Editor's Note

Manish Parashar

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GREETINGS from the Editor-in-Chief's desk. It is my privilege to continue to serve our community as the Editor-in-Chief of TPDS. TPDS remains one of the healthiest IEEE Transactions. TPDS continues to receive a large number of submissions and we continue to process these submissions as efficiently and effectively as possible, while maintaining a rigorous process for evaluating the excellent research contributions in this area and the high quality of the journal.

The editorial broad is essential to the success of TPDS. The TPDS associate editors not only ensure a thorough, timely and fair review process, but also help guide the journal's focus and priorities, navigating a highly dynamic and rapidly evolving field and ensuring that TPDS continues to publish high-quality research that is relevant, interesting and timely. A key aspect in responding these changes is recruiting distinguished editorial board members who bring required expertise and experience. I would like to use this editorial to welcome our distinguished colleagues (listed below) who have joined the TPDS Editorial Board in the past year, and I would like to sincerely thank all our associate editors for their diligence, dedication and outstanding service to our community.

I would also like to thank all of our authors who submit their best research to TPDS, and to all of the reviewers for thorough evaluations of these works.

I hope you will continue to submit your best papers to TPDS!

Manish Parashar
Fellow, IEEE
Editor-in-Chief

TPDS Associate Editor (2020-2021 Appointments)

Rosa M. Badia graduated in computer science from the Facultat d' Informàtica de Barcelona, UPC, in 1989, and the PhD degree from the UPC, in 1994. She is currently the manager with the Workflows and Distributed Computing Group, Barcelona Supercomputing Center. From 1989 to 2008, she was a lecturer and researcher with Computer Architecture Department, UPC, where from 1997 to 2008, she was a part-time lecturer with Computer Architecture Department.

Purushotham V. Bangalore received the BE degree in computer science and engineering from Bangalore University, India, in October 1991, the MS degree in computer science from Mississippi State University, in May 1995, and the PhD degree in computational engineering from Mississippi State University, in May 2003. He is currently a professor and the director with Collaborative Computing Lab, Department of Computer Science, University of Alabama at Birmingham. His current research interests include fault-tolerance of message-passing middleware and security and reliability of storage systems for Exascale systems. He was an associate director with recently funded Predictive Science Academic Alliance Program, Focused Investigatory Center for Understandable, Performant Exascale Communication Systems, and leads the Exascale Application Performance Evaluation and Assessment Thrust. He was a member of Technical Program Committee on numerous national and international conferences and is currently an organizer or program chair on some of the key conferences and workshops in the HPC. In 2017 and 2018, he was the editor of the publications of the Proceedings of the Workshop on Exascale MPI in CCPE and in 2019, the IEEE TCHPC. He is also an active participant in the MPI Forum contributed to the development of the latest version of the MPI standard.

Michela Becchi received the MS and PhD degrees in computer engineering from Washington University in St. Louis, in 2009, and the Laurea degree from Politecnico di Milano, in 2000. She is currently an associate professor with the Department of Electrical and Computer Engineering, North Carolina State University. Her research interests include parallel and high-performance computing, algorithm design and acceleration, system software design, and networking systems. She was an associate professor with the University of Missouri. She was the recipient of the NSF Early CAREER Award in 2015, the University of Missouri System President's Award for Early Career Excellence in 2016, and two best paper awards at the ACM HPDC conference, in 2011 and 2012.

Valeria Cardellini received the Doctorate degree in computer science from the University of Rome Tor Vergata in 2001. She is currently an associate professor of computer science with the University of Rome Tor Vergata. She has coauthored more than 100 papers, published in peer-reviewed international journals, conference proceedings, and book chapters. Her research interests include the field of distributed computing systems, with a focus on cloud and edge or fog systems and services, and data stream processing systems. She was the recipient of three paper awards at international conferences, including the IEEE SOSE 2011, the ACM DEBS 2015 and 2016. She has achieved the Italian National Scientific Qualification for the function of a full professor in computer science and information processing systems. She was the TPC co-chair of the IEEE ICFC 2020 and the IEEE/ACM UCC 2018, the guest editor for special issues in Elsevier Future Generation Computer Systems, Parallel Computing and Big Data Research in 2018–2020, a TPC member of conferences on performance, Cloud, and Web, including the IEEE MASCOTS, the IEEE or the ACM UCC, the ACM ICPE, The Web Conference, and a reviewer for leading journals. She has graduated five PhD and 80 MSc students.

Sunita Chandrasekaran is currently an assistant professor with the Department of Computer and Information Sciences, University of Delaware. Her current research interests include high-performance computing, programming models, compilers or runtime, interdisciplinary science, computational and data-enabled science, and machine learning.

Vipin Chaudhary received the BTech (Hons.) degree in computer science and engineering from the Indian Institute of Technology Kharagpur and the PhD degree from The University of Texas at Austin in 1992. He is currently the Kevin J. Kranzusch chair professor and the chair with the Department of Computer and Data Sciences with Case Western Reserve University. Most recently, he was the program director with National Science Foundation, where he was involved in many national initiatives. He was the professor of computer science and engineering with Empire Innovation, SUNY Buffalo. He cofounded Scalable Informatics, a leading provider of pragmatic, high performance software-defined storage and compute solutions to a wide range of markets, from financial and scientific computing to research and big data analytics. From 2010 to 2013, he was the chief executive officer with Computational Research Laboratories, a wholly owned Tata Sons Company, where he grew the company globally to be an HPC cloud and solutions leader before selling it to Tata Consulting Services. Prior to this, as the senior director of Advanced Development with Cradle Technologies, Inc., he was responsible for advanced programming tools for multi-processor chips. He was the chief architect with Corio Inc., which had a successful IPO in July, 2000. He was the recipient of the prestigious President of India Gold Medal in 1986 at the Indian Institute of Technology (IIT) Kharagpur. His current research interests include parallel and distributed computing: architectures, system, and applications to science, engineering, biology, and medicine, big data, computer-assisted diagnosis and interventions, and medical image processing.

Lydia Y. Chen (Senior Member, IEEE) received the PhD degree from Pennsylvania State University. He is currently an associate professor with the Department of Computer Science, Delft University of Technology, The Netherlands. From 2007 to 2018, she was a research staff member with IBM Research Zurich Lab. She has authored or coauthored more than 100 papers in peer-reviewed journals and in conference proceedings, including the INFOCOM, the SIGMETRICS, the EUROSYS, and the DSN. She was the co-recipient of the best paper awards at CCGrid'15 and eEnergy'15. She was the recipient of the TU Delft technology fellowship, in 2018. She was on the editorial boards of the *IEEE Transactions on Distributed and Parallel Systems,* the *IEEE Transactions on Dependable and Secure Computing,* the *IEEE Transactions on Service Computing,* and the *IEEE Transactions on Network and Service Management*.

Trilce Estrada received the BS degree in computer systems from The University of Guadalajara, Mexico, the MS degree in computer science from INAOE, Mexico, and the PhD degree in computer science from the University of Delaware. She is currently an associate professor of computer science and the director with Data Science Laboratory, University of New Mexico. Her research interests include the intersection of machine learning, high performance computing, big data, and their applications to interdisciplinary problems in science and medicine. In 2019, she was named the ACM SIGHPC emerging woman leader in technical computing. Since 2017, she has been the big data aspect lead for the NSF-TCPP national curriculum development initiative that seeks to include and promote the adoption of parallel processing in the undergraduate curriculum. She is a PI faculty advisor of New México's Critical Technology Studies Program and the multi-institutional consortium for developing human expertise for the intelligence community.

David Gregg he has been working primarily on domain-specific optimization of deep learning software on embedded systems, in collaboration with companies such as ARM and Intel, which includes the design of novel low-memory algorithms for convolution layers in deep neural networks, domain-specific code generation to reduce memory and execution time of DNNs on embedded systems, statistical pruning methods to reduce the execution time and memory footprint of DNNs, and domain-specific code generation for low precision arithmetic on general-purpose processors, since 2015. His research interests include optimizing compilers, program parallelization, algorithm design, low-power embedded computing, and domain-specific program generation and optimization, which includes traditional compiler optimization topics, such as instruction selection and instruction scheduling, and more parallelization focused work, such as automatic SIMD vectorization and generating code for fast context switching. His algorithm research includes novel algorithms for sparse matrix transpose, graph algorithms, and low memory algorithms for convolutional neural networks. His research in domain-specific program generation and optimization includes work on generating fast cryptography routines using Intel cryptography instructions.

Jack Lange received the first BS degree in computer engineering, the second BS degree in computer science, and the MS and PhD degrees in computer science from Northwestern University in 2003. Then, he joined the Department of Computer Science, University of Pittsburgh, in the fall of 2010. His research interests include high-performance computing and operating systems, networking, virtualization, distributed systems, specialized operating systems for supercomputing environments distributed security architectures, Palacios VMM, a specialized HPC virtualization architecture for supercomputing platforms, the Pisces co-kernel Operating System architecture, and the XEMEM shared memory system.

Deep Medhi (Fellow, IEEE) received the BSc degree in mathematics from Cotton College, Gauhati University, India, the MSc degree in mathematics from the University of Delhi, India, and the MS and PhD degrees in computer sciences from the University of Wisconsin-Madison. He is currently a curators' distinguished professor with the Computer Science and Electrical Engineering Department, University of Missouri-Kansas City (UMKC), and an honorary professor with the Department of Computer Science and Engineering, Indian Institute of Technology Guwahati, India. He is currently on leave from UMKC and is currently the program director with Computer and Network Systems Division, National Science Foundation. Prior to joining UMKC in 1989, he was a member of the technical staff with AT&T Bell Laboratories. He has authored or coauthored more than 170 papers, and is the coauthor of the books *Routing, Flow, and Capacity Design in Communication and Computer Networks* (2004) and *Network Routing: Algorithms, Protocols, and Architectures* (2007). He was the editor-in-chief of Springer's *Journal of Network and Systems Management*, and was or is currently on the editorial board of the *IEEE/ ACM Transactions on Networking,* the *IEEE Transactions on Network and Service Management,* and the *IEEE Communications Surveys and Tutorials.*

David Mohaisen (Senior Member, IEEE) received the PhD degree from the University of Minnesota in 2012. Since 2017, he has been an associate professor with the Department of Computer Science, University of Central Florida. At UCF, he directs the Security and Analytics Research Lab. His research interests include systems security, machine learning systems, blockchain systems, Internet of Things (software) security, malware analysis and detection, AR or VR security, DDoS *attacks and defenses, mobile security, memory systems security, and infrastructure security. He is an associate editor for the IEEE Transactions on Mobile Computing,* Elsevier *Computer Networks*, and *ETRI Journal* (Wiley). He has been a Senior Member of the ACM since 2018, a distinguished speaker of the ACM from 2021 to 2023, and a distinguished visitor of the IEEE's Computer Society from 2021 to 2023.

Anne-Cécile Orgerie received the PhD degree in computer science from Ecole Normale Supérieure de Lyon, France, in 2011. From 2011 to 2012, she was a postdoctoral researcher with the Department of Electrical and Electronic Engineering, University of Melbourne, Australia. Since 2012, she has been a tenured full time researcher with CNRS (French National Centre for Scientific Research), the IRISA Laboratory, France. She has authored more than 80 publications, including journal articles, conference papers, and book chapters. She has co-supervised seven PhD thesis, including four already defended. Her research interests include energy-efficiency, resource management, cloud computing, network architecture, smart grids, and distributed systems. She was the founding member of the Technical Committee on Green Communications and Computing of the IEEE Communications Society. She was the recipient of the CNRS Bronze Medal in 2020.

Scott Pakin received the BS degree in mathematics and computer science from Carnegie Mellon University, and the MS and PhD degrees in computer science from the University of Illinois at Urbana-Champaign. Since 2002, he has been a scientist with Los Alamos National Laboratory. His research interests include variety of computer science topics related to high-performance computing, including programming models, application performance analysis, energy efficiency, high-speed communication, and job-scheduling algorithms. He has recently begun investigating quantum computing and is currently a technical or scientific point of contact for LANL's D-Wave quantum annealer.

Sangmi Lee Pallickara is currently a Cochran Family professor and an associate professor with Computer Science Department, Colorado State University. Her research interests include the area of big data for the sciences with an emphasis on issues related to predictive analytics, storage, retrievals, and metadata management. She is on the editorial board of the *Journal of Big Data*. Her research is funded through grants from the National Science Foundation, the Advanced Research Projects Agency-Energy (Department of Energy), Department of Homeland Security, the Environmental Defense Fund, Google, Amazon, and Hewlett Packard. Her three manuscripts have received the best paper awards at the IEEE/ACM forums. She was the recipient of the CAREER Award from the U.S. National Science Foundation, and the IEEE TCSC Award for Excellence in Scalable Computing (Mid-Career Researcher).

Radu Prodan received the PhD degree in 2004 from the Vienna University of Technology. He is currently a professor of distributed systems with the Institute of Software Technology, University of Klagenfurt, Austria. He was an associate professor until 2018 with the University of Innsbruck, Austria. He participated in numerous national and international projects, and presently coordinates the Horizon 2020 project ARTICONF (smART socIal media eCOsystem in a blockchaiN Federated environment) funded by the European Union. He is the author of one book and more than 200 journal and conference publications. He has an h-Index of 43 according to Google Scholar and 31 according to Scopus. He was the recipient of two IEEE best paper awards and one IEEE Transactions on Parallel and Distributed Systems Award for Editorial Excellence.

Alan Sussman received the PhD degree in computer science from Carnegie Mellon University. He is currently a professor with the Department of Computer Science and Institute for Advanced Computer Studies, University of Maryland, and has been in Maryland since 1992. He is currently a program officer with the National Science Foundation, Office of Advanced Cyberinfrastructure, Directorate for Computer and Information Science and Engineering. He has authored or coauthored numerous conference and journal papers with students and other researchers in Maryland and other institutions, and has edited two recent books on teaching parallel and distributed computing. He was the founding member of the Center for Parallel and Distributed Computing Curriculum Development and Educational Resources. He is a subject area editor of the *Parallel Computing,* and an associate editor for the *IEEE Transactions on Services Computing.* He was the recipient of several best paper awards in various topics related to software tools for high-performance parallel and distributed computing.

Devesh Tiwari received the BS degree in computer science and engineering from Indian Institute of Technology (IIT) Kanpur, India and the PhD degree in electrical and computer engineering from North Carolina State University. He directs the Goodwill Computing Lab at Northeastern University (Boston, USA), where his group focuses on improving the efficiency and cost-effectiveness of high performance computing and storage systems, more recently on quantum computing systems. He is currently an associate editor for *Transactions of Storage* (ToS) and *Journal of Parallel & Distributed Computing* (JPDC). He served as the program co-chair/track co-chair for IISWC, IPDPS, and ICCD, and has been on the program committees of DSN, HPDC, HPCA, ISCA FAST, and IPDPS. His work has appeared in various rigorously peer-reviewed conferences such as USENIX FAST, SC, DSN, ASPLOS, HPCA, MICRO, IPDPS, and have been covered by the news media including Slashdot and HPCWire. His work has received seven best paper finalists at various conferences including Supercomputing (SC), DSN, ICCAD, and IPDPS. Before joining Northeastern Faculty, Devesh was a staff scientist at the United States Department of Energy (DOE) Oak Ridge National Laboratory (ORNL).

Bora Ucar received the PhD degree in computer engineering from Bilkent University, Ankara, Turkey, in 2005. He was a postdoctoral researcher with the Mathematics and Computer Science Department, Emory University, Atlanta, USA, and with Parallel Algorithms Project, CERFACS, France. Since January 2009, he has been a permanent research scientist with CNRS, and is located at LIP, ENS Lyon. From 2017 to 2018 school year, he was a visiting research scientist with the School of Computational Science and Engineering of Georgia Institute of Technology, Atlanta, GA, USA. His research interests include combinatorial scientific computing, graph and hypergraph algorithms, high-performance sparse matrix, and tensor computations. Dr. Ucar has been an associate editor for the journals *Parallel Computing* since April 2016, the SIAM *Journal on Matrix Analysis and Applications* since May 2018, and the SIAM *Journal on Scientific Computing* since January 2020. He was with the steering committees of the IEEE IPDPS, the HiPC, and the Combinatorial scientific computing. He was the general chair of the IEEE IPDPS 2018 and the workshops chair for the IEEE IPDPS in 2015–2017. He is also the program vice-chair of the IEEE HiPC'20 for the HPC tracks. He was the algorithms track chair of the IEEE HiPC'19. He is currently a referee (six to seven per year) for major technical journals, such as the *IEEE Transactions on Parallel and Distributed System,* ACM *Transactions on Parallel Computing*, *Journal of Parallel and Distributed Computing*, SIAM *Journal on Scientific Computing*, and ACM *Transactions on Mathematical Software*. He is also with conference program committees (approximately —five to six per year), including those of IEEE IPDPS, ACM SC, ICPP, and Euro-Par.

Didem Unat received the PhD degree from the University of California San Diego. He is currently a professor with Koç University, Istanbul, Turkey. She is known for her work in designing programming models, performance tools, and runtime systems for emerging parallel architectures. Since 2014, she has been leading her own Parallel and Multicore Computing Group with Koç University as an independent PI. She is the very first researcher from Turkey, who has received the ERC grant in computer science from the European Commission. She has contributed to the organization of several international conferences as topic chairs. She was the recipient of the prestigious and highly competitive Luis Alvarez Postdoctoral Fellowship from the Lawrence Berkeley National Laboratory, the Marie Sklodowska-Curie Individual Fellowship from the European Commission in 2015, the Young Scientists Award in 2019 from the Science Academy of Turkey, and the Outstanding Faculty Award in engineering at Koç in 2020.

Ramachandran Vaidyanathan received the BTech and MTech degrees from the Indian Institute of Technology, Kharagpur, in 1983 and 1985, respectively, and the PhD degree from Syracuse University in 1990. Since then, he has been a faculty member with the Division of Electrical and Computer Engineering, Louisiana State University, where he is currently the Elaine T. and Donald C. Delaune distinguished professor of electrical engineering. His research interests include parallel and distributed computing (PDC), algorithms, reconfigurable computing, and extends to pedagogical work, particularly in incorporating PDC into the undergraduate computer science and engineering curricula.

Felix Wolf received the PhD degree from RWTH Aachen University in 2003. He is currently a full professor with the Department of Computer Science, Technical University of Darmstadt in Germany, where he leads the Laboratory for Parallel Programming. He works on methods, tools, and algorithms that support the development and deployment of parallel software systems in various stages of their life cycle. He was a postdoc for more than two years with Innovative Computing Laboratory, University of Tennessee, and then, he was appointed as a research group leader with Jülich Supercomputing Centre. Between 2009 and 2015, he was the head with the Laboratory for Parallel Programming, German Research School for Simulation Sciences, Aachen, and a full professor with RWTH Aachen University. He has made major contributions to several open-source performance tools for parallel programs, including Scalasca, Score-P, and Extra-P. He has initiated the Virtual Institute – High Productivity Supercomputing, an international initiative of academic HPC programming-tool builders aimed at the enhancement, integration, and deployment of their products. He has authored or coauthored more than 100 refereed articles on parallel computing, several of which have received awards.

De-Nian Yang (Senior Member, IEEE) research interests include distributed optimization or learning and network analysis or applications. His research results in distributed networking and applications have been published in the IEEE ICDCS, INFOCOM, ICNP, GLOBECOM, ICC, WCNC, VTC, ICME, MM, CHI, *IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Mobile Computing, IEEE Transactions on Multimedia, IEEE Transactions on Wireless Communications, IEEE Transactions on Knowledge and Data Engineering, and IEEE Transactions on Vehicular Technology.* His research results in AI have been published in the ICDCS, AAAI, VLDB, KDD, the *World Wide Web: Internet and Web Information Systems* (WWW), ICDE, ICDM, CIKM, GLOBECOM, PAKDD, MDM, DASFAA, ACM *Transactions on Knowledge Discovery from Data*, *IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Mobile Computing,* and ACM *Transactions on Spatial Algorithms and Systems.* From 2014 to 2018, his research results have been recognized by the Significant Research Achievements of Academia Sinica, only two papers selected from each institute in each year, also featured by MIT Technology Review, ACM Tech News, and Phys.org. He was the track chair of the IEEE GLOBECOM (Social Networks SAC, twice), the demo chair of the WWW, the workshop chair of the IEEE MDM, the general chair of the DASFAA, the program cluster chair of the INFORMS, and the publicity chair of the IEEE GLOBEOCOM. He has been elected as the secretary of the IEEE COMSOC Social Networks Technical Committee. He was the chair of the Meeting and Conference Committee and Information Services Committee in the IEEE COMSOC Asia Pacific Board. He is the guest editor of the IEEE Transactions on Computational Social Systems, a feature topic editor of the IEEE *Communications Magazine*, and the ACM distinguished member. He was the recipient of the Best Paper Nominate in the IEEE GLOBECOM, the Best In-Session Presentation Award of the IEEE INFOCOM, the Best Student Paper Award of the IEEE ICME, the Best Paper Honorable Mention Award in the ACM CHI, the Emerging Technologies Prize in the ACM SIGGRAPH Asia, and the PAKDD Best Paper Running-Up Award.

Yuanyuan Yang (Fellow, IEEE) received the BEng and MS degrees in computer science and engineering from Tsinghua University, Beijing, China, and the MSE and PhD degrees in computer science from Johns Hopkins University, Baltimore, MD, USA. She is currently a SUNY distinguished professor with the Department of Electrical and Computer Engineering and the Department of Computer Science, Stony Brook University, New York, USA. She is currently on leave and is currently the program director with US National Science Foundation. She was an associate dean for Academic Affairs with the College of Engineering and Applied Sciences, Stony Brook University and the division director with the New York State Center of Excellence in Wireless and Information Technology. She is internationally recognized for her contributions in parallel and distributed computer architectures and systems. She was named an IEEE Fellow in 2009 for contributions to parallel and distributed computing. She has authored or coauthored more than 460 scientific papers in leading refereed journals and conferences. Her current research interests include parallel computer architecture, network-based computing, cloud computing, edge computing, and mobile computing. She is currently the editor-in-chief of the *IEEE Transactions on Cloud Computing* and an associate editor for the ACM *Computing Surveys*. She was an associate editor-in-chief for the *IEEE Transactions on Cloud Computing* and the *IEEE Transactions on Computers,* and an associate editor for the *IEEE Transactions on Computers* and the IEEE *Transactions on Parallel and Distributed Systems.*

Jaroslaw Zola (Senior Member, IEEE) is currently an associate professor with the Department of Computer Science and Engineering, University at Buffalo, where he leads Scalable Computing Research Group. He was with Iowa State University and Rutgers University. He conducts research in high performance and parallel computing with applications to machine learning and data analytics, biomedical and health informatics, and mobile computing. He was the recipient of the NSF CAREER Award, and the Early Career Teacher of the Year Award from the School of Engineering and Applied Sciences, University at Buffalo. Since 2016, he has been the chair of the IEEE TCPP student travel awards.

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