Sushil K. Prasad
Professor of Computer Science and ACM Distinguished Scientist
Former Program Director, Office of Advanced Cyberinfrastructure (CISE/OAC), National Science Foundation (NSF)
Project Director, NSF/TCPP Curriculum Initiative on Parallel and Distributed Computing
Former Chair, IEEE Computer Society Technical Committee on Parallel Processing (TCPP)
University of Texas at San Antonio (UTSA)
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Sushil K. Prasad, Professor and ACM Distinguished Scientist
University of Texas at San Antonio

1 Coordinates, Preparation, and Research Interest

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Personal: U.S. Citizen (Naturalized). Married, two daughters and a son.

Education:

- **B. Tech. (Hons.)**: May 1985; Computer Sc. & Engg. **Indian Institute of Technology (IIT)**, Kharagpur.
- **M.S.**: Aug. 1986; Computer Sc. **Washington State University (WSU)**, Pullman, WA.
- **Ph.D.**: Dec. 1990; Computer Sc. **University of Central Florida (UCF)**, Orlando, Florida

Current Research Interests: *Parallel, Distributed, and Data Intensive Computing and Software Systems:* Data Intensive Computation over SpatioTemporal Datasets (Geo, Polar, etc.), Parallel Data Structures and Algorithms, Middleware and Collaborative Applications for Heterogeneous Mobile Devices, P2P Systems, Distributed Algorithms over Sensor Networks, Parallel Discrete Event Simulation, Web-based Distributed and Collaborative Computing and Workflows.

2 Most Significant Achievements - 2 pages

Chair, UTSA Computer Science Department; NSF Program Director; ACM Distinguished Scientist; about 150 publications, $10M in external funding, with over $1M active NSF and Intel projects; Twice-elected chair of IEEE-CS Technical Committee on Parallel Processing (TCPP); Coordinator of NSF-supported TCPP Curriculum Initiative on Parallel and Distributed Computing; Helped create and establish GSU's Computer Science Department and the PhD program.

2.1 Professional Leadership

Lead Program Director, National Science Foundation (Feb 2015 - June 2019): In my NSF position, I was leading the Learning and Workforce Development crosscutting programs at NSFs Office of Advanced Cyberinfrastructure (OAC) in coalescing its emerging research and education programs such as CAREER, CRII, REU sites, and NRT around use-inspired, multidisciplinary, and translational research and education agenda in advanced computing, data and cybersecurity. I was also OAC's liaison to several other crosscutting programs such as CISE EXPEDITIONS program, Smart and Connected Communities (SCC), NSF INCLUDES, and Cyberlearning. I was helping develop new programs based on multidisciplinary community needs and national priorities such as the National Strategic Computing Initiative (NSCI) and Smart Cities initiative. With renewed focus, and significant outreach and dissemination efforts, we have had twice as many proposals in 2015-16 and three times in 2016-17 for the OAC CAREER research program, which is NSFs most prestigious award for early-career faculty. Working with and mentoring our CAREER and CRII (pre-CAREER) awardees has been a key highlight of my tenure at NSF. I led the formulation of a new CyberTraining crosscutting program, in collaboration with most of the NSF directorates (including ENG, MPS, GEO, EHR, CISE, and SBE), to nurture and grow the nations scientific research workforce enabled by large-scale computational and data infrastructures and methods. Most recently, adding to the infrastructure-heavy focus of OAC, I have successfully created the OAC core research solicitation to enable advancements in translational cyberinfrastructure research. This is expected to transform OAC.

Professional societies: ACM Distinguished Scientist; Elected Chair of IEEE Computer Society Technical Committee on Parallel Processing (TCPP) (2007-2011); External Reviewer for CS2013 ACM/IEEE Joint Task Force on CS Curriculum, Oct 2011.

Review boards: IEEE-CS Conference Advisory Committee, Technology and Conferences Board (2011,12), NSF Panel: BigData, RISES, CSR, CPS, CPATH, etc.

ACM/IEEE conference committee chair:
General Co-Chair: IEEE BigData 2017
Steering Committee: EURO-EduPar-2015-19, EduPar-2017-19
Program Chair/Vice Chair: IC3-13-19, ICE-14, CSE-12,14, ICCC-12, HiPC-10, ICISTM-09, 10; SOBDAT-07;
Panel/BoF Coordinator: SC-17, EduPDHC-13/SC-13, SC-12, HiPC-12,-10, EduPar-11,12,14;
Workshop Chair: IEEE EduPar 2011-19, EURO-EduPar-2015-19, ACM EduHPC-2013-18, EduHiPC-2018, IPDPS PhD Forum 2009, ICPADS-09; Proceedings Chair: HiPC 2003-2013.

2.2 Scientific Leadership

Data intensive GeoSpatial computation: We have produced parallel GIS systems for overlay computation over polygonal data using Azure cloud API (first such work) [22,24], MPI [23], Hadoop [21], and CUDA [19] and have parallelized R-tree construction and searching over GPUs [20, 2]. This has resulted in a practical system for GIS scientists, about 40-50-fold end-to-end speedup on small clusters, and another GPU-based system for Spatial Join primitive with 40-fold speedup compared state-of-art systems. I gave a keynote on this at ACM BigSpatial-13 workshop [22] and another keynote recently at the combined audience of CLOUD/ICWS/SCC/BigData/MS/SERVICES 2016 conferences and several invited talks. I served as the general co-chair of 6th IEEE International Congress on Big Data, 2017, and presented a Visionary Track paper on parallel processing of spatial datasets from Geo, Bio, Climate and Social Science communities. Most recently, I moderated a research panel on the common big data challenges for these diverse communities at ACM Supercomputing conference (SC17) in Colorado.

Parallel data structures and parallel discrete event simulation: My ACM Distinguished Scientist ranking is primarily due to my most significant body of work leading to key advances in parallel data structures and discrete event simulation is the first theoretically scalable and currently the best practical event queue data structure for shared-memory architectures, namely the "Parallel Heaps" on PRAMs [27, 28, 35], bus-based parallel machines [16], and recently on multi-cores and GPUs [4, Utility Patent 8 - 2015]. This is accompanied by several efficient shared-memory algorithms for optimistic and conservative simulation [26, 32, 33] which have resulted in parallel software systems with effective speedups for hard-to-parallelize simulations, such as those for VLSI logic circuits [7]. My optimistic simulation algorithms have been refined to a stage now that the long outstanding problems of frequent rollbacks and/or of unbounded amount of storage for check-pointing that have plagued all previous algorithms last decade have been drastically reduced to almost no rollbacks and just one checkpoint per entity [6,8,9,15,16,17,20]. This body of work has been followed up by several groups nationally and internationally.

This is complemented with key enhancements to several additional parallel data structures including queues for grid scheduling [35], parallel calendar queues [10], concurrent skew heaps [12], distributed task queues [14, 34], stack-free parentheses matching [25,30, 36], and most recently parallel R-tree on GPUs [19,20, 2].

Middleware for distributed applications over mobile devices: This thrust includes middleware and embedded software work, namely System on Mobile Devices (SyD) [1,2,3,9, 13, 15, 20, 21, 24] for collaborative distributed computing over networked, heterogeneous and possibly mobile devices and data sources, including the Web services. SyD's web coordination bond artifacts not only solve the outstanding problems of creating travel and meeting schedules with automatic triggering, renegotiation and rescheduling [66, 75]; these have also been shown to be capable of modeling Petrinets and expressing all the established workflow and communication patterns [4, 7, 10, 12, 14, 18, 22]. Several patent applications have also resulted [Patent # 6-22]

2.3 Educational Leadership

Department Chair, Computer Science, UTSA: I have chaired the Computer Science Department at UTSA (2019-22), leading it successfully through its Academic Program Review and National Research University Fund review (leading to UTSA attaining R1 status in 2022 and now well-placed toward receiving $6M/yr from Texas NRUF funds), and establish two new masters programs in Cybrsecurity and AI.

Graduate Director: I dedicated 29 years of service at Georgia State University (GSU) for creation of a comprehensive Computer Science program (CS), including leading the creation of M.S. thesis only program in 1996, creating CS department in 1998, a Ph.D. program in 2000 as its founding graduate director, and helping recruit outstanding faculty, several with NSF CAREER awards. As a result, National Research Council ranked our PhD program in the top 40-80 in 2010 – a remarkable feat for a 10-year old program.

NSF-supported TCPP Curriculum Initiative on Parallel and Distributed Computing for Undergraduates: As TCPP chair, I initiated and have led an initiative to update the prevailing CS/CE undergraduate curriculum to incorporate parallel and distributed computing topics throughout. About 150 early adopters are trying the proposed curriculum [29, 30, 32, 33,34] out nationally and internationally; the EduPar workshop series [24,25,26] has been held at IPDPS since 2011, the EduHPC workshop series has been held at SC since 2013, the EURO-EduPar has started at Euro-Par in 2015, and the EduHiPC is starting at HiPC/India in 2018 (http://www.cs.gsu.edu/~tcpp/curriculum). These high-impact STEM related activities has resulted in a recent center-level CRI grant from NSF, 2012 TCPP Outstanding Service Award, and invitations for several keynotes. An edited book we published for instructors and students of lower level core courses on PDC education in Sept'15 in both hardcopy and free preprint on web - http://grid.cs.gsu.edu/~tcpp/curriculum/?q=cedr_book - on the last check has about 50K downloads.

3 Work/Professional Experience

Professor, University of Texas at San Antonio, Computer Science **Aug, 2019 -**

Department Chair, University of Texas at San Antonio, Computer Science **Aug, 2019 - July 2022**

- Academic Program Review - 2020-21 - a major accomplishment for the department for this 7-yr review (External reviewers: Eileen Kraemer (Clemson), Jim Kurose (UMass), and Sartaj Sahni (U Florida))
- National Research University Funds Review (Fall'21) - This was a critical review for CS graduate program chosen among top 5 UTSA research programs, toward $6M/yr funding for UTSA.
- Covid-era management of (i) online transition and delivery, and (ii) budget and staff reduction, while overseeing an average of 12% enrollment growth.
- Dept. hired 7 Tenured-track/Tenured faculty, including 3 women and 1 URM, and 18 Teaching faculty, with 5 women and 2 URM.
- New Degrees: MS in Cybersecurity Science started Fall'20, and an MS in AI started in Fall'22 in collaboration with ECE and College of Business.

=> R1 status for UTSA in 2022.

Program Director, Office of Advanced Cyberinfrastructure, NSF **June, 2015 - June, 2019**

Expert, Advanced Cyberinfrastructure Division **Feb-June, 2015**

Lead, Learning and Workforce Development Cluster, OAC Research Core Program (Formulated the new solicitation in 2018, Lead) CyberTraining Program (Formulated solicitation in 2017, Lead for NSF crosscutting program), CAREER (OAC lead, CISE rep), CRII (OAC lead, CISE rep), NRT (CISE lead), REU Site (OAC lead),SCC/CPS (OAC lead), Expeditions (OAC lead).

Working with and mentoring our CAREER and CRII (pre-CAREER) awardees has been a key highlight of my tenure at NSF. I have led the formulation of a new CyberTraining crosscutting program, in collaboration with most of the NSF directorates (including ENG, MPS, GEO, EHR, CISE, and SBE), to nurture and grow the nations scientific research workforce enabled by large-scale computational and data infrastructures and methods. Most recently, adding to the infrastructure-heavy focus of OAC, I have successfully created the OAC core research solicitation to enable advancements in translational cyberinfrastructure research. This is expected to have transformative impact on OAC.

Chair, IEEE Computer Society Technical Committee on Parallel Processing (TCPP) **2007-11**

I was the elected chair of IEEE Technical Committee on Parallel Processing (TCPP) for two terms, and received its highest honors - IEEE TCPP Outstanding Service Award. Since 2010, I have been leading the NSF/TCPP curriculum initiative on parallel and distributed computing to ensure that all CS and CE graduates are well prepared in parallelism through their required core courses. This ongoing initiative is funded by NSF ($1.4M), and supported by key industry partners (Intel, NVidia, and IBM) and professional societies (ACM and IEEE). The TCPP curriculum has been employed by the ACM/IEEE CS2013 task-force to shape their thrust on parallelism in the CS2013 Computer Science Curricula, and has been explicitly called out for more comprehensive coverage. The TCPP curriculum has over 100 early adopter institutions worldwide. A book I co-edited for this initiative, entitled Topics in Parallel and Distributed Computing: Introducing Concurrency in Undergraduate Courses, had 20K chapter downloads since its release in Sept 2015. TCPP acts as an international forum to promote parallel processing research and education, and participates in setting up technical standards in this area.

Professor, Georgia State University, Computer Science Department **2005 - 2019**

At GSUs Computer Science department, which was a small portion of Mathematics and Computer Science department in 1990 when I joined, I have helped steer the computer science program to now an NRC-ranked PhD

producing department. Personally, this meant leading the creation of M.S. thesis only program in 1996, participating in formally creating the CS department and defining criteria for faculty membership in 1998, and then a Ph.D. program in 2000 as its founding graduate director. During 2000-04, funded by GRA, I led nine multidisciplinary computing and engineering faculty members from GSU and Georgia Tech and about two-dozen graduate students on a $1M embedded software and mobile/distributed middleware research thrust, and supervised a dedicated 6000 sq. ft. research facility and labs at Georgia Tech. This resulted in multitudes of theses, publications, software, and patents. This helped seed the GSU CS PhD program and recruit outstanding faculty, with five NSF CAREER awards. As a result, National Research Council ranked our PhD program in the top 40-80 in 2010 a remarkable feat for a 10-year old program. We celebrated our 100th PhD graduated in 2017.

Director, GSU-GEDC Distributed and Mobile Systems (DiMoS) Laboratory **2000 - Contd.**

I have been honored as ACM Distinguished Scientist in 2013 for my research on parallel data structures and applications. Over the last 28+ years, I have researched on the parallel, distributed, and data intensive computing and systems. Overall, my research has resulted in about 150 refereed publications in top outlets - bulk of it jointly with my graduate students - as well as several keynote/invited talks and funded research visits, and over a dozen utility and provisional patents and applications. These have been supported by about $6M in external funds. Recently, I have worked intensely in exploring data intensive computation on Geo Spatial-Temporal datasets over cloud, multicore, and GPU platforms for our NSF project, with Azure cloud access granted by Microsoft. As a result of the impact on the Geographical Information Sciences community, I was invited for a keynote to the combined participants of six collocated IEEE international conferences, CLOUD/ICWS/SCC/BigData/MS/SERVICES 2016.

As P.I. of the Georgia Electronic Design Center (GEDC - formerly Yamacraw) Embedded Software Research Contracts (2000-04), led a GSU team of seven faculty and over dozen and a half Ph.D./M.S. students, with active collaboration of three Georgia Tech faculty and their students. It had resulted in about 6,000 Square Feet of research space in the Technology Square Research Building on Georgia Tech campus with a 800 SF of software/hardware laboratory space (housing Distributed and Mobile Systems Laboratory (DiMoS)), and offices for seven faculty members and their students, and numerous workstations, handheld devices, and other equipments. Five utility patent applications and over two dozen provisional patent filings have resulted, in addition to several publications and work on theses and dissertations.

Average Annual Budget: $200K (2000-04).

Founding Graduate Program Director, Computer Science Dept. GSU] **1998 - 99**

Developed a 72-hour curriculum for the newly-installed Ph.D. program in Computer Science including its examinations, admission requirements, and over 20 new courses at 8000 and 9000 level. Instrumental in leading the department to implement a thesis-only M.S. program in computer science. Revamped the degree and admission requirements for M.S. in computer science. Developed and installed a web site for graduate program in computer science with online request and download facility for application material.

Honorary Adjunct Professor, Univ. of New Brunswick (UNB), Canada **2007 - Contd.**

Collaborating in parallel and distributed computing research, and help supervising graduate student research.

Visiting Professor, University of Hong Kong (HKU) **2012 Summer**

Collaborated on Parallel Computing research and taught a graduate course on dist. computing and middleware.

Visiting Professor, Indian Institute of Technology, Bangalore (IISc). **2008 Winter**

Collaborated in parallel and distributed computing and sensor network research, and to give a research seminar.

Visiting Professor, Oak Ridge National Laboratory (ORNL). **2008 Summer**

Collaborated on macroprogramming and efficiently querying heterogeneous streaming data sources/sensor networks.

Visiting Professor, University of Melbourne, Australia, and NICTA **2006 Summer**

An all-expense paid invited visit to University of Melbourne and to National Information and Communications Technology Australia (NICTA) - Australia's Research Center of Excellence, to collaborate in distributed and grid computing research, and to give research seminars.

Visiting Professor, University of New Brunswick, Faculty of Computer Science, Fredericton **2005 Summer**

Associate Professor, Dept. of Computer Science, Georgia State University. **1998 - 05**

Directed and funded about two dozen students annually on parallel and distributed computing and middleware projects. Instrumental in establishing the Ph.D. program. Established the DiMoS program.

Taught several graduate and undergraduate courses including Parallel and Distributed Computing, Parallel Algorithms, Design and Analysis of Algorithms, Automata and Language Theory, Data Structures (in C++), and Programming.

The most exciting achievement for me personally has been the long sought Ph.D. program. I am involved with the program intensely, interacting with all Ph.D. students, encouraging the promising M.S. and B.S. students to consider carrying out Ph.D. work, preparing and grading qualifier examinations, and, currently, training and partially supporting about a half-a-dozen Ph.D. students. The Yamacraw/GEDC contract activities, for which I was the P.I., has lent the *crucial* support for our new Ph.D. program, attracting and retaining students through its quality research facility, vigorous research activity and a competitive assistantship amount, and has supported several full-time Ph.D. students over the initial four years.

Software Architecture Consultant, Inst. for Customer Relationship Management, Atlanta **2000 - 01**
Led a team of computer science professors to design a smart advisor system based on fuzzy logic for high school students to gain admission into colleges.

Associate Professor, Dept. of Mathematics and Computer Science, GSU **1996 - 98**
Instrumental in developing thesis-only M.S. program.

Assistant Professor, Dept. of Mathematics and Computer Science, GSU **1990 - 96**
Established parallel computing infrastructure and courses.

Graduate Research Assistant, Dept. of Computer Science, UCF, Orlando **1987 - 90**

Teaching Assistant, Dept. of Computer Science, WSU, Pullman **1985 - 86**

Assistant Software Engineer, Hindustan Computers Ltd., New Delhi **1985**

4 Administrative Experience and Major Service Roles

4.1 Professional

Lead Program Director, National Science Foundation (Feb 2015 - June 2019): I led the Office of Advanced Cyberinfrastructure (OAC - formerly ACI) Learning and Workforce Development cross-cutting programs in coalescing its emerging research and education programs such as CAREER, CRII, REU sites, NRT and STEM+C around user-inspired, multidisciplinary research agenda, and helping develop new programs based on multidisciplinary community needs and national priorities such as National Strategic Computing Initiative (NSCI) Presidential Executive Order, July 2015, Brain initiative, and Smart Cities initiative. OAC's research program is in formative stage with recent transition from independent OCI to ACI division to semi-independent OAC office within the CISE directorate. The overall research focus is in use-inspired or applied multi-disciplinary research relevant to Advanced Cyberinfrastructures, including software, data, network, security, education and policies. With renewed focus and dissemination efforts, we have had twice as many proposals for CAREER, CRII and REU site programs in 2016, and thrice as many CAREER proposals in 2017. I formulated a new solicitation - Training-based Workforce Development for Advanced Cyberinfrastructure (CyberTraining). The overarching goal of this new program is to prepare, nurture and grow the national scientific workforce for creating, utilizing, and supporting advanced cyberinfrastructure (CI) that enables cutting-edge science and engineering and contributes to the Nation's overall economic competitiveness and security. Giving a new direction to OAC, In 2017-18, I led the formulation of a new solicitation for the OAC core research to enable advancements in translational research and education activities in all aspects of advanced cyberinfrastructure that lead to deployable, scalable, and sustainable systems capable of transforming science and engineering research. Areas of translational research supported by OAC include systems architecture and middleware for extreme-scale systems, scalable algorithms and applications, and the advanced CI ecosystem.

Elected Chair IEEE Computer Society Technical Committee on Parallel Processing (TCPP) (07-11):
Revitalized this Technical Committee; which is one of its largest one with over 10,000 members, sponsoring about a dozen conferences. Initiated a number of new activities to promote active graduate student participation in TCPP and its dozen-strong sponsored conferences, including its flagship IPDPS conference. These include PhD Forum, students travel award assistance (through NSF and TCPP grants), Outstanding service awards, and a new workshop on reconfigurable computing. 2009 initiatives include Curriculum Standards activities, NSF/TCPP

EduPar workshop series at IPDPS. The sponsored conferences include IPDPS, HiPC, PerComm, DS-RT, ICPADS, etc. Details are at https://tc.computer.org/tcpp/.

The net result has been a revitalized TC, with its second leg (education) firmly established within the community, well recognized and funded by NSF and the stake-holder industry partners. For example, EduPar workshop series focusing on undergraduate education is the first such workshop at the flagship TCPP research conference, IPDPS, now in its seventh edition, and the EduHPC workshop series is the first such workshop at the ACM/IEEE's Supercomputing conference (held four times at SC-2013-16).

PI, NSF-supported IEEE-TCPP Curriculum Initiative on Parallel and Dist. Computing (2010 -): Founded this initiative, mobilized the large Parallel Processing community, organized and coordinated a working group composed of researchers from academia, government, and industry to formulate a core curricular guidelines on parallel and distributed computing (PDC). The goal of this effort is to ensure that all students graduating with a bachelors degree in computer science/computer engineering receive an education that prepares them in the area of parallel and distributed computing, preparation which is increasingly important in the light of emerging technology. About 150 early-adopter institutions worldwide are currently trying out this curriculum. The early adopters have been awarded stipends through five rounds of competitions with support from NSF, Intel, and NVIDIA. A Center for Parallel and Distributed Computing Curriculum Development and Educational Resources (CDER) is being established to carry the work forward; much of the work in the Center is possible due to $2.5M NSF grants. Details are at curriculum site https://tcpp.cs.gsu.edu/curriculum/?q=home.

Our initiative has contributed substantially to the ACM/IEEE CS2013 Computer Science Curriculum Task force efforts in its Parallel and Distributed Computing thrust, with a direct link to our curriculum website for comprehensive coverage of PDC topics from their final document released in Spring 2014.

- Early Adopter Institutions: 150 early adopters (nationally and internationally, 3:2 ratio) are using the curricular guidelines; selected via competitions held Spring-11,12 and Fall-2011-15
- Associated Workshops: Prasad initiated and chaired multiple workshop series (2011-22) focusing on undergraduate education: EduPar at IPDPS, and EduHPC at ACM/IEEE Supercomputing. These were the first regular education-oriented workshops at these venues. Initiated Euro-EduPar at EuroPar-2015, now into its 4th year, and most recently, EduHiPC at HiPC-18 in India.
- Panel/BoF Coordinator: SIGCSE-11,14,18; EduHPC-2013-15, SC-12,11; HiPC-12,10; EduPar-2011-17.
- Related Keynote/Invited Talks: Euro-EduPar-17; NSF CyberBridges-16; NSF CyberBridges-14; South Carolina Regional Cyberinfrastructure Symposium-13; SC-12; CASC-12,-15.

4.2 Departmental

Chair, UTSA Computer Science Department (Aug 2019-July 2022): Since joining UTSA in Fall19, a Hispanic Serving Institution at the undergraduate level which just achieved its R1 status, I have led a graduate student funding taskforce, identifying inhibiting factors such as uneven support for health insurance for PhD students, and rallied all stakeholders on agreeing to set a mission to transform UTSA into a powerhouse Hispanic PhD producing institution. The CS department I led has successfully conducted its Academic Program Review in 2020-21 with stellar external reviewers including Jim Kurose (former NSF CISE Assistant Director, UMass), Eileen Kraemer (Clemson), and Sartaj Sahni (U Florida). Among the areas of excellence, the reviewers commended the departments research enterprise and faculty productivity as a significant strength, citing annual external funding expenditures in 75th percentile per Taulbee Survey ($195K/faculty), an annual PhD production rate almost twice the national median, and 9 home-grown NSF CAREER awardees, the last 2 during my tenure. Toward achieving R1 status, the department was one of the top 5 chosen for external review in Fall'21 to win National Research University Funds toward $6M/yr funding for UTSA in state funds. We have successfully concluded the NRUF review in Fall21, again with national leaders in CS reviewing, and are delighted with an excellent outcome. I effectively steered the CS department through COVID-induced budget and staff reduction, and seamlessly transitioned to online instruction multiple times. Dept. has hired 7 Tenured-track/Tenured faculty, including 3 women and 1 URM, and 18 Teaching faculty, with 5 women and 2 URM. Over last 3 years, our undergraduate enrollment has grown 22%, with one year retention rate rising from 75% for Fall18 batch to 95% for Fall20 batch, four-year graduation rate rising from 21% for Fall15 cohort to 31% for Fall17, and six-year rising from 48% for Fall13 cohort to 51% for Fall15.

Founding Director of Graduate Studies, GSU Computer Science Dept.: Worked hard throughout my tenure at GSU to push research into the agenda of CS program in general and that of parallel/distributed high performance computing research in particular, with a keen eye on obtaining a Ph.D. program in CS. Toward this goal, I

initiated thesis-only M.S. program to demonstrate a solid activity in research involving faculty and students to the college and university, worked toward Ph.D. proposal, prepared and obtained faculty approval on the new Ph.D. degree requirement as department's first Director of Graduate Studies, and procured high performance computing infrastructure.

In 1998, I developed a 72-hour curriculum for the Ph.D. program in computer science including its examinations, admission requirements, and over 20 new courses at 8000 and 9000 level. Also, I revamped the degree and admission requirements for M.S. in computer science and developed and installed a web site for graduate program in computer science with online request and download facility for application material.

As a result, National Research Council ranked our PhD program in the top 40-80 in 2010 – a remarkable feat for a 10-year old program.

College Ad Hoc Committee for Faculty Selection in Newly-Created Dept. of Computer Science (1998). A high-powered committee that defined the criteria for defining memberships to the newly-created department as it split from earlier Dept. of Mathematics and Computer Science, and reviewed faculty credentials to create initial set of faculty members in the CS dept (other members included Associate Dean Boykin and Prof. Nelson, Ex-Chair of Physics and Astronomy).

Ad Hoc Committee for Developing P&T Manual for Computer Science. (1998 - 99): Took lead role in defining the criteria for professional development category, and participated in defining the criteria for instruction and service categories.

Chair, Ad Hoc Committee on Changing Credit Hours (1999 - 00): Proposed, revised, and obtained faculty approval on changing all senior and graduate courses to four hours, and on the new B.S. program based on concentrations, and the new M.S. program. This work resulted while serving on the department and college curriculum committees and has helped reduce course load for students and number of courses taught by faculty as we went through semester conversion.

Director, GSU-GEDC Distributed and Mobile Systems Research (DiMoS) Laboratory (2000 -): As P.I. of the Georgia Electronic Design Center (GEDC - formerly Yamacraw) Embedded Software Research Contracts (2000-04), led a GSU team of seven faculty and over dozen and a half Ph.D./M.S. students, with active collaboration of three Georgia Tech faculty and their students. It had resulted in about 6,000 Square Feet of research space in the Technology Square Research Building on Georgia Tech campus with a 800 SF of software/hardware laboratory space (housing Distributed and Mobile Systems Laboratory (DiMoS)), and offices for seven faculty members and their students, and numerous workstations, handheld devices, and other equipments. Five utility patent applications and over two dozen provisional patent filings have resulted, in addition to several publications and work on theses and dissertations. The average research spending was over $200K/yr with total funding of about $1M.

Direct the Core Facility on High Performance Computing (1996 -): currently consisting of (i) an Origin -2000 with 24-CPU, 4G main memory, and 200GB hard-drive, and (ii) an Infiniband interconnect based 300+-core cluster with up to 64-cores CPU and GPU compute nodes (nVidia 485 and Tesla c2075, K-20s, FPGA, Intel Phi).' Directed the software and hardware upgrades, maintenance, and operations in conjunction with Chair, System Administrator, and the faculty at large from CS, Biology, and Chemistry departments. Activities included acquisition of 8-CPU Silicon graphics 'SGI1' from computing center under my direct initiative in 1996, and its subsequent replacement by a 16-CPU Origin-2000 high performance computer in 1999 and then its extension by another eight CPUs in 2000, representing a total investment of $308K on the part of the college and the university. The linux cluster has been upgraded in 2012 using my NSF funds, and is being upgraded in 2013 through GSU Tech-Fee funds.

Also participated in a successful proposal process to Georgia Research Alliance to procure funding for an 80-CPU Myrinet-based Linux cluster - configured and negotiated with several vendors and obtained bids.

Executive Committee, Dept. of Computer Science (2012 - 15) Faculty raise recommendations and advising Chair.

Chair, Committee for Ph.D. Qualifier Examinations in Algorithms Area (2000 - 11) for setting up syllabus, preparing the qualifier exam, and grading papers in spring and in fall. Also, served on the corresponding Committee for Automata area (2000 - 03).

Chair, Honors and Awards Committee, Dept. of Computer Science (2007 - 14) Instituted new undergraduate and graduate awards.

Chair, Industrial Advisory Committee, Dept. of Computer Science (2012 - 14) Setting this up with an eye toward ABET accreditation.

4.3 College and University Level

Chair, Graduate School subcommittee on Graduate Student Funding Model: To provide guidelines on UTSA funding allocation for graduate programs. Helped institute health insurance for PhD students across UTSA.

School of Data Science Search Committee: Successfully hired Dr. David Mongeau

Member, University Senate - Planning and Development Committee, Georgia State University (2013-15)

Member, University Senate - Commencement Committee, Georgia State University (2013-14)

Member, University Senate - Research Committee, Georgia State University (2013-14)

Member, University Ad-Hoc Committee for Administrator Review Criteria, GSU (2014-15): GSU has a new President and Provost. We are revamping the periodic review documents that Chairs, Deans and Vice Presidents are required to submit, and revisiting the periodicity and other policy aspects of the review process.

Member, Senate P&D Ad-Hoc Sub-Committee for New University Mission Statement (2015): We planned for the merger of Georgia Perimeter College into Georgia State University.

Executive Committee, College of Arts and Science (2014 - 15) Review of College P&T manuals, Institute/Center proposals, budget and advisement to College Dean.

College Bylaws Committee Chair (2004-05; 2008 - 09; 2009-10) Member (2003-05; 2007 - 08; 2010 -): Revamped the bylaws working with the Dean's Office, with focus on college committee structure.

College Graduate Council (2000 - 02) Was elected to the at-large position in 2000, nominated by Chair of Physics and Astronomy, Prof. Nelson. I brought my experiences as the Graduate Director of CS, and have actively participated in all deliberations and contributed to key issues.

Chair Evaluation Committee (2002, 2011): Prof. Fraser, Chair of Computer Science (triennial review); For current chair, Prof. Yi Pan (triennial review); College of Arts & Sciences.

GSU Internal Grants Programs Peer Review Committee (2000 - 01): This was the unique first-time committee organized by VP for Research to review all the proposals submitted through a number of programs that provide financial support for faculty research, scholarships, and artistry.

College Curriculum Committee (1998 - 2000): Evaluated over 100 course proposals in each spring.

5 Professional Service: Awards, Honors and Editorial Activities

5.1 Awards and Honors

1. **NSF Program Director, 2015-19**
2. **IEEE Computer Society Golden Core Member, 2015** For "distinguished core of dedicated volunteers and staff for their leadership and service."
3. **IEEE Computer Society Outstanding Contributions Award, 2014** "For exemplary excellence towards educational efforts in the areas of parallel, distributed and high performance computing."
4. **ACM Distinguished Scientist, 2013:** for research on parallel data structures, algorithms and their applications.
5. **IEEE-CS TCPP Outstanding Service Award, 2012:** Recipient of prestigious award from The IEEE Computer Society Technical Committee on Parallel Processing for "carrier long outstanding contributions to the parallel processing community nationally and internationally - chair of TCPP and numerous contributions to conferences and journals" presented at IPDPS-12 in Shanghai, China.
6. **Jagadish Bose National Science Talent Search Scholarship (JBNSTS)** (1981-1985) during B.Tech. at IIT.

5.2 Keynote/Invited/Plenary Talks and Funded Research Visits

Keynote/Invited/Plenary Talks

1. *Plenary Talk:* What must USA do to Modernize Computing Education? NSF CyberTraining Institute Conceptualization Workshop, Alexandria, VA, Oct 2021.
2. *Invited Talk:* Developing IEEE TCPP Parallel/Distributed Curriculum and NSF CyberTraining Program, Second Workshop on Software Challenges to Exascale Computing, New Delhi, December 13-14, 2018.
3. *UGA Signature Lecture:* Innovations in NSF Office of Advanced Cyberinfrastructure Research Workforce Development and Education Programs, University of Georgia, Athens, Oct, 2018.
4. *Keynote Talk:* Multidisciplinary/Interdisciplinary Research/Education and NSF Office of Advanced Cyberinfrastructure Programs, Scientific Computing Day (SCD), Atlanta, Oct, 2018.
5. *Visionary Track Plenary Invited Talk:* Parallel Processing over Spatial-Temporal Datasets from Geo, Bio,Climate and Social Science Communities: A Research Roadmap, IEEE BigData Congress 2017, Honolulu, June, 2017.
6. *Invited Plenary Talk:* Computer Science undergraduates on Parallel and Distributed Computing (PDC), Third European Workshop on Parallel and Distributed Computing Education for Undergraduate Students (Euro-EDUPAR), Santiago de Compostela, Spain, Aug 2017.
7. *Invited Talk:* Multidisciplinary/Interdisciplinary Research and Education, *UC GIS Summer School*, UIUC, May 2017.
8. *Invited Plenary Talk:* Developing IEEE TCPP Parallel and Distributed Computing Curriculum and NSF Advanced Cyberinfrastructure Learning and Workforce Development Programs, *HPC Day III, University of Massachusetts at Dartmouth*, May 25th, 2017.
9. *Invited Talk:* Multidisciplinary/Interdisciplinary Research and Education *5th Annual MVAPICH User Group (MUG) Meeting*, Ohio State University. Aug 2017.
10. *Keynote Talk:* Parallel Computation over Geo-Spatial Datasets: Parallel Computation on Geo-Spatial Datasets - Data Structures, Algorithms, and Systems, CLOUD/ICWS/SCC/BigData/MS/SERVICES 2016, San Francisco, June, 2016.
11. *Invited Plenary Talk:* Curriculum and Training, NSF Chem and Bio Curriculum Workshop, New Orleans, 2016.
12. *Invited Talk:* 2016 NSF CyberBridges Workshop , Rochester, NY, October 21-22, 2016
13. *Invited Talk:* Innovations in Cyberinfrastructure Learning and Workforce Development, *SOIC Research Horizons,* Indiana University, Sept 2016.
14. *Invited Talk:* Innovations in Cyberinfrastructure Learning and Workforce Development, *4th Annual MVAPICH User Group (MUG) Meeting*, Aug 2016.
15. *Keynote Talk:* Parallel Computation on Geo-Spatial Datasets: Developing Systems, Algorithms, and NSF Advanced Cyberinfrastructure Learning and Workforce Programs, Research Day 2015, Department of Computer Science, University of Georgia, Athens, Nov 13. (Organizer: Thiab Taha)
16. *Invited Talk:* Innovations in Cyberinfrastructure Learning and Workforce Development, *SOIC Research Horizons,* Indiana University, Sept 2016.
17. *Invited Talk:* Parallel Computation on Geo-Spatial Datasets, School of Computing seminar at Clemson University. (Organizer: Eileen Kraemer), April 17, 2015.
18. *Invited Talk:* Innovations in Cyberinfrastructure Learning and Workforce Development, *Coalition for Academic Scientific Computation (CASC)*, Oct 15, 2015. (Organizer: Lisa Arafune)
19. *Keynote Talk:* Education, 2014 NSF CyberBridges Workshop , June 23th, 2014, Washington DC, USA.
20. *Plenary Talk:* What Should every Computer Science Student know about Parallel and Distributed Computing (PDC): TCPP Curriculum Initiative. 2014. *CSinParallel workshop,* Haverford College.
21. *Plenary Talk:* 2014. HPC-Geo: High Performance Computing over Geo-Spatiotemporal data: A summary of results. Position paper. *Procs. The All Hands Meeting of the NSF CyberGIS project*, Redlands, CA, Aug.
22. *Keynote Talk:* GPGPU-accelerated Computations on GeoSpatial Datasets, BigSpatial 2013 - 2nd ACM SIGSPATIAL International Workshop on Analytics for Big Geospatial Data, November 5th, 2013, Orlando, FL, USA.

23. *Invited Talk:* Literacy for All in Parallel and Distributed Computing: Guidelines for an Undergraduate Core Curriculum, SC Regional Cyber-infrastructure Symposium (Feb 11-13, Clemson University. (Organizer: Gill Gemmill)
24. *Invited Talk:* Literacy for All in Parallel and Distributed Computing: Guidelines for an Undergraduate Core Curriculum (SC-12), Salt Lake City, Nov 13. (Organizer: Chtchelkanova, Almadena (NSF))
25. *Plenary Talk:* Cloud Computing for Fundamental Spatial Operations on Polygonal GIS Data. In *Cloud Futures 2012 - Hot Topics in research and education*, Berkeley, California, May 2012.
26. *Invite Talk:* Literacy for All in Parallel and Distributed Computing: Guidelines for an Undergraduate Core Curriculum (CASC-12), Coalition For Academic Scientific Computation, Washington DC, Oct 4, (Organizer: Steven I. Gordon, Ohio Supercomputer Center)
27. *Keynote Talk:* System on Mobile Devices Middleware: Thinking beyond Basic Phones and PDAs, Third International Conference on Information Systems, Technology and Management (ICISTM-09), March 12-13, 2009, IMT - Ghaziabad.
28. *Keynote Talk:* The First International Workshop on Mobile and Ubiquitous Context Aware Systems and Applications (MUBICA 2007), August 6, 2007, Philadelphia, PA, USA, In conjunction with the 4th Annual Int. Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (Mobiquitous 2007).
29. *Invited Talk:* The 9th International Conference on Distributed Computing and Networking (ICDCN 2008), Kolkata, India, January 5-8.
30. *Plenary Talk:* Industry Advisory Board Conference, Georgia Electronic Design Center (GEDC), State of Georgia, Distributed and Mobile Systems research (DiMoS), April 2004. (Organizers: Dr. V. Madisetti, Thrust Leader in Embedded Software, Professor of Electrical Engg., GIT, and J. Laskar, Director, GEDC, Professor of Electrical Engg., GIT)
31. *Plenary Talk:* Industry Advisory Board Conference, Yamacraw, State of Georgia, Oct., 2002. System on Devices (SyD): Method and System for Developing and Deploying Collaborative Applications over heterogeneous Data-Stores, (Organizers: Dr. V. Madisetti, Thrust Leader in Embedded Software, Professor of Electrical Engg., GIT, and H. Lehman, Director, Yamacraw)
32. *Plenary Talk:* Industry Advisory Board Conference, Yamacraw, State of Georgia, April 2002. Networked Portable Platform Technology (NP2), (Organizers: Dr. V. Madisetti, Thrust Leader in Embedded Software, Professor of Electrical Engg., GIT, and H. Lehman, Director, Yamacraw)
33. *Plenary Talk:* Industry Advisory Board Conference, Yamacraw, State of Georgia, Oct., 2001. Embedded Software research, (Organizers: Dr. V. Madisetti, Thrust Leader in Embedded Software, Professor of Electrical Engg., GIT, and H. Lehman, Director, Yamacraw)
34. *Invite Talk:* Distributed Simulation and Real-Time Systems (DSRT-2000), San Francisco, Aug, 2000. Parallel Discrete Event Simulation, (Organizers: Dr. A. Bourkerche, Professor of Computer Science, University of Ottawa)
35. *Invited Tutorial:* IEEE Conference on Distributed Processing & Networking, Kharagpur, India, Dec 5-7. 1997. Introduction to Parallel and Distributed Discrete Event Simulation. (Organizer: Dr. Pathak, Professor of Electrical Engg., Indian Institute of Technology (IIT), Kharagpur)

Funded Research Visits

Oak Ridge National Laboratory (ORNL), Tennessee (June-Aug 2008): A funded summer visit to ORNL to collaborate on macroprogramming and efficiently querying heterogeneous streaming data sources/sensor networks, and to give research seminars.

Indian Institute of Science (IISc), Bangalore (Dec 2007): A funded visit to IISc to collaborate in parallel and distributed computing and sensor network research, and to give a research seminar.

University of Melbourne and NICTA, Australia (June-Aug 2006): An all-expense paid invited visit to University of Melbourne and to National Information and Communications Technology Australia (NICTA) - Australia's Research Center of Excellence, to collaborate in distributed and grid computing research, and to give research seminars.

University of New Brunswick, Canada (July-Aug 2005): A funded visit to University of New Brunswick to collaborate in parallel and distributed computing research, and to give research seminars.

5.3 Conference Panels, Boards, Chairs, and Committees

Panels at Conferences

1. *Moderator:* Common Big Data Challenges in Bio, Geo and Climate Communities, Panelists: V. Kumar, J. Saltz, C. Baru, U. Lynn, D. Reed, P. Beckman, and S. Ganguly, SC-2017, Denver, USA.
2. *Panel Talk:* NSF Office of Advanced Cyberinfrastructure BoF, SC-2017, Denver, USA.
3. *Panel Talk:* NSF Big Data Initiatives, IEEE Services Congress 2017, Honolulu, June, 2017.
4. *Panel Talk:* NSF Advanced Cyberinfrastructure Division BoF, SC-2016, Salt Lake City, USA.
5. *Panel Talk:* What Should every Computer Science Student know about Parallel and Distributed Computing (PDC): TCPP Curriculum Initiative? Panel on "Teaching Parallelism to Undergraduates," *Intel workshop at SC-15*, Nov 15, 2015.
6. *Panel Talk:* Innovations in Cyberinfrastructure Learning and Workforce Development, Panel on "Education Presentations and Panel Discussion," *CyberGIS All-Hands Meeting,* Sept 15, 2015.
7. *Moderator:* Discussion Session - Current Status and Future Directions, *EduPar-14,* Phoenix, AZ, May 19, USA.
8. *Moderator:* BOF session on TCPP Curriculum, *SigCSE-14,* Atlanta, GA, Mar 6, USA.
9. *Moderator:* Panel on Undergraduate Core PDC Curricular Issues Facing Industry and Academia,Panel Members: Joel Adams, Almadena Y. Chtchelkanova, Mark Ebersole, Dennis Gannon, Andrew Lumsdaine, Michael Wolfe, and Michael Wrinn, *EduPDHPC/SC-13,* Denver, Nov 18, USA.
10. *Moderator:* NSF-TCPP Curriculum Initiative on Parallel and Distributed Computing - Core Topics for Undergraduates, Panel Members: Almadena Chtchelkanova, Andrew Lumsdaine, Manish Parashar, Yves Robert, Arny Rosenberg, Alan Sussman, and Michael Wrinn, *SC-12,* Salt Lake City, Nov 13, Utah, USA.
11. *Coordinator:* Literacy for All in Parallel and Distributed Computing: Guidelines for an Undergraduate Core Curriculum, Panel Members: Gagan Agrawal - Ohio State, Srinivas Aluru - Iowa State, David Bader - Georgia Tech, and Saday Sadayappan, Ohio State, BoF Panel held at *HiPC-12*, Pune, India, Dec 20.
12. *Coordinator and Discussant:* NSF/TCPP Curriculum Report and Panel Discussion, Panelists: Parashar, Manish (Rutgers), Prasad, Sushil (Georgia State University), Prasanna, Viktor (University of Southern California), Sussman, Alan (University of Maryland), and Wu, Jie (Temple University), *Edupar-12, IPDPS-12,* Shanghai, China, May 2012.
13. *NSF Workshop Panelist:* Workshop on the Role of the Information Sciences and Engineering in Sustainability (RISES), co-sponsored by *NSF and the Computing Community Consortium (CCC; http:// cra.org/ ccc). Washington, DC, on February 3-4, 2011.*
14. *ITRA Panelist: How to Raise a Generation of Secure Mobile Applications Programmers in Towns and Villages. Strategy Formulation Workshop - Information Technology Research Academy, Funding Program of Govt. of India in Mobile Computing and Networking,* Oct 2011.
15. *Panelist:* Broad-based Efforts to Expand Parallelism Preparedness in the Computing Workforce, BOF Session, *SC-11*, Seattle. (Organizer: Richard Brown)
16. *Panelist and Coordinator:* Special Session on "NSF/IEEE-TCPP Curriculum Initiative on Parallel and Distributed Computing - Core Topics for Undergraduates," Panelists: Sushil K. Prasad, Richard LeBlanc, Andrew Lumsdaine, Arny Rosenberg, Alan Sussman, and Charles Weems, *SIGCSE 2011: The 42nd ACM Technical Symposium on Computer Science Education*, March 9-12, 2011, Dallas, Texas, USA.
17. *Panelist:* Parallelism, the Cloud, and the Tools of the Future for the next generation of practitioners, *SC-11*, Seattle. (Organizer: Richard Brown)
18. *Coordinator:* NSF/TCPP Curriculum Report and Panel Discussion, Panelists: Chtchelkanova, Almadena (NSF), Kant, Krishna (NSF, Intel), Lumsdaine, Andrew (Indiana University), Padua, David (University of Illinois at Urbana-Champaign), Parashar, Manish (Rutgers, NSF), Patt, Yale (UT Austin), Prasanna, Viktor (University of Southern California), Robert, Yves (INRIA, France), Rosenberg, Arnold (Colorado State University), Sussman, Alan (University of Maryland), Weems, Chip (University of Massachusetts), and Wu, Jie (Temple University), *EduPar-11, IPDPS-11,* May, Alaska. Link to video presentation: http: //techtalks.tv/events/53/37/

19. *Coordinator:* NSF/TCPP Panel on Core Curriculum for Undergraduates Student, Faculty & Industry Mixer, Panelists: Chtchelkanova, Almadena (NSF), Parashar, Manish (Rutgers, NSF), Prasad, Sushil (Georgia State), and Prasanna, Viktor (University of Southern California), *The 17th annual IEEE International Conference on High Performance Computing (HiPC 2010)*, Goa, India, Mon, Dec 20, 2010.

Video Interview, Intel Academic Program: As Chair of IEEE TCPP and Coordinator of NSF-supported TCPP Curriculum Initiative, Interviewer: Rowena Turner, Program Director, SIGCSE, Dalilas, March, 2011, video link:

Advisory/Editorial Boards/IEEE Fellow Endorser/External Tenure Reviewer/NSF Panelist

1. *Associate Editor (2019-22):* IEEE Transactions on Parallel and Distributed Systems (TPDS).
2. *Managing Editor (2016-18):* JPDC Special Issue on parallel, distributed, and high performance computing education.
3. *Managing Editor (2013-):* CDER Book Project on Parallel and Distributed Computing Topics for Undergraduate Core Courses. Editors: Anshul Gupta, Arny L. Rosenberg, Alan Sussman, and Charles Weems.
4. *NSF Panel:* CISE/OAC Software Program, Feb 2022.
5. *Section Editor (2014-16):* Shared Memory Parallel Computing, Encyclopedia of GIS. 2nd ed. 2015. Editors: Shashi Shekhar and Hui Xiong, Springer.
6. *NSF Panel:* CISE/BigData Program, Oct 2014.
7. *CS2013 ACM/IEEE Joint Task Force on CS Curriculum External Reviewer:* Oct 2011,
8. *NSF Workshop Panelist:* Workshop on the Role of the Information Sciences and Engineering in Sustainability (RISES), co-sponsored by NSF and the Computing Community Consortium (CCC; http://cra.org/ccc). Washington, DC, on February 3-4, 2011.
9. *Editorial Board Member (2013-):* J. of Computing, Computer Society of India.
10. *Conference Advisory Committee, Technology and Conferences Board, Member:* (T&C Board) (2011-12): IEEE Computer Society - This is a source of advice for conference planners. Produced an updated policy manual.
11. *NSF Panel:* CSR/CNS Program, Dec 2010.
12. *NSF Workshop Invitee/Panelist:* The Open Community Workshop (OCM) for NSF Task Force for Cyberlearning and Workforce Development, Wednesday, September 22, 2010, Arlington, VA.
13. *NSF Panel:* Cyber Physical Systems (CPS) Program, CNS Division, May 2009.
14. *NSF Panel:* CISE Pathways to Revitalized Undergraduate Computing Education (CPATH), June 2009.
15. *IEEE Fellow Endorser:* Wrote letter of endorsement for Dr. David Bader, Professor and Executive Director of High-Performance Computing College of Computing, Georgia Institute of Technology, 2009. He became IEEE Fellow.
16. *Boeing Fellow Endorser:* Wrote letter of reference for Dr. Ramesh, Tirumale, Boeing Corporate Fellow in Advanced Computing & Technologies The Boeing Company. 2009.
17. *External Reference for Developing Scholar Award at Florida State University.* Wrote letter of endorsement for Dr. Ashok Srinivasan, Associate Professor, Florida State. 2009.
18. *Tenure and Promotion External Reviewer.* for Computer Engineering Full Professor position, Nanyang Technological University, Singapore, 2008. Requested by Prof Thambipillai Srikanthan, Chair, School Review Committee for Promotions and Tenure.
19. *Advisory Committee Member:* IEEE Computer Society Technical Committee on Parallel Processing (TCPP) (2007-8).
20. *Tenure and Promotion External Reviewer.* Computer Science Assistant Professor, University of Melbourne, requested by Vice President, Summer 2007.
21. *Tenure External Reviewer.* Computer Science Assistant Professor, Jordan University of Science and Technology, requested by President Wajih Owais, June 2006.
22. *Advisory Comm. Member:* IEEE Conf. on Dist. Comput & Netw, Kharagpur, India, June 2004.
23. *Tenure External Reviewer.* Associate Professor, Department of Electronics and Computer Engineering, Arizona State University East, Mesa, AZ, by Associate Dean Timothy Lindquist, Sept. 2003.

24. *Advisory Board to Yamacraw - Yamacraw Research Center Committee Member: (2003-05)* (now Georgia Electronics Design Center funded by Georgia Research Alliance) to help it define its mission and activities, and obtain funding from Governor, State of Georgia, beyond its initial mandate of five years. 2003.
25. *NSF Panel.* National Science Foundation proposal review panel in Networking Research Program (April, 02).

General/Program/Vice/Workshop Chair and Steering Committee of Conferences

1. *Workshop Chair:* EduPar-22: 12th NSF/TCPP Workshop on Parallel and Distributed Computing Education, In conjunction with *36th IEEE International Parallel & Distributed Processing Symposium*, Lyon, France May 30, 2022. https://tcpp.cs.gsu.edu/curriculum/?q=edupar22
2. *Workshop Chair:* 3rd Workshop on Education for High Performance Computing (EduHiPC), 2021. *IEEE 28th International Conference on High Performance Computing, Data and Analytics Workshop (HiPCW)*, 17th - 18th December, Bangalore, India https://tcpp.cs.gsu.edu/curriculum/?q=eduhipc-21
3. *Workshop Chair:* EduPar-21: 11th NSF/TCPP Workshop on Parallel and Distributed Computing Education, In conjunction with *2021 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*, Portland, OR, USA. https://tcpp.cs.gsu.edu/curriculum/?q=edupar21
4. *Workshop Chair:* IEEE/ACM Ninth Workshop on Education for High Performance Computing (EduHPC), in conjunction with *SC21: The International Conference for High Performance Computing, Networking, Storage and Analysis.* St. Louis, MO, USA. https://tcpp.cs.gsu.edu/curriculum/?q=eduhpc21
5. *General Co-Chair:* 6th IEEE International Congress on Big Data, June 25 - June 30, 2017, Honolulu, Hawaii, USA
6. *Workshop Chair:* 10th NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-20), In conjunction with 33th IEEE International Parallel & Distributed Processing Symposium, New Orleans.
7. *Workshop Chair:* EduHiPC: Workshop on Education for High-Performance Computing, In conjunction with HiPC: 2019, India.
8. *Workshop Chair:* EduHPC-19: Workshop on Education for High-Performance Computing, In conjunction with SC-19, Denver
9. *Vice Program Co-Chair:*, 10th International Conference on Contemporary Computing, India, 2019.
10. *Steering Committee:* Fourth European Workshop on Parallel and Distributed Computing Education for Undergraduate Students (Euro-EDUPAR-18), Turin, Italy, 2018.
11. *Vice Program Co-Chair:*, 10th International Conference on Contemporary Computing, India, 2018.
12. *Workshop Chair:* 9th NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-19), In conjunction with 32th IEEE International Parallel & Distributed Processing Symposium, Brazil.
13. *Workshop Chair:* EduHiPC: Workshop on Education for High-Performance Computing, In conjunction with HiPC: 2018, India.
14. *Workshop Chair:* EduHPC-18: Workshop on Education for High-Performance Computing, In conjunction with SC-18: 2017, Dallas, USA
15. *Workshop Chair:* 8th NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-18), In conjunction with 32th IEEE International Parallel & Distributed Processing Symposium, Vancouver, Canada.
16. *Workshop Chair:* 9th NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-19), In conjunction with 32th IEEE International Parallel & Distributed Processing Symposium, Brazil.
17. *Workshop Chair:* EduHiPC: Workshop on Education for High-Performance Computing, In conjunction with HiPC: 2018, India.
18. *Workshop Chair:* EduHPC-18: Workshop on Education for High-Performance Computing, In conjunction with SC-18: 2017, Dallas, USA.
19. *Vice Program Co-Chair:*, 9th International Conference on Contemporary Computing, India, 2017.

20. *Steering Committee:* Third European Workshop on Parallel and Distributed Computing Education for Undergraduate Students (Euro-EDUPAR), 2017.
21. *Workshop Chair:* EduHPC: Workshop on Education for High-Performance Computing, In conjunction with SC-17: 2017, Colorado, USA
22. *Workshop Chair:* 7th NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-17), In conjunction with 31th IEEE International Parallel & Distributed Processing Symposium, Orlando.
23. *Steering Committee:* Second European Workshop on Parallel and Distributed Computing Education for Undergraduate Students (Euro-EDUPAR), August 22, Grenoble, France, 2016.
24. *Vice Program Chair:*, 8th International Conference on Contemporary Computing, India, 2016.
25. *Workshop Chair:* EduHPC: Workshop on Education for High-Performance Computing, In conjunction with SC-16: 2016, Austin, USA
26. *Workshop Chair:* Sixth NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-16), In conjunction with 30th IEEE International Parallel & Distributed Processing Symposium, Chicago.
27. *Steering Committee:* First European Workshop on Parallel and Distributed Computing Education for Undergraduate Students (Euro-EDUPAR), Vienna, Austria, August 24, 2015.
28. *Workshop Chair:* EduHPC: Workshop on Education for High-Performance Computing, In conjunction with SC-15: Nov 16, 2015, Austin, USA
29. *Workshop Co-Chair:* 1st European Workshop on Parallel and Distributed Computing Education for Undergraduate Students (Euro-EDUPAR), Vienna, Austria, August 24, 2015.
30. *Workshop Chair:* Fifth NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-15), In conjunction with 29th IEEE International Parallel & Distributed Processing Symposium, Hyderabad, India.
31. *Vice Program Chair:*, 7th International Conference on Contemporary Computing, India, 2015.
32. *Workshop Chair:* EduHPC: Workshop on Education for High-Performance Computing, In conjunction with SC-14: Nov 16, 2014, New Orleans, USA
33. *Vice Program Chair:*, 17th IEEE International Conference on Computational Science and Engineering, Chengdu China, Dec. 2014.
34. *Workshop Chair:* Fourth NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-14), In conjunction with 28th IEEE International Parallel & Distributed Processing Symposium, Phoenix.
35. *Vice Program Chair:*, 7th International Conference on Contemporary Computing, India, 2014.
36. *Workshop Chair:* Workshop on Parallel, Distributed, and High-Performance Computing in Undergraduate Curricula (EduPDHPC), In conjunction with SC-13: Nov 18, 2013, Denver, Colorado, USA
37. *Workshop Chair:* Third NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-13), In conjunction with 27th IEEE International Parallel & Distributed Processing Symposium, Boston.
38. *Vice Program Chair:*, 6th International Conference on Contemporary Computing (http://www.jiit.ac.in/jiit/ic3/) India, August 8 - 10, 2013.
39. *Vice Program Chair:*, 15th IEEE International Conference on Computational Science and Engineering, Cyprus, Dec. 2012.
40. *Workshop Chair:* Second NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-12), Monday, May 21, 2012, In conjunction with 26th IEEE International Parallel & Distributed Processing Symposium, Shanghai, China.
41. *Workshop Chair:* First NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-11), Monday, May 16, 2011, In conjunction with 25th IEEE International Parallel & Distributed Processing Symposium, Anchorage (Alaska), USA
42. *Vice Program Co-Chair:* The 9th IEEE International Symposium on Parallel and Distributed Processing with Applications (ISPA 2011), Busan, Korea, 26-28 May 2011.
43. *Chair:* TCPP General membership Meeting at Intl. Parallel and Distributed Processing Symposium (IPDPS 2011), May, Anchorage, Alaska..
44. *Chair:* TCPP Reception and NSF/TCPP Panel on Core Curriculum for Undergraduates, Intl. Conference on High Performance Computing (HiPC 2010), Goa, India.

45. *Program Co-Chair:* Third International Conference on Information Systems, Technology and Management (ICISTM-10), March, 2010, Bangkok.
46. *Chair:* TCPP Reception and General membership Meeting at Intl. Parallel and Distributed Processing Symposium (IPDPS 2010), April, Atlanta.
47. *Vice Program Co-Chair:* Intl. Conference on High Performance Computing (HiPC 2010), Goa, India.
48. *Vice Program Co-Chair:* Fifteenth International Conference on Parallel and Distributed Systems (ICPADS 2009), Mobile and Sensor Computing Track, 9-11 Dec. 2009, Shenzhen, China.
49. *Organizer:* IPDPS 2009 TCPP PhD Forum, 23rd IEEE International Parallel and Distributed Processing Symposium, May 25-29, 2009, Rome, Italy.
50. *Program Co-Chair:* Third International Conference on Information Systems, Technology and Management (ICISTM-09), March 12-13, 2009, IMT - Ghaziabad.
51. *Program Co-Chair:* IEEE International Workshop on Service Oriented Technologies for Biological Databases and Tools (SOBDAT 2007), In conjunction with ICWS/SCC 2007, 13 July 2007, Salt Lake City, Utah.

Additional Editorial Services and Honors (2010 onwards)

1. *Program Committee Member:* 3rd Workshop on Open Science in Big Data, IEEE Bigdata Conference, 2018, Seattle.
2. *Program Committee Member:* International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP-15).
3. *Program Committee Member:* CyberGIS-2014.
4. *Program Committee Member:* International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP-14).
5. *Tutorials Chair:* 7th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2014), London.
6. *Program Committee Member:* Intl. Parallel and Distributed Processing Symposium (IPDPS 2013), Boston.
7. *Program Committee Member:* 9th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2013), Boston.
8. *Program Committee Member:* Third NSF/TCPP Workshop on Parallel and Distributed Computing Education (EduPar-13) Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2013), Boston.
9. *Program Committee Member:* IPDPS PhD Forum 2013, Boston.
10. *Program Committee Member:* ISPA 2013, The 11th IEEE International Symposium on Parallel and Distributed Processing with Applications , Melbourne, Australia, 16-18 July, 2013
11. *Program Committee Member:* 2013 International Conference on Parallel Processing (ICPP-2013) - The 42nd Annual Conference - October 1-4, 2013 Ecole Normale Superieure de Lyon, Lyon, France
12. *Program Committee Member:* IEEE ICWS 2013, 11th International Conference on Web Services, June 27-July 2, 2013, Santa Clara Marriott, CA, USA.
13. *Competition Chair:* NSF/IEEE-TCPP Fall-12 Early Adopter Competition. List of 25 awardees is published here.
14. *Tutorials Chair:* The 12th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2012), Ottawa, Canada, May 13-16.
15. *Workshop and Tutorials Chair:* 5th International Conference on Contemporary Computing, Noida (New Delhi), India, August 6 - 8, 2012.
16. *Program Committee Member:* 2012 International Conference on Parallel Processing (ICPP), Pittsburgh, September 10-13, 2012.
17. *Program Committee Member:* 12th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP-12), 4-7 September 2012, Fukuoka, Japan.

18. *Program Committee Member:* IEEE ICWS 2012, 10th International Conference on Web Services, Honolulu, Hawai.
19. Program Committee Member: Education Program for Educators, Super-computing Conference 2012, Salt Lake City.
20. *Program Committee Member:* 8th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2012), Shanghai, China.
21. *Program Committee Member:* Network and Parallel Computing: 9th IFIP International Conference, NPC 2012, Gwangju, Korea, September 6-8, 2012,
22. *Program Committee Member:* The First International Conference on Space, Time, and CyberGIS (CyberGIS?12): http://www.cigi.illinois.edu/cybergis12/, August 6 - 9, 2012 University of Illinois at Urbana-Champaign, IL, USA.
23. *Program Committee Member:* The 14th IEEE International Conference on High Performance Computing and Communications (HPCC-2012), Liverpool, England, UK,25-27 June 2012.
24. *NSF/INTEL Award Competition Chair:* NSF/IEEE-TCPP Spring-12 Early Adopter Competition. List of 21 awardees is published here.
25. *Proceedings Co-Chair:* Intl. Conference on High Performance Computing (HiPC 2012), Pune, India.
26. *Tutorials Chair:* The 11th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2011), New Port Beach, CA, 23-26 May.
27. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2011), Bangalore, India.
28. *NSF/INTEL Award Competition Chair:* NSF/IEEE-TCPP Spring-11 and Fall-11 Early Adopter Competition. List of 16 and 18 awardees, respectively, is published at: http://www.cs.gsu.edu/~tcpp/curriculum/?q=early-adopter-spring-11.html http://www.cs.gsu.edu/~tcpp/curriculum/?q=early-adopter-fall-11.html
29. *Program Committee Member:* 7th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2011), Anchorage, Alaska.
30. *Program Committee Member:* 13th IEEE International Conference on High Performance Computing and Communications (HPCC 2011), Banff, Alberta September 2-4, 2011.
31. *Program Committee Member:* IEEE ICWS 2011, 10th International Conference on Web Services, shington DC.
32. *Program Committee Member:* The 6th International Conference on Frontier of Computer Science and Technology (FCST-11) Changsha, China, November 16-18, 2011.
33. *Program Committee Member:* 4th International Conference on Contemporary Computing (IC3), JIIT, Noida,August 8-10, 2011
34. *Program Committee Member:* 40th Annual International Conference on Parallel Processing (ICPP-2011), September 2011, Taipei, Taiwan.
35. *Tutorials Chair:* The 10th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid 2010), May 16-19, 2010, Melbourne, Australia.
36. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2010), Goa, India.
37. *Program Committee Member:* 6th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2010), Atlanta.
38. *Program Committee Member:* IPDPS 2010 PhD Forum, 24rd IEEE International Parallel and Distributed Processing Symposium.
39. *Tutorials Co-Chair:* The 10th International Conference on Distributed Computing and Networking, ICDCN 2009, January 3-6, 2009 in Hyderabad, India.
40. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2009), Cochin, India.
41. *Proceedings Co-Chair:* 2nd International Conference on Contemporary computing, Delhi, India, August 17-19, 2009.
42. *Program Committee Member:* 6th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2009), Rome.
43. *Program Committee Member:* IPDPS 2009 TCPP PhD Forum, 23rd IEEE International Parallel and Distributed Processing Symposium,

44. *Program Committee Member:* 8th IEEE International Symposium on Cluster Computing and the Grid, May 19-22, 2008, Ecole Normale Superieure de Lyon, Lyon, France.
45. *Honorary Adjunct Professor (2007-)*, University of New Brunswick, Faculty of Computer Science, Fredericton. Collaborating in parallel and distributed computing research, and help supervising PhD dissertation research.
46. *Program Co-Chair:* The Ist IEEE International Workshop on Service Oriented Technologies for Biological Databases and Tools (SOBDAT 2007), In conjunction with ICWS/SCC 2007, 13 July 2007, Salt Lake City, Utah.
47. *Tutorials Chair:* Intl. Parallel and Distributed Processing Symposium (IPDPS 2008).
48. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2008), Bangalore, India.
49. *Program Committee Member:* Intl. Conf. on Parallel Processing (ICPP 2008), September 8-12, Portland, Oregon, USA.
50. *Program Committee Member:* Seventh IEEE International Symposium on Cluster Computing and the Grid (CCGrid 2008), May 19-22, 2008, Lyon, France.
51. *Program Committee Member:* 5th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2008), Miami.
52. *Program Committee Member:* Intl. Parallel and Distributed Processing Symposium (IPDPS 2007), Long Beach, CA.
53. *Program Committee Member:* 4th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2007), CA.
54. *Program Committee Member:* Intl. Parallel and Distributed Processing Symposium (IPDPS 2007), Long Beach, CA.
55. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2007), Goa, India.
56. *Tutorials Chair:* Intl. Parallel and Distributed Processing Symposium (IPDPS 2007), Long Beach, CA.
57. *Program Committee Member:* Seventh IEEE International Symposium on Cluster Computing and the Grid (CCGrid 2007), Rio de Janeiro - Brasil.
58. *Program Committee Member:* 4th High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2007), CA.
59. *Program Committee Member:* Intl. Conf. on Distributed Computing and Networking, ICDCN 2006, Guwahati, 2006
60. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2006), Bangalore, India.
61. *Program Committee Member:* Intl. Parallel and Distributed Processing Symposium (IPDPS 2006), Greece.
62. *Scientific Committee Member:* 20th International Symposium on High Performance Computing (HPCS 2006), Memorial University of Newfoundland May 14 - 17, Canada
63. *Program Committee Member:* Third High-Performance Grid Computing Workshop at Intl. Parallel and Distributed Processing Symposium (IPDPS 2006), Greece.
64. *Program Committee Member:* Intl. Parallel and Distributed Processing Symposium (IPDPS 2005), Denver, Colorado.
65. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2005), Goa, India.
66. *Program Committee Member:* 5th Intl. Conf. on Algorithms and Arch. for Parallel Processing (ICA3PP 2005), China.
67. *Commemorative Plaque.* Presented by HiPC Steering Committee Chair in recognition of "His Contributions and Leadership at the 11th International Conference on High Performance Computing as Publication Chair." Meeting sponsored by IEEE Computer Society and ACM, Dec. 21, 2004.
68. *Program Committee Member:* Intl. Conference on High Performance Computing (HiPC 2004), Bangalore, India.
69. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2004), Bangalore, India.
70. *Program Committee Member:* Intl. Conference on Computer and Information Technology (CIT 2004), Wuhan, China.

71. *Commemorative Plaque.* Presented by HiPC Steering Committee Chair, IEEE Computer Society and ACM, Dec. 18, 2003.
72. *Proceedings Chair:* Intl. Conference on High Performance Computing (HiPC 2003), Hyderabad, India.
73. *Program Committee Member:* 5th Intl. Conf. on Algorithms and Architectures for Parallel Processing (ICA3PP 2002), China.
74. *Was interviewed* by Mike Dickerson from eHatchery on study on *commercialization of the state university research* and the directions that Yamacraw, a State of Georgia research agency, should take. 2002.
75. *Featured Article in Research Magazine.* Yamacraw's Quarterly magazine "Forward," vol. 4, no. 1, April 2002, published individual and group photos with caption "Professor Sushil Prasad leads Georgia State University's Yamacraw 20-person research team in their efforts to design cell phone systems and e-business infrastructure," and cited two dozens research publications, posters and patent filings.
76. *Publicity Chair:* Workshop on Parallel and Distributed Simulation (PAD' 2001), LA.
77. *Program Committee Member:* Distributed Simulation and Real-Time Systems (DS-RT), 2001, Cincinnati.
78. *Program Committee Member:* International Conf on High Performance Computing (HIPC), 2001, Hydrabad, India.
79. *Program Committee Member:* The Second International Conf on Parallel and Distributed Computing, Applications and Technologies (PDCAT' 2001), Taiwan.
80. *Referee for Proposals U.S. Civilian Research and Development Foundation, Cooperative Grants Program 2001*
81. *Invited luncheon with* **Governor Roy Barnes***,* Yamacraw, GCATT, April 28, 2000.
82. *Guest Editor.* Special Issue on Parallel and Distributed Data Structures for Journal of Parallel and Distributed Computing, Vol 49, No. 1, Feb. 1998 (co-editors: S. Olariu, Old Dominion Univ. and S. K. Das, Univ. of N. Texas).
83. *Program Committee Member:* IEEE Conference on Networking and Distributed Computing, Kharagpur, India, Dec 5-7, 1997.
84. *Program Committee Member:* 5th International Conference on Computing and Information, Sudbury, Ontario, May 1993.

5.4 Colloquium and Contributed Talks

Invited Colloquium Talks (Recent)

1. *University of North Texas,* Parallel Processing over Spatiotemporal Datasets, April 2022.
2. *University of North Carolina at Charlotte,* Toward Excellence in Research, Feb 2022.
3. *Georgetown University,* Research and Education Programs in NSF Office of Advanced Cyberinfrastructure, Sept 2018.
4. *George Mason University,* Research and Education Programs in NSF Office of Advanced Cyberinfrastructure, Sept 2018.
5. *University of Maryland at Baltimore County,* Research and Education Programs in NSF Office of Advanced Cyberinfrastructure, Sept 2018.
6. *Atlanta, Georgia,* Innovations in Cyberinfrastructure Learning and Workforce Development (LWD) at NSF, Nov 2017.
7. *University of Tennessee,* Research and Education Programs in NSF Office of Advanced Cyberinfrastructure, July 2017.
8. *University of Tennessee,* Parallel Processing over Spatial-Temporal Datasets from Geo, Bio, Climate and Social Science Communities - A research roadmap, University of Tennessee, July 2017.
9. *Parallel Processing over Geo-Spatial Datasets* Purdue University, West Lafayette, , Sept 2016.
10. *Oxford University,* Parallel Computation on Geo-Spatial Datasets: Developing Systems, IEEE TCPP Curriculum and NSF Advanced Cyberinfrastructure Learning and Workforce Programs, June 17, 2015. (Organizer: David Wallom)
11. *Indian Institute of Technology,* Parallel Computation on Geo-Spatial Datasets: Developing Systems and Curriculum, Patna, June 2015.

12. *University of Arkansas,* Computations over Geo-Spatial and Temporal Datasets, Feb, 2015.
13. *Michigan Technological University,* Computations over Geo-Spatial and Temporal Datasets, Mar 24, 2014.
14. *University of Central Florida,* Computations over Geo-Spatial and Temporal Datasets, Nov 6, 2013.
15. *Florida International University,* Massively Parallel Discrete Event System and Geographic Information System on GPUs, April, 2013.
16. *Indian Institute of Technology, Kharagpur,* How to Unleash Massive Parallelism of your Laptop? - A Massively Parallel Priority Queue Data Structure on GPUs, Dec 17, 2012. India.
17. *Indian Institute of Technology, Patna,* How to Unleash Massive Parallelism of your Laptop? - A Massively Parallel Priority Queue Data Structure on GPUs, Dec 14, 2012. India.
18. *Indian Institute of Technology, Patna,* NSF-supported TCPP Curriculum Initiative on Core Curriculum for Undergraduates, Oct 12, 2011. India.
19. *ORNL, Data Systems Division* Summer 2008. Fully Funded. (Host: Dr. Mallikarjun Shakar)
20. *Delhi College of Engineering* Dec 2008. (Host: Dr. Ravindra Sinha and Prof. P.B. Sharma)
21. *Persistent Systems, Pune, India* Dec 2008. (Host: Dr. Anand Deshpande)
22. *Tata Research, Development, and Design Center, Pune, India* Dec 2008. (Host: Dr. Harrick Vin)
23. *Indian Institute of Science (IISc), Supercomputing Education and Research Center, Bangalore* Dec. 2007. Fully Funded. (Host: Prof. Govindrajan)
24. *Indian Institute of Technology (IIT), Kharagpur, Computer Science and Engineering Department, Kharagpur* Dec. 2007. Funded. (Hosts: Prof. Indranil Dasgupta and Dean Partha P. Chakarabarty)
25. *Rochester Institute of Technology, New York* Feb. 2007. Fully Funded. (Host: Prof. Jorge Hererra)
26. *National Research Council, Fredericton, Canada* Oct. 2006. Fully Funded. (Host: Dr. Harold Boley)
27. *Oak Ridge National Laboratory,* Sept. 2006. (Host: Dr. James Nutaro)
28. *University of Melbourne and NICTA, Melbourne, Australia,* July 2006. (Host: Prof. Rajkumar Buyya)
29. *College of Computing, Georgia Tech,* Fall 2005. (Host: Prof. Shamkant Navathe - class presentation to seniors and graduate students)
30. *Kanwal Rekhi School of Information Technology, Indian Institute of Technology, Bombay,* Dec 2004. (Host: Prof. Krithi Ramamritham, Chair)
31. *Tata Institute of Fundamental Research, School of Technology and Computer Science, Bombay,* Dec 2004. (Host: R.K. Shyamasundar, Dean, TCSF)
32. *Indian Institute of Technology, Madras,* Computer Science and Engineering Department, Dec 2004. (Host: Prof Timothy A. Gonsalves and Prof Hema A Murthy)
33. *Intel Research Laboratory, Bangalore,* Dec 2004. (Host: Rajeev D. Muralidhar)
34. *IBM India Research Lab, New Delhi,* (Host: Dr. Ponani Gopalakrishnan, Head, and Dr. Neeran Karnik)

Contributed Conference Presentations (Recent)

1. Parallel Processing over Spatial-Temporal Datasets from Geo,Bio, Climate and Social Science Communities: A Research Roadmap, *Visionary Track Invited Talk*, IEEE BigData Congress 2017, Honolulu, June, 2017.
2. GPGPU-based Parallel R-tree Construction and Querying, *ASHES workshop - IEEE International Parallel & Distributed Processing Symposium Workshops (IPDPS-15),* May 25, 2015, Hyderabad, India.
3. Design and Implementation of a Parallel Priority Queue on Many-core Architectures.Intl High Performance Computing (HiPC), IEEE, Pune, Dec 2012.
4. Taming the Exponential State Space of the Maximum Lifetime Sensor Cover problem. *Procs. 16th International Conference on High Performance Computing*, Cochin, India, Dec. 2009.
5. P2P Document Tree Management in a Real-Time Collaborative Editing System, *IEE Intl High Performance Computing (HiPC),* IEEE, Goa, Dec. 2007.
6. Distributed Algorithms for Lifetime of Wireless Sensor Networks based on Dependency Structure among Cover Sets, *IEEE Intl High Performance Computing (HiPC),* Goa. Dec 2007.

7. Development of NeuronBank: A Federation of Customizable Knowledge Bases of Neural Circuitry. *The Ist IEEE International Workshop on Service Oriented Technologies for Biological Databases and Tools (SOBDAT 2007)* - Intl. Conf. on Web Services (ICWS/SCC 07), July 13, 2007, Salt Lake City, Utah.
8. iC2mpi: A Platform for Parallel Execution of Graph-Structured Iterative Computations, *The 8th IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing (PDSEC-07)) - IEEE International Parallel & Distributed Processing Symposium Workshops (IPDPS-07),* March, 2007, Long Beach.
9. Improving Secure Communication Policy Agreements by Building Coalitions, *The 3rd International Workshop on Security in Systems and Networks (SSN2007) - IEEE International Parallel & Distributed Processing Symposium Workshops (IPDPS-07),* March, 2007, Long Beach.
10. Fundamental capabilities of Web Coordination Bonds: Modeling Petri Nets and Expressing Workflow and Communication Patterns over Web Services, *Hawaii Intl. Conf. in Syst. Sc. (HICSS-38)*, Jan, 2005, Big Island, Hawaii.
11. System on Mobile Devices (SyD): A Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and Data Stores, *ACM/IFIP/USENIX 5th International Middleware Conference (MW-04),* Toronto, Canada, Oct., 2004.
12. Web Coordination Bonds: A Simple Enhancement to Web Services Infrastructure for Effective Collaboration, *Hawaii Intl. Conf. in Syst. Sc. (HICSS-37),* Jan. 5-8, 2004, Big Island, Hawaii.
13. A Web-based Game-Oriented College Selection System Employing Fuzzy Rule Trees, *Hawaii Intl. Conf. in Syst. Sc. (HICSS-37),* IEEE Computer Society Press, University of Hawaii, Jan. 5-8, 2004, Big Island, Hawaii.
14. Syncsim: A Synchronous Simple Optimistic Simulation Technique based on a Global Parallel Heap Event Queue, *Proceedings of the 2003 Winter Simulation Conference*, IEEE/ACM, Dec 5-8, 2003, New Orleans.
15. System on Mobile Devices (SyD): Kernel Design and Implementation, *MobiSys '03: First International Conference on Mobile Systems, Applications, and Services*, Poster and Demo Presentation, May 5-8, 2003, San Francisco.
16. Implementation of a Calendar Application Based on SyD Coordination Links, Proceedings of *The Third International Workshop on Internet Computing and E-Commerce in conjunction with the 17th Annual International Parallel & Distributed Processing Symposium (IPDPS 2003)*, IEEE, 22-26 April, Nice, France.
17. *P. Chelli* and S. K. Prasad. 2001. A Fault-Tolerant Web-Based Medical Information System on Commodity PC Platform. *Procs. 39th Annual ACM Southeast Conf.*, Athens, March, pp 221-228.
18. S. K. Prasad and *Nikhil Junankar*. 2000. Parallelizing a Sequential Logic Simulator using an Optimistic Framework based on a Global Parallel Heap Event Queue: An Experience and Performance Report. *Procs. 14th Workshop on Parallel and Distributed Simulation*, IEEE/ACM, May, Bologna, Italy.
19. *Robert S. Pfeiffer* and S. K. Prasad. 2000. Implementation of Protocols based on Parallel Calendar Queues for Parallelization of Existing Discrete Event Simulators. *Procs. International Conference on Modeling and Simulation*. Pittsburgh.

6 Research Grants and Contracts

Awarded about **$5M as lead PI** and **$10M** overall in external funds.

6.1 External Grants and Contracts - Active

NSF (PI) Collaborative Research:CyberTraining:Implementation:Medium: Broadening Adoption of Parallel and Distributed Computing in Undergraduate Computer Science and Engineering Curricula, 2020-23, **$701,772**

NSF (PI) Collaborative Research: CyberTraining: Conceptualization: Planning a Sustainable Ecosystem for Incorporating Parallel and Distributed Computing into Undergraduate Curriculum, 2019-21, **$423,984**

NSF (co-PI) CCRI: Planning: ScooterLab: Development of a Programmable and Participatory e-Scooter Testbed to Enable CISE-focused Micro-mobility Research, 2020-21, **$100,000**

DoD (co-PI) CCRI: A Flexible Testbed for Cyber Deception, Cyber Hardening, and Disinformation Research, 2021-22, **$472,921**

6.2 External Grants and Contracts - Completed

RESEARCH:

NSF (PI) Program Director, Learning and Workforce Development, Office of Advanced Cyberinfrastructure, 2015-19, **$580,000**

NSF - CNS (PI) CRI: Parallel and Distributed Computing Curriculum Development and Educational Resources, 2012-19, **$1.5M.**

- GSU's funding is $1.2M toward a Center for Research on Parallel and Distributed Computing Education (CDER). Co-PIs are Arnold Rosenberg - Northeastern, Alan Sussman - Maryland, Charles Weems - UMass and Anshul Gupta (IBM Research). This project is also supported by CISE, OCI, and EHR/DUE.

NSF - IIS (PI), Toward Parallel and Distributed Computing into Core Curriculum of CS/CE Undergraduates, 2011-15, **$99,910**

NSF (PI), CiC: GIS Vector Data Overlay Processing on Azure Platform, 2010-13, **$199,993**.

NSF - CNS (PI), Exploratory Frameworks for Distributed Algorithms for Optimization Problems on Networks of Heterogeneous Sensors, 2009-11, **$112,162**.

NIH (Co-P.I. with P. Katz, R. Sunderraman and Y. Zhu), "NeuronBank: Knowledge-base of Identified Neurons and Synaptic Connections," 2006-08, **$200,000**.

IBM (co-PI with M. Swaminathan, Georgia Tech) "16-Processor Linux Cluster for Mixed Circuit Simulation."

Georgia Research Alliance - Yamacraw (PI), 'System on Devices: A Middleware for Collaborative Applications on handheld devices," 2000-04, **$969,780**.

NIH (Lead Investigator with R. Harrison and others), "Georgia State University Biomedical Computing Center (Planning Grant)," 2003-06, **$1,090,000**

NSF (Consultant with V. Olshevsky), "Fast and Accurate Algorithms for Structured Matrix Computations," 2001, **$140,947**.

Internet2 Network Research Workshop Planning Committee (Co-PI with Y. Zhang), "Intelligent Internet2 Agents for Distributed Data Mining," 2000, Travel Funds.

NSF (Investigator with Ed Dubinsky and others), "IPCURT Project," 1998-99. **$100,000**.

Georgia Research Alliance (Co-PI with Kay Beck, Gary Moss, others) "Cineon Project: Establishment of a Digital Imaging Laboratory." 1996-97. **$1,500,000**.

Georgia Research Alliance (Co-PI with Akyldiz, I.), "Multimedia Applications and Internetworking in ATM Networks." 1995-96. **$187,769**.

Georgia Research Alliance (Co-PI with Fraser, M. D. and R. M. Fujimoto), "A Resource-Sharing Communications Subsystem for SCSI LANs." 1995-96. **$214,000**.

Texas Advanced Technology Program Grant (Consultant with Sajal K. Das), "Parallel Discrete Event Simulation: Theory and Implementations." 1993-95, **$120,000**.

IEEE TCPP CURRICULUM INITIATIVE:

Intel (PI), NSF/TCPP Curriculum Initiative on Parallel and Distributed Computing - Early Adoption, 2011-19, **$170,000**.

NSF - CNS (PI), Early Adopters of Curriculum Initiative in Parallel and Distributed Computing at EduPar-12, 2012-13, **$49,977**.

NSF - CNS (PI), A Curriculum Initiative on Parallel and Distributed Computing - Workshop on Parallel and Distributed Computing Education (EduPar-11) and Early Adopter Program, 2011-12, **$49,998**.

IBM (PI), Support for Keynote at Workshop on Parallel and Distributed Computing Education (EduPar-11), 2011-12, **$2,000**.

NVIDIA (PI), GPU Cards Donations for Early Adopters of NSF/TCPP Curriculum Initiative on Parallel and Distributed Computing, 2011-12, 110 480-GTX and 60 Tesla Cards - valued at **$400,000** *In kind* support.

Intel (PI), Curriculum Workshop and Early Adoption: NSF/TCPP Curriculum Initiative on Parallel and Distributed Computing, 2010-11, **$19,500**.

NSF - CNS (PI), A Curriculum Initiative on Parallel and Distributed Computing - Toward Core Topics for Undergraduates, 2010-11, **$60,000**.

NSF - CNS (PI), A Planning Workshop on Curriculum Standards for Parallel and Distributed Computing, 2009-10, **$49,992**.

STUDENT TRAVEL GRANTS for TCPP:

NSF - CCF (PI), NSF/TCPP Student Travel Awards for IPDPS-2011-12, **$20,000**.

NSF - CCF (PI), TCPP Student Travel Awards, 2010-11, **$49,913**.

NSF - CCF (PI), TCPP PhD Forum and IPDPS-09 Student Travel Awards, 2009-10, **$30,800**.

NSF - CCF (PI), Student Travel Support for TCPP PhD Forum and IPDPS-08, 2008-09, **$10,000**.

6.3 Internal Grants

- *Technology Fee Grant, GSU.* (PI), Cheetah Linux Cluster upgrade, 2014-15, **$90,000**.
- *Brains and Behavior Program, GSU.* (co-PI with Chun Jiang and Markus Germann), Structure-functional Relationship of Macromolecules such as K+ Channels: *De Novo* Modeling and Experimentation. Jan 2007 – Dec 2007, **$29,973**.
- *Research team Grant, GSU.* (co-PI with Chun Jiang and Markus Germann), Structure-functional Relationship of Macromolecules such as K+ Channels: High-level Modeling and Effective Simulation. July 2006 – June 2007, **$10,000**.
- *Brains and Behavior Program*(co-PI with S. Pallas and A. Shilnikov), "Modeling circuits for stimulus velocity tuning in the superior colliculus," **$26K**.
- *Brains and Behavior Program* (co-PI with P. Katz, R. Sunderraman and Y. Zhu), "NeuronBank: Knowledgebase of Identified Neurons and Synaptic Connections," **$25K**.

- *Research team Grant, GSU.* (PI), Smart Web Browsing and Searching on PDAs and Cell Phones. July 2001 – June 2002, **$14,900**.
- *State University System and GSU: Y2K Funds.* (*PI*), "Acquisition of 16-Processor Origin-2000 Silicon Graphics High-Performance Multiprocessor."1999 (Replaced 8-CPU Power Series Multiprocessor). **$158,000** (with $150,000 research discount from Silicon Graphics).

  – Added another 8 CPUs, 3 GB additional main memory and 180GB hard-drive for $150,000 in FY 2000 with $39,000 research discount from Silicon Graphics.
- *Instructional Improvement Grant, GSU.* (*PI:*) "A New Course on Parallel Algorithms." July 1998 – June 1999. **$2,000**.
- *Research Initiation Grant, GSU.* (*PI:*) "Automatic Parallelization of Existing Discrete Event Simulators." July 1997 – June 98. **$5,000**.
- *Research team Grant, GSU.*, co-P.I. with Raj Sunderraman. Parallel and Distributed Algorithms for Deductive Databases. July 1997 – June 1998, **$12,000**.
- *Quality Improvement Funds, GSU.*, (P.I.) "High Performance ATM Testbed." Jan. 1997 – June 1997, **$8,000**.
- Y2K allocation (P.I.), "Acquisition of Silicon Graphics Multiprocessor for Dept. of Mathematics and Computer Science." 1996 (Replaced by a 16-CPU Origin-2000, $158,000, 1999.)
- *GSU Chancellor's Initiative Fund*, (co-P.I. with Owen, S.), "Research into the Design, Development, and Network Delivery of Hypermedia Systems. " July 96 – June 1997, **$21,000**.
- *Research Initiation Grant, GSU.* (*PI:*)"High Performance VLSI Logic Simulators." July 1995 – June 96. **$5,000**.
- *GSU Chancellor's Initiative Fund* (co-PI with Owen, S.), "Research into the Design, Development, and Network Delivery of Hypermedia Systems. " July 95 – June 1996, **$21,400**.
- GSU, (co-PI with Edwards, D. H., W. C. Bechtel, C. D. Derby, M. D. Fraser, R. A. Gagliano, V. Rehder, and W. W. Walthall), "Proposal for a Center for Neural Communication and Computation." 1995.
- *Instructional Improvement Grant, GSU.* (*PI:*), "Parallel Computation in Computer Science Curriculum." July 1994 – June 1995. **$2,000**.
- *Research Initiation Grant, GSU.* (*PI:*) "Parallel Discrete Event Simulation of Bounded Degree Networks." July 1993 – June 94. **$4,800**.
- *Research Enhancement Program, GSU* (*PI:*) "Implementation of Parallel Priority Queues on Shared-Memory Computers." July 1992 - June 1993, **$5,000**.

7 Publications

(Students Co-Authors *Italicized,* 150+ publications)

Google Scholar citation indices:

Citations: (2000+)

h-index: (25)

i10-index: (57)

DBLP link

7.1 Parallel Computation and Systems over Spatial-Temporal Datasets

1. *D Yan, MMR Chowdhury, G Guo, J Kahlil, Z Jiang, S Prasad. 2022. Distributed Task-Based Training of Tree Models. IEEE 38th International Conference on Data Engineering (ICDE), 2237-2249.*
2. *Arpan Sainju, Danial Aghajarian, Zhe Jiang , S. K. Prasad. 2020. Parallel Grid-based Colocation Mining Algorithms on GPUs for Big Spatial Event Data. IEEE Transactions on Big Data, 6(1): 107-118*
3. *D. Agarwal, S. Puri, S. K. Prasad: Crayons: Empowering CyberGIS by employing cloud infrastructure. 2019. CyberGIS for Geospatial Discovery and Innovation, 115-141*
4. *Arpan Sainju, Danial Aghajarian, Zhe Jiang , S. K. Prasad. 2020. Parallel Grid-based Colocation Mining Algorithms on GPUs for Big Spatial Event Data. IEEE Transactions on Big Data, 6(1): 107-118*
5. *D. Agarwal, S. Puri, S. K. Prasad: Crayons: Empowering CyberGIS by employing cloud infrastructure. 2019. CyberGIS for Geospatial Discovery and Innovation, 115-141*
6. *S. Puri, A. Pandey, and S. K. Prasad. 2018. MPI-Vector-IO: Parallel I/O and Partitioning for Geospatial Vector Data. Intl. Conf. on Parallel Processing (ICPP), July 2018.*
7. *Dinesh Agarwal, Satish Puri, Xi He and Sushil K Prasad. 2019. Crayons: Empowering CyberGIS by Employing Cloud Infrastructure. In CyberGIS for Geospatial Discovery and Innovation, pp. 115-141. Editors: Shaowen Wang and Michael F. Goodchild, Springer.*
8. *S. K. Prasad, D. Aghajarian, M. McDermott, D. Shah, M. Mokbel, S. Puri, S. J. Rey, S. Shekhar, Y. Xe, R. R. Vatsavai, F. Wang, Y. Liang, H. Vo and S. Wang: Parallel Processing over Spatial-Temporal Datasets from Geo, Bio, Climate and Social Science Communities: A Research Roadmap. 2017.* ***Visionary Track Invited paper****, In Proceedings of IEEE BigData Congress. June 25 - June 30, Honolulu, Hawaii, USA, 232-250.*
9. *Satish Puri, Dinesh Agarwal, Sushil K. Prasad. 2017. Polygonal Overlay Computation on Cloud, Hadoop, and MPI. Encyclopedia of GIS 2017: 1598-1606*
10. *Danial Aghajarian and S. K. Prasad. 2017. A Spatial Join Algorithm Based on a Non-uniform Grid Technique over GPGPU, Poster ACM SIGSPATIAL 2017. 56:1-56:4.*
11. *Danial Aghajarian, Satish Puri, and S. K. Prasad. 2016. GCMF: An Efficient End-to-End Spatial Join System over Large Polygonal Datasets on GPGPU Platform, Procs. ACM SIGSPATIAL 2016, 18:1-18:10.*
12. *Michael McDermott, Sushil K. Prasad, Shashi Shekhar and Xun Zhou. 2015. GPGPU and Hadoop Accelerated Interest Interval Discovery Computations. Procs. 1st international workshop on spatiotemporal computing (IWSC'2015), July 13-15th, Fairfax, VA.*
13. *Satish Puri and Sushil K. Prasad. 2015. A Parallel Algorithm for Clipping Polygons with improved bounds and A Distributed Overlay Processing System using MPI. 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid-15), 576-585.*
14. *Prasad, Sushil K, Shekhar, Shashi, Zhou, Xun, McDermott, Michael, Puri, Satish, Shah, Dhara, and Aghajarian, Danial. 2014. A Vision For GPU-accelerated Parallel Computation on Geo-Spatial Datasets, Invited article for Sigspatial Newsletter Special issue on Big Spatial Data.*

15. *Satish Puri, and Sushil K. Prasad. 2014. Output-Sensitive Parallel Algorithm for Polygon Clipping. In The 43rd International Conference on Parallel Processing (ICPP-2014), Minneapolis, Sept.*

16. *Dinesh Agarwal, Sara Karamati, Satish Puri, and Sushil K. Prasad. 2014. Towards an MPI-like framework for the Azure cloud platform. In CCGrid, the 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, Chicago, May.*

17. *Sushil K. Prasad, Shashi Shekhar, Satish Puri, Michael McDermott, Dinesh Agarwal, Sara Karamati, Xun Zhou, Michael Evans. 2014. HPC-Geo: High Performance Computing over Geo-Spatiotemporal data: A summary of results. Position paper. Procs. The All Hands Meeting of the NSF CyberGIS project, Redlands, CA, Aug.*

18. *S. K. Prasad, X. He, Satish Puri, and D. Agarwal. 2013 GPU-based Parallel R-tree Construction and Querying and Its Application to GIS Polygon Overlay Processing, Provisional Patent filed, Dec 27.*

19. *Sushil K. Prasad, Shashi Shekhar, Michael McDermott, Xun Zhou, Michael Evans, Satish Puri. 2013. GPGPU-accelerated Interesting Interval Discovery and other Computations on GeoSpatial Datasets: A Summary of Results. In Procs. ACM SigSpatial workshops (BigSpatial-13), Orlando, Nov. (Invited Paper)*

20. *Sushil K. Prasad, Shashi Shekhar, Xi He, Satish Puri, Michael McDermott, Xun Zhou, Michael Evans. 2013. GPGPU-based Data Structures and Algorithms for Geospatial Computation: A Summary of Results and Future Roadmap. Position paper. Procs. The All Hands Meeting of the NSF CyberGIS project, Seattle, Sept.*

21. *Satish Puri, Dinesh Agarwal, Xi He, and Sushil K. Prasad. 2013. MapReduce algorithms for GIS Polygonal Overlay Processing. In IEEE International Parallel and Distributed Processing Symposium workshops (IPDPS/HPGC), Boston, May.*

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7.6 Distributed Algorithms over Sensor Networks

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10. Sushil K. Prasad and *Akshaye Dhawan.* 2007. Distributed Algorithms for Lifetime of Wireless Sensor Networks based on Dependency Structure among Cover Sets, In Procs. Intl High Performance Computing (HiPC), IEEE, Goa, Springer, *Lecture Notes in Computer Science, vol 4873,* pp. 381-392.

11. *Malladi, S.,* S. K. Prasad, and S. Navathe. 2007. Improving Secure Communication Policy Agreements by Building Coalitions, In *Proc. The 3rd International Workshop on Security in Systems and Networks (SSN2007) - IEEE International Parallel & Distributed Processing Symposium Workshops (IPDPS-07),* March, Long Beach.

12. *A. Dhawan, C. T. Vu,* A. Zelikovsky, Y. Li, and S. K. Prasad. 2006. C On Maximizing the Lifetime of Adjustable Range Wireless Sensor Networks, *Procs. ACIS International Workshop on Self-Assembling Wireless Networks (SAWN)*, Las Vegas, June. (Google Scholar Citations: 75)

13. E. Althaus, G. Calinescu, I.I. Mandoi, S. K. Prasad, N. Tchervenski, and A. Zelikovsky. 2005. Power Efficient Range Assignment for Symmetric Connectivity in Static Ad Hoc Wireless Networks, Accepted for *Wireless Networks: The Journal of Mobile Communication, Computation and Information (WINET)*, Kluwer Publication.

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8 Patents and Patent Applications

(5 utility and 17 provisional patent applications)

1. Sushil K Prasad, XI He, Dinesh Agarwal., 2018. *Parallel Priority Queue Utilizing Parallel Heap on Many-Core Processors for Accelerating Priority-Queue-based Applications*, *US Patent Granted #20150309846.*

2. Sushil K Prasad, S Karamati, and D Agarwal. 2017. High-performance computing framework for cloud computing environments. *US Patent Application 15/312,211.*

3. S. K. Prasad, D. Agarwal, and Sara Karamati, 2014 *A framework to port/translate MPI code on Azure cloud platform*, Provisional Patent filed, May.

4. S. K. Prasad, *X. He* and *D. Agarwal.* 2013. *Parallel Priority Queue on Multi-core Processors. Provisional Patent filed Dec 20, 2012, Utility patent filed* - (GSU 2013-07; TH 220702-8210); Serial No.; 61/740,343; Filed: Nov.

5. S. K. Prasad, *X. He, Satish Puri*, and *D. Agarwal.* 2013 Construction and querying of Parallel R-Tree Data Structures on Manycores. *Provisional patent filed* - (GSU 2013-07; Attorney Docket: 220702-8250).

6. S. K. Prasad, V. Madisetti, et al., 2002, *Multiple Mobile Data-Stores Enabled with Coordination-Link Primitives and a Calendar Application, Application for US Utility Patent*, Attorney Docket Number 06078.0004U2, April.

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8. V. Madisetti, S. K. Prasad, et al., 2002, *"An Enabling Technology for Programming Applications on Multiple Mobile Data-Stores," Application for US Utility Patent*, Attorney Docket Number 06078.0007U2, April.

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14. W. Zhong, B. Gamulkiewicz, H. Wang, W. Chen, J. Gong, S. K. Prasad, A. Bourgeois, and E. Dogdu. 2002. *SyD Directory Server Module,* Provisional Patent filed, Oct.

15. S. Dessety, S. K. Prasad, et al., 2002. *Distributed SyD Collaboration Link Module,* Provisional Patent filed, Oct.

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17. P. Bhatia, J. He, R. Sunderraman, and S. K. Prasad. 2002. *XML-based Inter-device Communication in SyD,* Provisional Patent filed, Oct.

18. S. K. Prasad, V. Madisetti (GIT), et al. 2002. *How to Rapidly Develop a SyD Application?* Provisional Patent filed, Oct.

19. S. K. Prasad, Y. Zhang, R. Sunderraman, Y. Pan, and Y. Tang. 2002. *Personalized Dynamic Navigation Trails,* Provisional Patent filed, April.

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22. S. K. Prasad, Pan, Y., Sunderraman, R. and Zhang. Y.-Q. 2001. *Smart Web Browsing and Searching on PDAs and Cell Phones.* Provisional Patent filed April.

9 Teaching Experience and Student Mentoring

Graduate and undergraduate courses: including Parallel and Distributed Computing, Parallel Algorithms, Distributed Systems and Web Service Architectures, Design and Analysis of Algorithms, Automata and Language Theory, Data Structures (in C++), and Programming Languages Pascal and ADA, Introduction to Computer Science. Developed and updated several courses and offered independent studies.

Directed graduate students: in parallel and distributed computing, Cloud Computing, GPGPU and Multicore Computing, middleware and mobile computing, collaborative computing, distributed security, and sensor networks projects, theses and dissertations in parallel and distributed computing area on state-of-the-art Silicon Graphics 200-core Infiniband GPGPU cluster, Microsoft Azure Cloud, NVIDIA GPUS 280 GTX and Tesla, Intel and AMD Multicores, 24-CPU Origin-2000 high-performance CC-NUMA computer as well as on NCUBE-II, BBN Butterfly, Maspar's MP-1, SGI Power Challenge and a network of UNIX Workstations running PVM/MPI (C/C++/Java). Resulted in several joint research publications with students.

Ph.D. Program Development: The most exciting achievement for me personally has been the long sought and now wel-developed Ph.D. program. I am involved with the program intensely, interacting with all Ph.D. students, encouraging the promising M.S. and B.S. students to consider carrying out Ph.D. work, preparing and grading qualifier examinations, and, currently, training and partially supporting about a half-dozen Ph.D. students. During 2000-04, the Yamacraw/GEDC contract activity lent a crucial support for our new Ph.D. program, attracting and retaining students through its quality research facility, vigorous research activity and a competitive assistantship amount, and supported several full-time Ph.D. students. Subsequent funding for PhD. MS, and Undergraduate research, including US minority and international undergraduate summer interns have been from NSF and NIH grants and , B&B and MBD fellowships.

Post-doc Mentoring, Ph.D. Dissertations and M.S. Theses Supervision:

Post-doctoral Mentoring: Dr. Satish Puri, Parallel processing research and education, Aug 2015 - July 2016. Now Tenure Track Assistant Professor, Marquette University.

Dissertation Research
(12 advised/co-advised/current; 4 external committee member; 1 committee member; 3 advisee supported on NSF funds, 1 part-time)

Danial Aghajarian, A Heterogeneous High Performance Computing Platform For Ill-structured Spatial Join Processing. Defended, Summer 2018. Committee: Sushil K. Prasad (Advisor), Dr. Sham Navathe (external co-advisor, Georgia Tech), Dr. Rajshekhar Sunderraman, and Dr. Rafal Angryk.
Google Cloud Research labs, California.

Satish Puri, GIS and Parallel Polygonal Overlay Algorithms, Defended, Spring 15. Committee: Sushil K. Prasad (Advisor), Dr. Sham Navathe (external co-advisor, Georgia Tech), Dr. Rajshekhar Sunderraman, and Dr. Rafal Angryk.
Now Tenure Track Assistant Professor, Marquette University.
NSF CAREER Awardee.

Rasanjalee Rasanjalee Dissanayaka, Ontology-based Search Algorithms over Large-Scale Unstructured Peer-to-Peer Networks. Committee: Sushil K. Prasad (Advisor), Dr. Sham Navathe (external co-advisor, Georgia Tech), Dr. Rajshekhar Sunderraman, and Dr. WenZhan Song. Defended, May 2014.
Now Tenure Track Assistant Professor, St Johns University, MN.

Dinesh Agarwal, Scientific High Performance Computing (HPC) Applications on the Azure Cloud Platform, Committee: Sushil K. Prasad (Advisor), Dr. Yi Pan, Dr. Xiaolin Hu, Dr. Sham Navathe (external, Georgia Tech). Defended: May 2013.
Now, Co-founder http://Bookup.co/
HPCWire has picked up this dissertation in a recent article.

Akshaye Dhawan, Distributed Algorithms for Maximizing Lifetime of Wireless Sensor Networks, Committee: Sushil K. Prasad (Advisor), Dr. Rajshekhar Sunderraman, Dr. Yinghshu Li, Dr. Sham Navathe (external, Georgia

Tech). Defended: Aug 2009.
Associate Professor, Ursinus College, Philadelphia, Pennsylvania.
Bloomberg, Coordinator of Training Programs.

Wang, Xue, "Prediction of Protein Calcium-Binding Sites," Major Professor: Guantao Chen Committee: Dr. Sushil Prasad, Dr. Rajshekhar Sunderraman, Dr. Jenny Yang. Defended: Nov 2009.
Now with Mayo Clinic.

Jon A Preston, Improving Concurrent Access in Collaborative Editing Systems, Committee: Sushil K. Prasad (Advisor), Dr. Rajshekhar Sunderraman, Dr. Xiaolin Hu, Dr. Melody Moore Jackson (external, Georgia Tech). Defended: May 2007.
Dean and Professor, Kennesaw State University, Atlanta
Provost, West Georgia College

Caverlee, James "Tamper-Resilient Methods for Web-based Open Systems," PhD Dissertation, Georgia Institute of Technology, Defended: June 2007. (*External Member;* Advisor: Ling Liu, Georgia Tech), Now Assistant Professor, U. Texas A&M., College Station.

Jeff W. Chastine, "On Inter-referential Awareness in Collaborative Augmented Reality," Major Professor: Ying Zhu Committee: G. Scott Owen, Sushil K Prasad, Michael Weeks, Defended: May 2007. Now Associate Professor, Clayton State College and University, Atlanta.

Balasooriya, Janaka, Distributed Web Service Coordination for Collaborative Applications and Biological Workflows, Defended: Dec. 2006. Committee: Sushil K. Prasad (Advisor), Dr. Rajshekhar Sunderraman, Dr. Yi Pan, Dr. Sham Navathe (external co-advisor, Georgia Tech).
Now at Arizona State University, Tempe.

Xie, Wanxia "Supporting Distributed Transaction Processing over Mobile and Heterogeneous Platforms", PhD Dissertation, Georgia Institute of Technology, Defended: Dec 2005. (External Co-advisor; Advisor: Sham Navathe, Georgia Tech), Now at Akamai, NY.

John Daigle, Distributed Algorithms for Vertex Cover Problems on Sensor Networks 2009-11.

Thamer Alluhsain, Distributed Algorithms on Channel Assignment and Triangle packing Problems, 2010-2012.

Xi He, GPU-based Parallel R-Tree and other GIS Data structures and Computation Framework, 2011-2013.

Mohammed Jubaer ARIF, Internet Host Geolocation Based On Probabilistic Latency Models External Committee Member, University of Melbourne, 2011.

Monjur Alam, FPGA based computations, 2013-15.

Abu Chowdhury, Parallel spatial agent based simulation, 2014.

Michael McDermott, GPU and Hadoop Algorithms for Interest Discovery Regions over Geo Spatiotemporal Datasets, Expected Defense, 2018-19.

Dhara Shah, Spatio-temporal analytics. 2017-19.

Amatullah Yousuf, Parallel Spatiotemporal Data Structures. 2020-22.

Buddhi Ashan Mallika Kankanamalage, Scalable System for Polygonal Overlays. 2020-.

Jurdana Masuma Iqrah, Parallel Computation over Polar Datasets. 2020-.

Hasanul Mahmud, Energy efficient Distributed Machine learning over Edge Devices. 2020-.

M.S. Theses Research

Amatullah Yousuf, Data Driven Predictions of Urinary Tract Infections, Summer 2022. MS Project. Major Professor: Sushil K. Prasad Committee: Sumit Jha and Anandi Dutta.

Viney Sindhu, Clustering Geospatial Data Based on Spatial Attribute, Spring 2018, Major Professor: Sushil K. Prasad Committee: Raj Sunderraman and Yanqing Zhang.

Xiaolong Wu, Optimizing Sparse Matrix-Matrix Multiplication on a Heterogenous CPU-GPU Platform, Fall 2015, Major Professor: Sushil K. Prasad Committee:Yanqing Zhang and Yingshu Li,
Now in Virginia Tech PhD Program.

Monjur Alam, FPGA based Binary Heap Implementation with an Application to Web Based Anomaly Prioritization, Spring 15, Major Professor: Sushil K. Prasad Committee: Committee:Yanqing Zhang and Xiaojun Cao, Now in Georgia Tech PhD Program.

David Gibbs, Frequent Item Set Mining (MS Project), Spring 2015. Now at MIT labs.

Sara Karamati, MPI platform over Azure Cloud, Summer 2014 Major Professor: Sushil K. Prasad Committee: Rafal Angryk and Yi Pan.
Now in Ga Tech PhD program.

Govardhan Tanniru, Discrete Event Simulation over GPUs based on Parallel Heaps, Spring 2014. Major Professor: Sushil K. Prasad Committee:Yanqing Zhang and Ying Zhu.

Jayampathi Rajapaksage, Middleware for Collaborative Smart Camera Network, Nov 2010. Major Professor: Sushil K. Prasad Committee: Raj Sunderraman and Wenzhan Song.

Silva, Karunamuni Charuka, An Adaptive Mesh MPI Framework for Iterative C++ Programs. Major Professor: Sushil K. Prasad Committee: Raj Sunderraman and Saied Belkasim., Georgia State University, 2009.

Joseph Gunawan, A Proxy Module for System on Mobile Devices, Nov. 2008. Major Professor: Sushil K. Prasad Committee: Raj Sunderraman and Saied Belkasim.
Now at Intel.

Dasari, Sunetri, Peer-to-Peer Distributed SyD Directory Synchronization in a Proximity-based Environment, Dec 2007. Major Professor: Sushil K. Prasad Committee: Yingshu Li and Raj Sunderraman.

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Hui Wang. Message Passing Interface Parallelization of Fluid Dynamics Code. Summer 2002

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Nikhil Junankar, "High Performance VLSI Logic Simulator," 1999.

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Robert Pfeiffer: "Automatic Parallelization of Sequential Simulators." Nov., 1998.

Urinary Tract Infections, Summer 2022. MS Project. Major Professor: Sushil K. Prasad Committee: Sumit Jha and Anandi Dutta.

Undergraduate Internship Research

Karl Scales, Undergraduate Assistant, Summer, 2013- Spring, 2014.

Sylvester Willis, Undergraduate Assistant, Spring 2013.

Elliot Chethma, Undergraduate Assistant, Spring 2013.

Adhar Suragee, IIT Patna (India) summer intern: "Branch and Bound algorithms using Parallel Priority Queues." Summer 2012.

Aditya Gupta, IIT Patna (India) summer intern: "Porting of Crayons GIS Computation Framework over Tesla GPU." Summer 2011.

Emmanuel Thomas, undergraduate assistant and summer intern: "Cloud Computing over Azure." Spring, Summer, 2011, Spring 2012.

Sami Wilf, undergraduate summer intern: "GPU based GIS and Image Processing Algorithms." Summer and Fall 2011, Spring 2012.

Lemuel Shelley, undergraduate assistant and summer intern: "GPU based Large Scale Database Column Processing." Summer and Fall 2011.