Models for Predicting Relapse of Pediatric Oncology patients using Smart Cyberinfrastructure.
By Invitation-only NSF Workshop: Developing a Roadmap towards the Next Generation of Smart Cyberinfrastructure, Feb 25-27, Seattle, 2020.

– Millad Ghane, **Sunita Chandrasekaran**, Margaret S. Cheung. Assessing Performance Implications of Deep Copy Operations via Microbenchmarking. arXiv preprint arXiv:1906.01128, June, 2019

– **Sunita Chandrasekaran**. Extreme Heterogeneity for Sn Transport Codes.
By Invitation-only Big Data and Extreme-Scale Computing (BDEC) Meeting, Indiana University, November 28-30, 2018

– **Sunita Chandrasekaran**. Development of a parallel algorithm for whole genome alignment for rapid delivery of personalized genomics.
By Invitation-only Big Data and Extreme-Scale Computing (BDEC) Meeting, Indiana University, November 28-30, 2018

Unpublished Technical Report

– Matthew Leinhauser, Jeffrey Young, Sergei Bastrokov, Rene Widera, Alexander Debus, Michael Bussmann, Guido Juckeland, Arghya Chatterjee, **Sunita Chandrasekaran**. CAAR for Frontier -An ORNL Project Analysis of PIConGPU's Three Most Intensive Kernels from NSight Systems and NSight Compute on Summit
DOI: 10.13140/RG.2.2.28095.33448
https://tinyurl.com/y8sd49p9

– Matthew Leinhauser, Jeffrey Young, Sergei Bastrokov, Rene Widera, Alexander Debus, Michael Bussmann, Guido Juckeland, Arghya Chatterjee, **Sunita Chandrasekaran**. CAAR for Frontier - An ORNL Project Jan 2020 TECHNICAL REPORT Analysis of PIConGPU's Three Most Intensive Kernels from NVProf on Summit
DOI: 10.13140/RG.2.2.30951.80802
https://tinyurl.com/ybf8gopt

– Robert Henschel, Junjie Li, Rudolf Eigenmann, **Sunita Chandrasekaran**. Explore True Performance Using Application Benchmark for the Next Generation HPC Systems: First NSF EAGER SPEC HPG Workshop Report. September 2019.
DOI= 10.5967/jmkd-6p64
https://scholarworks.iu.edu/dspace/handle/2022/25344

Non-proceedings poster

– Aaron Jarmusch, Aaron Liu, Analysis of Validating and Verifying OpenACC Compilers 3.0 and Above
3rd place ACM SRC Poster Presentations, SC22

- Robert Searles, **Sunita Chandrasekaran**, Abstractions and Directives for Adapting Wavefront Algorithms to Future Architectures
  GPU Technology Conference (GTC), March 17-21, 2019. CA. USA
- Eric Wright and Mauricio Ferrato, **Sunita Chandrasekaran**, Accelerating Chemical Shift Prediction for Large-scale Biomolecular Modeling.
  GPU Technology Conference (GTC), March 17-21, 2019. CA. USA
- Thomas Huber, Robert Henschel, Junjie Li, **Sunita Chandrasekaran**. Impact of Virtualization and Containers on Application Performance and Energy Consumption.
  PEARC, July 22-26, 2018, 2018. PA. USA
- Joel Bricker, **Sunita Chandrasekaran**, OpenACC Enabled Benchmark Suite on Intel Ivy Bridge.
  GPU Technology Conference (GTC), March 21-24, 2016. CA. USA

Software Packages

Group GitHub: https://crpl.cis.udel.edu/github/

- **LLM for Validation Suites** - This project uses Large Language Models (LLM) to design validation suites.
  Project Period: 2023 - present
  URL:https://github.com/Xachaeus/vvgen
- **OpenMP Validation & Verification Testsuite** - This project creates functional test codes for OpenMP offloading features (Version 4.0 and onwards). The test codes are tested against more than several versions of C/C++ and Fortran compilers including LLVM, GNU, ICC, XLC, Clang and Clang AWOMP on various systems including Summit in the US and the supercomputer in Pawsey Supercomputing Center in Australia, cluster in RWTH Aachen in Germany among others.
  Project Period: 2017 - present
  URL: https://crpl.cis.udel.edu/ompvvsollve/
- **OpenACC Validation & Verification Testsuite** - This project creates functional, orphan and cross test codes for OpenACC programming model (Version 1.0 and till the latest version 3.0). The test codes are tested against PGI and GNU compilers on various systems including Summit in the US and PizDaint in Switzerland.
  Project Period: 2016 - present
  URL: https://github.com/OpenACCUserGroup/OpenACCV-V
- **Abstractions for Easy Portability** - This project is work in progress with a goal to create abstractions to break down applications into tasks, create task graphs and create a balanced workload between fine and coarse-grained tasks.
  Project Period: 2019 - present
  URL: https://github.com/fabianmcg/wave-dag
- **Predictive Modeling for bio dataset** - This repository contains code and workflow in order to build predictive models out of synthetic dataset created for Sickle Cell disease for classification of patient cohorts. Also contains code and workflow for data from NCI TARGET dataset (cancer dataset).
  Project Period: 2017 - present
  URL: https://github.com/BradAlt/TARGET-ML

- **Minisweep, mini-application of ORNL's Denovo** - This repository contains the OpenACC port for the mini-application Minisweep. This is a nuclear physics code of radiation transport algorithm. The goal of this project is to develop a performance yet portable minisweep software to be used for acceptance testing of large scale systems like Summit. This code has also been integrated into the on-going SPEC HPG HPC2020 benchmarking effort.
  Project Period: 2017 - 2019
  URL: https://github.com/UD-CRPL/minisweep
- **Accelerating PPM_One** - Development of an accelerated version of the prediction of chemical shift of protein structures on GPUs using OpenACC on GPUs. This is the first directive-based version of the software that is available.
  Project Period: 2017-2020
  URL: https://github.com/UD-CRPL/ppm_one
- **High-Level Graph Analytics using MapReduce** - This repository contains software developed using a portable, high-level framework using a popular MapReduce framework, Apache Spark, in conjunction with CUDA and OpenCL to take advantage of automatic data distribution and specialized hardware distributed across systems.
  Project Period: 2016-2017
  URL: https://github.com/UD-CRPL/WACCPD-2016
- **Translation of OpenMP to OpenACC 2.5** - This repository contains experimental results using NAS parallel benchmark and SHOC codes to demonstrate the translation and its impact from OpenMP model to OpenACC. Project Period: 2016-2017
  URL: https://github.com/UD-CRPL/ASHES-17

Tutorials Presented at Conferences

- Tutorial on Towards Comprehensive System Comparison: Using the SPEC HPG Benchmarks for Better Analysis, Evaluation, and Procurement of Next-Generation HPC Systems given at:
  - Practice and Experience in Advanced Research Computing (PEARC'19), Chicago, IL, USA
  - Half-day Tutorial at ICS 2019: International Conference on Supercomputing, (ICS'18), Phoenix, AZ, USA
  - Half-day Tutorial at ISC 2019: International Supercomputing Conference (ISC'18), Germany, Frankfurt
  - Half-day Tutorial at The International Conference for High Performance Computing, Networking, Storage, and Analysis, (SC'15), Austin, TX, USA

Invited Technical Talks

2025

- Preparing Graduates for the AI-Driven Future: Multidisciplinary Perspectives from Industry, State of DE AI Commissions's subcommitte, Delaware, March 2025

- The Artificial Scientist – Leveraging In-transit Machine Learning for Plasma Simulations, Invited Talk, MulticoreWorld, Christchurch, NZ, Feb 2025
- High Performance Computing (HPC) and Artificial Intelligence (AI) Research With Research Software Engineers (RSE), UD's Synthetic Biology Symposium, Delaware, January 2025
- The Artificial Scientist - Leveraging In-transit Machine Learning for Plasma Simulations, Princeton Plasma Physics Laboratory (PPPL), Princeton University, Jan 2025
- Surrogate Models – A Frontier to explore in Healthcare, AI4Health, Delaware, January 2025

2024

- Convergence of High Performance Computing and AI/Machine Learning for real-world applications, UD's College of Engineering Advisory Council, October 2024
- Advancing Interdisciplinary Science using AI & High Performance Computing, Incyte, Delaware, October 2024
- Software Advancements Meeting Hardware Innovations: Challenges and Solutions, IEEE Cluster Keynote, Kobe, Japan, September 2024
- Scaling real-world applications on heterogeneous platforms including Frontier, TUMunich, Germany, April 2024
- OpenMP Validation and Verification Test-suite Insights and Lessons Learnt, SIAM PP, Baltimore March 2024

2023

- Advancing science by facilitating easier access to HPC and cloud resources, Talk given to HPC & AI Cloud Services teams at HPE, Virtual, September 2023
- Plasma Physics on Frontier and Future of LLMs, Talk given to HPE CTO Labs at HPE, Virtual, September 2023
- ECP SOLLVE Testsuite infrastructure, Talk given to the HPE Compiler teams @ HPE, Virtual, September 2023
- Lecture on ECP and Parallel Programming at KTH Summer School, Sweden, August 2023
- Leveraging Exascale Computing Resources for Particle-In-Cell on GPU (PIConGPU), The Netherlands, SIAM CSE 2023
- Leveraging Exascale Computing Resources for Particle-In-Cell on GPU (PIConGPU), Innovative Computing Laboratory (ICL, UTK) USA, July 2023

2022

- Keynote at IPDRM Workshop @ SC22 Challenges and success stories migrating software and applications to Frontier, USA, November 2022
- ECP SOLLVE at the DOE booth, USA, November SC22
- The Race to Frontier, Stony Brook University, USA, September 2022
- Preparing Effective Grant Proposals – University resources, Early Career Program at SC22

- The good, bad and the ugly with PIConGPU on Frontier, talk at AMD, Virtual, September 2022
- Preparing the PIConGPU for the next-generation computing systems, BNL, USA Jan 2022

2021 (Virtual talks)

- Experience with porting and scaling codes on AMD GPUs, first PaCER Conference – P'con, Virtual, Dec 2021
- How Ready Are We to Use the First Exascale Supercomputer, Frontier?, DOE ECP Booth, USA, November 2021
- Best practices for a productive (yet performance) software development, 2021 Europe ACM Summer School, Virtual, Aug 2021
- An HPC Journey – Porting a Solar Physics Code to Large Scale Systems, The Society of HPC Professionals, Virtual, July 2021
- Ten ways to build a productive (yet a performant) software, Supercomputing Frontiers Europe, Virtual, July 2021
- Programming Frontier, challenges and solutions, OLCF User Group meeting, Virtual, June 2021
- Present and the future of Accelerated Computing Programming Approaches, Panelist for NVIDIA GPU Technology Conference (GTC), Virtual, March 2021
- Exascale Simulations for the Next Generation of Plasma Accelerators with PIconGPU, SIAM CSE 2021, Virtual, Feb 2021
- Preparing to program the world's fastest supercomputer, NSF-funded DARWIN system Symposium, UDEL, Feb 2021

2020

- Preparing Software Stack for the Next Generation Systems - An opportunity or a nightmare?,Parallel Programming Models and Systems Software for High-End Computing (P2S2) workshop co-located with ICPP, Aug 2020 (E-talk, during COVID-19)
- Research Activities at the Computational Research and Programming Lab, Extreme Computing Research Center, Aug 2020 (E-talk, during COVID-19)
- Scientific Software Productivity, Collegeville workshop, July 2020 (E-talk, during COVID-19)
- Training and Best Practices to Develop Portable Yet Performant Code, Seattle, February, Society for Industrial and Applied Mathematics, Parallel Processing (SIAM PP), Seattle, USA, Feb 2020

2019

- Running PIConGPU on Summit. CAAR: Preparing PIConGPU for Frontier at ORNL, 4th OpenPOWER Academic and Research Workshop, Denver, USA, Supercompuing Conference (SC), Nov 2019
- OpenMP 4.5 Validation and Verification Testsuite, 4th OpenPOWER Academic and Research Workshop, November, Denver, USA, Supercompuing Conference (SC), Nov 2019
- Applying directives to port MURaM code to heterogeneous systems, ASTRONUM, Paris, France, July, 2019

- Development of a parallel algorithm for WGS alignment for rapid delivery of personalized genomics, PASC Minisymposium, Zurich, Switzerland, June 2019
- Impact of parallel programming models on interdisciplinary scientific research, University of Basel, Basel, Invited Guest Lecture, Switzerland, June 2019
- OpenACC-Based GPU Acceleration of Chemical Shift Prediction, GPU Technology Conference (GTC), Invited featured speaker, CA, USA, Mar 2019
- Porting MURaM (Max Planck University of Chicago Radiative MHD) to GPUs Using OpenACC, GPU Technology Conference (GTC), Invited speaker, CA, USA, March 2019
- Acceleration of Prediction of Chemical Shift Structures, SIAM CSE, Spokane, USA, Feb, 2019

2018

- Development of a parallel algorithm for whole genome alignment for rapid delivery of personalized genomics.
  NSF-funded International workshop Big Data and Extreme-Scale Computing (BDEC) Meeting, Indiana University, Bloomington, USA, Nov, 2018
- 3P to Science using OpenACC: Performance, Productivity, and Portability. NVIDIA Booth at the SC showfloor. Dallas, Nov, SC18

  Swiss Army Programming: Performance and Portability from Modern Tools. Dallas, Invited Panelist, Nov, SC18
- Using the Parallel Programming Model, OpenACC, to do More Science and Less Programming, Bootcamp, Princeton University, NJ, USA , USA, Invited instructor at the Princeton University Bootcamp, Oct 2018
- HPC-as-a-service to Domain Scientists, PASC Minisymposium, Basel, Switzerland, July, 2018
- Opportunities and Challenges Migrating Scientific Code to Accelerators, National Center for Atmospheric Research (NCAR), Boulder, USA, Invited Talk, June, 2018
- Achieving Performance While Preserving Portability for NGS Application, Society of Industrial Mathematics, Parallel Processing (SIAM PP), Tokyo, Japan, Mar 2018
- Adapting Minisweep, a Proxy Application, on Heterogeneous Systems Using OpenACC Directives, Featured Speaker, Graphic Technology Conference (GTC), CA, USA, Mar 2018
- Path forward for softwarization to tackle evolving hardware, SPIE, Orlando, USA, Apr 2018

2017

- Parallelization and Acceleration of the Nuclear Reactor mini-app Minisweep on an OpenPOWER platform, 2nd OpenPOWER Academia Discussion Group Workshop, Supercomputing Conference (SC), Denver, USA, Nov 2017
- Building Your Academic Professional Network. Grace Hopper Celebrations, Houston, USA, Oct, 2017
- Using OpenACC for NGS Techniques to Create a Portable and Easy-to-Use Code Base. GPU Technology Conference (GTC). CA, USA, Mar 2017

- Exploring on-Node Programming Models for Irregular Algorithms. SIAM CSE, Atlanta, USA, Feb, 2017
- Programmer's perspective on evolving hardware, Challenges and Success Stories, RWTH Aachen, Germany, Invited Guest Lecture, Feb 2017

2016

- Hackathons, Best Practices in HPC Training, Workshop co-located at SC16, Salt Lake City, USA, November, 2016
- OpenACC status and feedback, Birds of a Feather (BoF): GPU Technology Conference (GTC), San Jose, USA, May, 2016

2015

- Industry Standards for Programming Multicore Systems: Way to go!, Multicore Devcon Conference (MDC), California, Santa Clara, May, 2014
- Exascale will soon be here, how prepared are we, Argonne National Lab, Chicago, USA, Apr, 2014
- Simplifying Heterogeneous Multicore Programming Using Industry Standards. SIAM PP, Portland, Feb, 2014
- Open Registry for Accelerated Computing, Many-Core and Reconfigurable Supercomputing Conference (MRSC), Bristol, UK, 2011
- OpenACC API: User Experience, Vendor Reaction, Relevance, and Roadmap. Birds of Feather Speaker at SC16, Salt Lake City, Nov, 2016

Professional Activities - External

Special Content Editor

- Special Issue Editor for Future Generation Computing Systems (FGCS) 2021-2023

Journal Guest Co-Editorship

- Software: Practice and Experience. Special Issue on New Trends in High Performance Computing: Software Systems and Applications. Co-edited with Min Si, Lena Oden, Jidong Zhai, September 2022
- Springer, Communications in Computer and Information (CCIS). Book on Tools and Techniques for High Performance Computing. Selected papers from SC19 Workshop. Co-edited with Dr. Guido Juckeland, ISBN 978-3-030-44728-1. April 2020
- Springer, Lecture Notes in Computer Science (LNCS). Book on Accelerator Programming Using Directives. Selected papers from SC18 Workshop on Accelerators using Directives, co-located with SC18. Co-edited with Dr. Guido Juckeland, ISBN 978-3-030-12274-4. February 2019
- Springer, Lecture Notes in Computer Science (LNCS). Book on Accelerator Programming Using Directives. Selected papers from SC18 Workshop on Accelerators using Directives, co-located with SC17. Co-edited with Dr. Guido Juckeland, ISBN 978-3-319-74896-2. February 2017
- Journal of BMC Bioinformatics, Topic: Computational Approaches for Cancer. https://doi.org/10.1186/s12859-018-2502-x, 19:487, Co-edited with Dr. Eric Stahlberg, December 2018
- Journal of Parallel Computing (PARCO). Application for Heterogeneous Computing Era. Volume 77, Co-edited with Dr. Antonio Pena, https://doi.org/10.1016/j.parco.2018.06.002, September 2018
- Journal of Parallel Computing (PARCO). Topics on Heterogeneous Computing Era. Volume 68, Co-edited with Dr. Antonio Pena, https://doi.org/10.1016/j.parco.2017.08.001, October 2017
- Inderscience Publishers. Journal on Novel Strategies for Programming Accelerators. Co-edited with Dr. Guido Juckeland http://www.inderscience.com/info/ingeneral/cfp.php?id=3437, December 2017
- Inderscience Publishers. Journal on High-level Programming Approaches for Accelerators. Co-edited with Dr. Guido Juckeland http://www.inderscience.com/info/ingeneral/cfp.php?id=3438, December 2017
- Journal of Scientific Programming. Programming Models, Languages, and Compilers for Manycore and Heterogeneous Architectures. Volume 2015, Article ID 376317, http://dx.doi.org/10.1155/2015/376317, 2015

External Scientific Advisory Board

- Oak Ridge National Laboratory's Computing and Computational Sciences Directorate (CCSD) Directorate Advisory Committee Member (DAC), 2025 - 2028
- Scientific Advisory Board, EuroHPC Center of Excellence Plasma-PEPSC, 2023-2025
- NCAR CISL Advisory Panel Member, 2022

- Advisory Editorial Board - Software: Practice and Experience (SPE), 2022
- Organizing Committee, SIAM Parallel Processing Conference 2022
- European H2020 project: EPEEC (European joint Effort toward a Highly Productive Programming Environment for Heterogeneous Exascale Computing) Scientific-Industrial Advisory Board (SAIB), Barcelona Supercomputing Center, Spain, 2018-2020

Proposal Reviewer, US and International

- DOE Presidential Early Career Awards for Scientists and Engineers (PECASE), May 2021
- NSF Review Panel, 2016, 2017, 2018, 2019, 2020, 2022
- Natural Sciences and Engineering Research Council of Canada, Canada, Review Panel, 2017
- DFG (German Research Foundation), Germany, Review Panel, 2017

Editorial Affliations

- Special Content Editor, Future Generation Computer Systems, 2021 - 2023
- IEEE Transactions on Parallel and Distributed Systems, Associate Editor, 2020 - 2023
- Elsevier's Future Generation Computer Systems, Associate Editor, 2020 - 2021
- Journal of Parallel Computing (PARCO) - Subject Area Editor, 2019 - 2021
- Journal of Parallel and Distributed Computing (JPDC) - Associate Editor, 2019 - 2021

Technical Specification and Book Reviewer

- Computer Systems: An Embedded Approach, Textbook by Ian McLoughlin, September, 2018
- Multicore Association (MCA)' Task Management Standard API (MTAPI) and Software-hardware Interface for multi-many-core,(SHIM), 2013-2015

Steering Committees

- NSF Workshop on Future Directios of the CSSI program, Steering Committee Role, 2019
- Women in HPC, SC, Steering Committee Role, 2016-2018
- Women in HPC, ISC, Steering Committee Role, 2016-2018

Chair and Co-Chair - Conferences/Workshops/Symposiums/Scholarships

- Birds of a Feather, Chair, The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC26)
- Program Co-chair, 54th International Conference on Parallel Processing (ICPP), 2025
- Panels Chair - The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC25)
- Poster Chair - International Symposium on Code Generation and Optimization (CGO) 2025

- Applications track Co-chair, The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC24)
- Technical Program Co-chair IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, (CCGrid), 2023
- IEEE Cluster Student Travel Liaison chair, 2020-2022
- Vice Chair, Interdisciplinary track, International Parallel & Distributed Processing Symposium (IPDPS), 2022
- Program Co-chair The 34th International Workshop on Languages and Compilers for Parallel Computing (LCPC), 2021
- Track Leader of the Invited Speaker Program, ISC 2020/2021
- Technical Program Co-Chair, PASC 2020
- Early Career Program, Vice Chair, SC 2020
- International Workshop on Accelerators and Hybrid Exascale Systems (AsHES) co-located with IPDPS, General Chair, 2018, 2019
- Research Posters Chair, Interational Supercomputing Conference (ISC), 2019
- Workshops Chair, Supercomputing Conference (SC19), 2019
- Technical Program Co-Chair, The Platform for Advanced Scientific Computing (PASC), 2019
- Research Posters Vice-Chair, Interational Supercomputing Conference (ISC), 2018
- ACM Intel Leadership fellows, SC 2018
- Workshop Co-chair, 1st to 4th International Workshop on Performance Portable Programming Models for Accelerators (Pˆ3MA) co-located with ISC, 2016 - 2019
- Workshop Co-Chair, 1st - 5th Workshop on Accelerator Programming Using Directives (WAACPD), co-located with SC conference, 2014-2018
- General Chair, 7th and 8th International Workshop on Accelerators and Hybrid Exascale Systems (AsHES) co-located with IPDPS, 2017, 2018
- Workshop Co-Chair of the 1st - 3rd HPC Applications in Precision Medicine co-located with ISC, 2017-2019
- Doctoral Showcase Chair, SC17
- Workshop Co-chair, 4th-6th International Workshop on Accelerators and Hybrid Exascale Systems (AsHES) co-located with International Parallel & Distributed Processing Symposium (IPDPS), 2014-2016
- Vice-Chair of Software Track, International Parallel & Distributed Processing Symposium (IPDPS), 2017
- Track-Chair of Programming Models and Systems Software, International Supercomputing Conference (ISC), 2017
- Poster and Research Demo Chair, 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, (CCGrid), 2015

- Workshop Chair, Programming Models, Languages and Compilers Workshop for Manycore and Heterogeneous Architectures (PLC), co-located with , International Parallel & Distributed Processing Symposium (IPDPS), 2015
- Workshop Chair, 1st and end Workshop on Directives and Tools for Accelerators: A Seismic Programming Shift, 2014-2015

Technical Program Committee - Conferences/Workshops/Symposiums/Scholarships

- ISC 2025
- LLM4HPC 2025
- ICS 2025
- LLVM HPC Workshop at SC24, 2023
- IEEE HiCoMB, 2022
- IEEE CCGrid, 2022
- IEEE Cluster 2021
- IEEE International Workshop on OpenMP 2021
- International Supercomputing Conference, 2021
- International Parallel & Distributed Processing Symposium (IPDPS), 2021
- Supercomputing Conference, 2021
- IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, 2021
- Supercomputing Conference (SC), 2020
- International Conference of Supercoming (ICS), 2020
- International Supercomputing Conference (ISC), 2019
- Workshops for IPDPS 2019
- SC Conference, 2018
- DOE Leadership Computing | INCITE Program, 2018
- International Parallel & Distributed Processing Symposium (IPDPS), 2018
- IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, (CCGrid),2018
- International Workshop on FPGAs for Software Programmers, 2018
- 3rd Workshop on Open Source Supercomputing, 2018
- Doctoral Showcase Chair, SC17
- International Conference on Parallel Processing (ICPP), 2017
- IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, (CCGrid) (Track: "Programming Models and Runtime Systems"), 2017
- SC conference 2016

- Doctoral Showcase, Birds of Feather (Algorithms Track), Workshop on Computing and Cancer, Workshops on Energy Efficient Supercomputing (E2SC)
- International Workshop on FPGAs for Software Programmers (FSP), 2016
- International European Conference on Parallel and Distributed Computing (Euro-Par), 2016
- International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), 2016
- International Conference on Network and Parallel Computing, 2016 International Conference on Parallel Processing (ICPP), 2016
- DOD Workshop on Mission-Critial big data analytics, 2016
- First International Workshop on Open POWER for HPC (IWOPH) co-located with ISC, 2016 IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, (CCGrid) 2016
- 30th IEEE International Parallel & Distributed Processing Symposium, PhD Panel on research and career planning and PhD Poster Judging Committee, 2015
- SC conference, 2015
- Doctoral Showcase Committee, Technical Program Committee (Performance Track), 2016
- IEEE Cluster, 2014
- 8th Workshop on General Purpose Processing using GPUs (GPGPU-8), 2014
- 22nd European Signal Processing Conference (EUROSIP), 2014
- International Symposium on Integrated Circuits (ISIC), 2014
- Workshop on Multicore and GPU Programming Models, Languages and Compilers, PLC, co-located with IPDPS, 2013- 2014
- International Joint Conference on Neural Networks (IJCNN), 2015
- The International Conference for High Performance Computing, Networking, Storage and Analysis (SC) 2012, 2013
- ACM Student Research Competition, Poster Committee
- 50th Design Automation Conference (DAC) (External Reviewer), 2012

Adhoc Journal Reviewer

- Journal of Parallel and Distributed Computing (JPDC)
- IEEE Transactions on Cloud Computing (TCC)
- International Journal of Parallel Programming (IJPP)
- Transactions on Architecture and Code Optimization (TACO)
- Elsevier Parallel Computing (PARCO)
- Journal of Supercomputing (SUPE)
- Transactions on Software Engineering (TSE)
- IEEE Transactions on Parallel and Distributed Systems (TPDS)

- Concurrency and Computation: Practice and Experience (CCPE)
- Elsevier Future Generation Computer Systems (FGCS)
- IEEE/ACM Transactions on Computational Biology and Bioinformatics(TCBB)

Training Students and Professionals to use GPUs: Hackathons

- UDEL AI Center of Excellence + Data Science Institute Hackathon, July 2024
- UDEL AI Center of Excellence + Data Science Institute Hackathon, July 2023
- UDEL AI Center of Excellence + Data Science Institute Hackathon, July 2022
- ECP OpenMP Virtual Hackathons, 2021-2023
- GPU Programming Hackathon Training in collaboration with Oak Ridge National Laboratory, Venue: Brookhaven National Laboratory (BNL), NY, USA, June 2017
- GPU Hackathons and Workshops-based training in collaboration with Oak Ridge National Lab and NVIDIA. Venue: University of Delaware (UDEL), Newark, DE, May 2016
- Hands-on training. Introduction to GPGPU Architecture and OpenACC. Center for Advanced Computing and Data Systems (CACDS). University of Houston (UH), Houston, TX, April 2014

Professional Development

- Dagstuhl Seminar 23132 AI-Augmented Facilities: Bridging Experiment and Simulation with ML, March 2023
- Eastern Nook Promotion and Tenure Workshop, New Jersey, 2019
- Write Winning Grant Proposals Workshop,Virginia, 2017
- CRA Career Mentoring Workshop, Virginia, USA, 2016
- NSF CISE CAREER Workshop, Virginia, 2016

Podcast on Exascale

- Episode 85: Sunita Chandrasekaran on Teaching Supercomputing and Leading the ECP SOLLVE Project

  https://tinyurl.com/22fvy663

Articles and Media Coverage

Articles

- Building a data-intensive research workforce for the Mid-Atlantic, 2024
  UDaily https://www.udel.edu/udaily/2024/november/research-software-engineer-rse-workforce-sunita-chandrasekaran/

- A Conversation with Sunita Chandrasekaran: Exploring sustainable and portable software solutions, 2023
  ACM Ubqiquity https://ubiquity.acm.org/article.cfm?id=3597504
- ECP Selects Sunita Chandrasekaran as Principal Investigator of the SOLLVE Project, 2021
  Brookhaven National Lab https://www.bnl.gov/newsroom/news.php?a=219127
- Sunita Chandrasekaran Reflects on Teaching Supercomputing and Leading the ECP SOLLVE Project, 2022
  Exascale Computing Project https://www.exascaleproject.org/sunita-chandrasekaran-reflects-on-teaching-supercomputing-and-leading-the-ecp-sollve-project/
- Harnessing the power of the world's fastest computer, 2022
  UDaily https://www.udel.edu/udaily/2022/october/sunita-chandrasekaran-exascale-supercomputer-frontier-department-energy-oak-ridge/
- College of Engineering Announces 2020 Dean's Awards
  UDaily: https://engr.udel.edu/news/2020/07/college-of-engineering-announces-2020-deans-awards/
- Building better benchmarks Project awarded by NSF, 2018, Article published with report in 2020
  UDaily: https://www.udel.edu/udaily/2020/june/sunita-chandrasekaran-rudi-eigenmann-supercomputer-benchmarks/
- CAAR (Center for Accelerated Application Readiness) Project awarded from Oak Ridge National Lab, 2019
  UDaily: https://www.udel.edu/udaily/2019/september/Sunita-Chandrasekaran-Oak-Ridge-Center-for-Accelerated-Application-Readiness-Frontier/
- Prediction of Chemical Shift of Protein Structures using OpenACC, 2019.
  HPCWire: https://www.hpcwire.com/2020/01/24/whats-new-in-hpc-research-tsunamis-wildfires-the-large-hadron-collider-more/
- NSF Grant to Create Powerful Software Framework, 2018.
  UDaily: https://insidehpc.com/2018/10/sunita-chandrasekaran-receives-nsf-grant-create-powerful-software-framework/
  InsideHPC: https://www.udel.edu/udaily/2018/october/sunita-chandrasekaran-reusable-software/
- Talk given at the Princeton Bootcamp, 2018.
  Princeton News: https://www.princeton.edu/news/2018/11/09/princeton-launches-computing-bootcamp-graduate-students-and-postdocs
- An Overview of 'OpenACC for Programmers' from the Book's Editors, 2018.
  HPCWire: https://www.hpcwire.com/2018/06/20/an-overview-of-openacc-for-programmers-from-the-books-editors/
- IEEE TCHPC Early Career Award
  HPCWire: https://www.hpcwire.com/off-the-wire/university-delawares-sunita-chandrasekaran-honored-excellence-hpc/
- University of Delaware named an NVIDIA GPU Education Center, 2016.
  Udaily: https://www.udel.edu/udaily/2016/september/nvidia-gpu-education-center/
- Scientists Gather at University of Delaware for OpenACC Hackathon.
  UDaily: https://news.developer.nvidia.com/scientists-gather-at-university-of-delaware-

for-openacc-hackathon/

Media Coverage

- SC19 Live Interviews, Workshop Chair, 2019.
  Interview with SC Media: https://www.facebook.com/SCconferences/videos/1716032991866956/
- Highlights from the Technical Papers Program at PASC19, 2019.
  Interview with PASC Conference Media: https://www.youtube.com/watch?v=RtMACopAW0s
- Presentation of PASC19 Paper Track by the two chairs, 2019.
  Interview with InsideHPC: https://www.youtube.com/watch?v=NFAAaFTGiQM
- OpenACC Eases GPU Programming for HPC at SC17, 2017.
  Interview with InsideHPC: https://www.youtube.com/watch?v=0GW2sPOwhdc&feature=emb_title
- OpenACC Brings Directives to Accelerated Computing at ISC 2017.
  Interview with InsideHPC: https://www.youtube.com/watch?v=W2T3C1P4BZY
- GPU Programming Hackathon hosted at the University of Delaware, 2016. **NVIDIA Developer News:** https://news.developer.nvidia.com/scientists-gather-at-university-of-delaware-for-openacc-hackathon/

Professional Development

- Eastern Nook Promotion and Tenure Workshop, New Jersey, 2019
- Write Winning Grant Proposals Workshop,Virginia, 2017
- CRA Career Mentoring Workshop, Virginia, USA, 2016
- NSF CISE CAREER Workshop, Virginia, 2016

Professional Affiliations

- ACM, IEEE, OpenMP, OpenACC, SPEC

Professional Activities - UDEL

University

- University, Cost Recovery Working Group, Spring 2020
- Faculty Peer Observation Program (FPOP), Spring 2017 - Spring 2019

College of Engineering

- Dean's Junior Faculty Advisory Council, Spring 2018 - Spring 2019
- Search committee for digital content specialist, Summer 2016

Department of Computer & Information Sciences

- CIS Bylaws committee, Fall 2022, Spring 2023, Fall 2024
- CIS Chair Search Committee, Spring 2021 - Spring 2022
- SPICE Committee, Fall 2020 - Spring 2022
- Executive Committee, Fall 2019 - Spring 2020
- Marketing Committee, Fall 2018 - Fall 2019
- Faculty Search Committee - High Performance Computing, Fall 2018 - Spring 2019
- Search Committee - Teaching (Continuing), Fall 2016 - Spring 2017
- Publicity Committee, Fall 2016 - Spring 2017
- Faculty Search Committee - Networking, Fall 2015 - Spring 2016