Chandra N. Sekharan, Ph.D.
Professor, **Department of Computer Science**
College of Engineering and Computer Science
Texas A&M Corpus Christi
Corpus Christi, TX 78412

Curriculum Vitae

Education
- Ph.D. Mathematical Sciences, Clemson University, South Carolina. Thesis Title: "Parallel Algorithms and Enumeration Techniques for Partial k-Trees", August 1986-May 1989.
- M.S. Computer Science, School of Computer Science and Automation, Indian Institute of Science, India, August 1983- May 1985.
- Ph.D. Scholar, Department of Computer Science, Indian Institute of Technology, Mumbai, India, August 1982-May 1983.
- B.S. Electrical Engineering and Electronics, Indian Institute of Science, India, August 1979-May 1982.

Summary of Administrative and Academic Experience

- Professor, Department of Computer Science, Texas A&M University Corpus Christi, Jan 2022.-present
- Professor and Chair, Department of Computer Science, Texas A&M University Corpus Christi, Jan 2022 – Fall 2024
  1. Led 23 FT faculty members (13 TT, 10 NTT), 5 adjunct faculty, 2 admin staff.
  2. Oversight of BS and MS programs in Computer Science, BS: Geospatial Science, MS: Geospatial Systems Engineering, and PhD: Computer Science.

- Professor and Chair, Department of Computer Science, July 1, 2018 – December 2021, Loyola University Chicago. 25 faculty, 3 administrative staff. Oversight of 8 undergraduate programs, 4 graduate programs, 3 graduate certificate programs, and 2 minors.
  1. Led 11 Assistant, Associate and Full Professors in teaching, research, and service, 4 clinical faculty members and 10 adjunct faculty members in teaching and service and supervising 3 staff members.
  2. Oversaw undergraduate and graduate programs in computer science, information technology, cybersecurity, software engineering, data science, bioinformatics, physics & computer science, and mathematics & computer science.
  3. Highest extra-mural new research funding in the College, Funding agencies included NIH, NSF, DoD, and NSA.
  4. Budget management, alumni relations, strategic planning including facilities, hiring, annual performance evaluation, enrollment management, curriculum development, tenure and promotion process, and professional development of faculty members and staff.
  5. Industry and Corporate partnership for internship/mentoring opportunities for students, and fundraising.

- Professor, Department of Computer Science, Loyola University Chicago, July 2012-2018
- Assistant to Provost: July 2010 – June 2012: Led the implementation of two university-wide initiatives (summer online classes and January term) to improve student access to classes and student retention.
- Fellow, American Council on Education (2009-2010): University of Wisconsin-Stout, University of Wisconsin-Madison (System administration), and Northeastern Illinois University.
- Chairperson, Department of Computer Science, Loyola University Chicago, Fall 2005 to Spring 2012
- American Council on Education Fellow, 2009-2010: Leadership development at University of Wisconsin-Stout, University of Wisconsin System Administration (Madison), and Northeastern Illinois University (Chicago). Focus Topics: strategic planning, university-industry partnerships, budgeting and finance, enrollment management, working with the board, and government relations.
- Professor Department of Computer Science, Loyola University of Chicago, 2002-present.
- Associate Professor Department of Computer Science, Loyola University of Chicago, 1995-2001. Tenured in 1995.
- Assistant Professor Department of Mathematics and Computer Science, Loyola University of Chicago, 1993-1995.
- Assistant Professor Center for Parallel Computation, Department of Computer Science, University of Central Florida, 1989-1993.

Interdisciplinary Program Development and Inter-College Initiatives

1. MS: Data Science jointly with Mathematics, Texas A&M University Corpus Christi, Fall 2023.
2. Working with collaborators in CB Institute for Surveying and Science to develop partnerships with public high school districts for dual-credit offerings to enhance pipeline into Geospatial programs in the department, 2022-23.
3. Collaborated with Department of Mathematics and Statistics to launch MS: Data Science in Fall 2022. (**This and everything below were at Loyola University Chicago**).
4. Provided support and assistance to Parkinson's School of Health Sciences to create MS: Health Informatics degree program (2018-2019).
5. Collaborated with Biology, Mathematics and Statistics, Physics, Chemistry to develop BS: Bioinformatics and BS: Data Science programs, and joint majors. The department faculty participated in the development of Neuroscience major by Psychology. (2018-2019).
6. Worked with School of Law, and Information Technology Services to develop a successful application for National Center of Excellence for Cyber Defense Education Designation (2020).
7. Instrumental in developing the successful MS: Information Technology degree program (2008)
8. Led the development of the minor *Computer Crime & Forensics* (jointly with the Department of Criminology and Criminal Justice), now the second largest minor in the department (2008)
9. Under my leadership, the department helped create a new M.Ed. School Technology program offered by the School of Education.
10. Worked with US Army scientists and climatologists on information fusion and meteorological problems to devise solutions for army commanders (2002-2004).

11. Under my leadership, the department collaborated with English to create the Center of Textual Studies and Digital Humanities and an MA in Digital Humanities.

10. As Assistant to Provost, I worked with deans, chairs, and faculty from diverse set of disciplines in Humanities, Social and Natural sciences, Business, Nursing, Communication, and Social Work to identify a successful slate of high-demand classes that can be offered online in the summer and the January Term and ensured availability of a broad selection of courses. These initiatives were designed to improve retention and graduation rates. In all, I worked with 5 deans, 30 chairs and program directors and 80 faculty members to make the initiatives successful (2010-2012).

Administrative Accomplishments

- Facilitated research collaborations between faculty and CB Institute of Surveying and Science, and Lonestar Unmanned Aircraft Systems Center of Excellence, TAMU-CC.
- Faculty new research funding amounted to $4.5 million for year 2022, from agencies including NIH, TxDOT, NASA, NSF, and DOT in TAMU-CC.
- Improved student enrollments, research grants, and faculty publications to all-time high numbers for the department, Texas A&M University Corpus Christi, 2022-2023.
- Substantially improved faculty workload and P&T policies -TAMUCC, 2023.
- NSA/DHS National Center of Excellence Designation in Cyber Defense Education for BS: Computer Science (concentration in Cybersecurity), Texas A&M University CC, Renewal: 2022-2027.
- NSA/DHS National Center of Excellence Designation in Cyber Defense Education for BS: Cybersecurity, Loyola University Chicago, 2020-2025.
- (Provost's Office): Led university-wide implementation of offering summer online classes for undergraduates involving five colleges. This involved working with Deans, Chairs, and Program Directors of the colleges.
- (Provost's Office): Led university-wide implementation of a new two-week January intersession that offers a mix of online and on-campus classes from five colleges. Both initiatives were designed to promote student retention and access to classes and are now integrated into the standard university schedule.
- Provided leadership for the development and implementation of a strategic plan for the department. This resulted in the creation of new majors and minors, and professional master's programs that led to tripling of undergraduate enrollments and doubling of graduate enrollments.
- Provided leadership to foster industry-department relationship which garnered corporate grants.
- Established industry advisory group and social networking presence for alumni, and improved research output of faculty. More than 40% of faculty publications are student co-authored.
- Provided leadership to partner with National Center for Woman & Information Technology (NCWIT) to attract and retain women in technology and computer science. Served as Co-PI in an NSF grant that that has provided $5000 in scholarships to over 100 students to under-represented student groups in computer science.
- Sought and obtained funding to establish computer laboratories with high-end server infrastructure, and NVIDIA graphics-based workstations and high-performance cluster.

University Service

- Life Sciences Chair Hiring Committee member, 2023
- Resource person in TAMUCC for use of Generative AI in the classroom, 2023.
- Judge, Research and Innovation Symposium, TAMUCC, 2022-2023.
- Member, STEM Building Task Force, 2021. (**This and everything below were at Loyola University Chicago).**
- Member, Dean Search Committee, 2020
- Member, STEM Interdisciplinary Initiative Task Force, 2020.
- Task Force member in Global Education Outreach, 2018.
- Mentor for 1_{st} generation college students, Achieving College Excellence, 2011-2015.
- Chair of the Core Review Committee for Quantitative Knowledge area, 2011.
- Chair, subgroup on distance learning and satellite campuses of the Provost's Task Force on Distance Learning and Global Education, 2009-2010.
- Participated in the President's retreat -- July 2010.
- Representative to Chicago Mayor's Council of Technology Advisors, 2007.
- Member of Presidential Advisory Council, Loyola University Chicago, 2005.
- Member of the search committee for Vice President of Information Technology Services, 2005.
- Member of search committee for the Senior Associate Dean - SCTPS, 2004.
- Invited speaker at the Emergency Management Planning and Recovery workshop for Federal agencies in Chicago based on NIST standards, 2003.
- Member of Loyola's Information Technology Steering Committee: 1998-2000
- Member of the Graduate Studies Coordinating Board: 1998-1999.
- Member of the Executive Committee of the Graduate School: 1998-1999.
- Member of the Task Force for Merging Master's and Ph.D. Councils (1996).
- Member of the Mundelein Committee for developing certificate and short courses in computer science for Chicago area professionals (1995-96).

College and Department Service

- Served as the moderator for COECS Debate on Generative AI, August 2023.
- Member of Administrative Council, College of Engineering and Computer Science, Texas A&M University CC, 2022-present.
- Chair of the Department of Computer Science, Loyola University Chicago, July 2018-Dec 2021.
- Acting Graduate Program Director, Spring 2017. (**This and everything below were at Loyola University Chicago)**
- Promotion Committee chair for faculty members, 2015-16.
- Online MS: Information Technology program committee, 2012-2014.
- Member of the Dean's Administrative Reductions Committee, 2011.
- Chair of the search committee for Criminal Justice Chair, 2010-2011.
- Annual Loyola Science Fair participation, 2005- 2011.
- Computer Science Program Assessment, 2007-2008.
- Graduate Program co-director, 2005-2006.
- Chair of the space planning committee: 2003-2004
- Chair of the Bioinformatics Committee: 2002-2003

- Curriculum Committee member of Academic Council: 1999.
- Graduate Program Director in Computer Science, 1995-1999.
- Chair and member of search committees for faculty: 1997-2000.
- Undergraduate Computer Science Curriculum Committee (1993-1996)
- Hiring computer Science Committee (1993-94)
- Student Recruiting Committee (1993-96)
- Computer Laboratory Committee 1995-96
- Chair of the Hiring Committee (1995-97)
- Computer science Internship Committee (1996)
- Space Planning Committee (1995-96)
- Assembler/Architecture/Discrete Mathematics Subcommittee (1997)
- Short course instructor for Oracle Database Administration for industry professionals (Fall 1997).

Outreach and Industry Consulting
- Consultant, National Institute of Health.
- Commissioner, Computing Accreditation Commission, 2020-present.
- ABET CAC Team Chair, 2020-present.
- ABET Expert – Program Evaluator, 2015-2019.
- Intellectual Property Consultant for Niro, Haller and Niro LLP, 2013-2014.
- American Council on Education Fellows Program – Evaluator of candidates, 2011.
- External Reviewer for Computer Science, St. Louis University, 2009.
- External Reviewer for Computer Science, Northeastern Illinois University, 2010.
- Intellectual Property Consultant for Wildman, Harold, Allen, and Dixon LLP, 2007-2008.
- US Army Research Laboratories, 2002-2004.
- United Airlines, Corporate R & D. Mt. Prospect, IL, 2000-2001.
- United Airlines, Corporate R & D. Mt. Prospect, IL, 1999-2000.
- "Oracle PL-SQL Issues in Supplier Database", Consultant, Amoco Chemicals, Lisle, IL, February 1998.
- Science Applications International Corporation, 1992-1995.

Honors and Awards
- IEEE Senior Member, 2020.
- Fellow, American Council on Education, 2010.
- Summer Faculty Research Program at US Army Research Laboratories, 2002 and 2003.
- Nominated for Graduate Faculty of the Year at Loyola University of Chicago 1999.
- Who's Who of the South and Southwest, 1992.
- Who's Who of the Young Professionals, 1993.
- Commendation for Excellent Performance in Doctoral Studies, 1989.

Teaching
Undergraduate Courses Taught
- Object-Oriented Programming
- Models of Computation

- Data Structures I and II
- Discrete Structures
- Computer Networks
- Concrete Mathematics
- Database Systems (Online)
- Data Warehousing and Data Mining
- Introduction to Parallel Computing
- Design and Analysis of Algorithms

Graduate Courses Taught (MS and PhD)
- Cryptography and Blockchain Technologies (Module)
- Parallel Computing Concepts
- High Performance Computing
- Database Programming
- Design and Analysis of Algorithms
- Graphical Network Programming
- Operating Systems
- Special Topics: in Parallel Algorithms and Architectures (for PhD students, UCF)
- Current Topics in Algorithms (for PhD students, UCF)
- Advanced Topics in Parallel Algorithms (for PhD students, UCF)
- Parallel Architectures and Algorithms (for PhD students, UCF)
- Advanced Topics in Graph Algorithms (for PhD students, UCF)

Research Grants and Outreach

- "Large Language Modes for Autonomous Systems", Microsoft Accelerate AI Azure Cloud Services Grant, $20,000, 2023-2024.
- "Adaptive, Multi-Tiered, Base Station Infrastructure for Communication-Denied Environments, NSF-CISE, Co-PI, $352,260, 2023-2026.
- "ExCEL: Excellence in Computing at Every Level", National Science Foundation, Dept. of Undergraduate Education, $600,000, 2008-2014 (Co-PI).
- "Allston Scholarships in Computer Science", Allston Trading LLC, $12,500, 2007.
- "Community Information Technology Entrepreneurship Project", an Open-Source Accounting Software Project, National Science Foundation, 2002-2005, $1,000,000. (Co-PI).
- "Research Education for Undergraduates in CITEP", National Science Foundation, Supplemental Grant – $8,000. Co-PI, 2005.
- "High Performance Computing in Bioinformatics", Project Personnel, DARPA, $3,000,000, 2003.
- "Routing on High-Performance Networks using Active Monitoring of Network Parameters", National Science Foundation, High Performance Network Connectivity, $150,000, Sept. '02-August '05 (Co-PI).
- "Concurrency and Interactivity", Sun Microsystems Inc., Hardware Grant, $90,000, 1998 - 2000. (with Colby, Jagadeesan, Dordal, and Laufer).
- "Oracle Software Grant" software valued at $900,000, 1996.
- Microsoft Software Grant Software valued at $68,000, with Laufer and Jagadeesan.

- "Battlefield Simulation on a Massively Parallel Computer", PI, SAIC, US Army Subcontractor, $56,000. Sep. 1993, June 1995.
- "Outstanding Issues in the Design of Parallel Algorithms for Partial k-Trees", PI, National Science Foundation Award, $36,000. Period: July 1991 to August 1994.
- "Parallel Computation in the Undergraduate Computer Science Curriculum" with (Guha et al) Co PI: January 1992 to December 1993 Total amount $ 560,000, National Science Foundation.

Peer Reviewed Publications

• Modeling Wind and Obstacle Disturbances for Effective Performance Observations and Analysis of Resilience in UAV Swarms. Phadke, A.; Medrano, F.A.; Chu, T.; Sekharan, C.N.; Starek, M.J, *Aerospace*, *11*, 237, 2024.

• An Analysis of Trends in UAV Swarm Implementations in Current Research: Simulation Versus Hardware, A. Phadke, FA Medrano, Chandra N Sekharan, T. Chu, Drone Systems and Applications, Feb, 2024.

• "Designing UAV swarm experiments: A simulator selection and experiment design process" A Phadke, FA Medrano, CN Sekharan, T Chu, Sensors 23 (17), 7359, 2023.

• "Fine-Tuned Large Language Models for Improved Clickbait Title Detection", CN Sekharan, PS Vuppala, Proceedings of the International Conference on Artificial Intelligence, July 2023.

• "Drone2Drone (D2D): A Search and Rescue Framework Module for Finding Lost UAV Swarm Agents" A Phadke, A Medrano, CN Sekharan, T Chu, M Starek, International Conference on Artificial Intelligence, July 2023.

• "Parallel Techniques for Compressing and Querying Massive Social Networks" SG Krishna, A Narasimhan, S Radhakrishnan, CN Sekharan, IEEE International Parallel and Distributed Processing Symposium, pp. 838-847, May 2023

• " On Factorizing Million Scale Non-Negative Matrices using Compressed Structures", SG Krishna, A Narasimhan, S Radhakrishnan, CN Sekharan, ALLDATA 2023: The Ninth International Conference on Big Data, Small Data, Linked Data and Open Data, volume 4, pp:39-44, 2023

• "A Partitioning Framework for Compression on Social Networks", CN Sekharan, S. Radhakrishnan, MR Nelson, Proc. International Conference on Computational Science and Computational Intelligence, Las Vegas, December 2022.

• "Performance Benchmarking of PyScript and Comparative Results with Javascript", V.S.P. Arepalli, C.N.Sekharan, IEEE Conference UEMCON, October 2022, pp: 84-87

• "k-Way Partitioning Framework for Compression on Social Networks", C.N. Sekharan, M. Nelson, S. Radhakrishnan, International Conference on Computational Science and Computational Intelligence, December 2022.

• "Queryable Compression on Time-evolving Web and Social Networks with Streaming", M. Nelson, C..N.Sekharan, A. Chatterjee, S.G. Krishna, ACM Transactions on the Web (TWEB), vol. 16, 2, pp: 1-21, 2021.

• "On Compressing Time-Evolving Networks". C.N. Sekharan, S.G. Krishna, M. Nelson, S. Radhakrishnan, A.Chatterjee, ALLDATA 2021, The Seventh International Conference on Big Data, Small Data, Linked Data and Open Data, Portugal, pp: 43-48, 2021.

• "Algorithms on Compressed Time-Evolving Graphs", M Nelson, S Radhakrishnan, CN Sekharan, 2019 IEEE International Conference on Big Data (Big Data), 227-232, 2019.

- Billion-Scale Matrix Compression and Multiplication with Implications in Data Mining, M Nelson, S Radhakrishnan, CN Sekharan, 2019 IEEE 20th International Conference on Information Reuse and Integration, 395-402, 2019.
- "Merkle Tree based approach to Ensuring Integrity of Electronic Medical Records, IEEE Ubiquitous Computing and Mobile Communication Conference, New York, Nov 2018 (with B.Sharma, and F. Zuo).
- "Queryable Compression on Time-Evolving Social Networks with Streaming", IEEE Big Data, Seattle, December 2018. (with Wilson, Radhakrishnan).
- "Querable Compression for Massive Streaming Social Networks", IEEE Big Data, (with B.Nelson, and S. Radhakrishnan) December 2017, 988-993.
- "A Probabilistic Graphical Model for Learning as Search", IEEE 7th Annual Computing and Communication Workshop and Conference (CCWC), January, 2017.
- "On compressing massive streaming graphs with Quadtrees". IEEE International Conference on Big Data, pp.2409-2417, 2015. (with Nelson, Chatterjee, Radhakrishnan).
- "Comparative Study and Performance Evaluation of Online Ad Blockers". International Conference on Information Science and Security (ICISS), IEEE Press, pp: 1-4, Dec. 2015. (with Elliott Post)
- "Connecting the dots: Triangle completion and related problems on large data sets using GPUs", IEEE Workshop on Big Data, October 2014.
- "Introducing PDC topics into CS1/2 and a Mobile- and Cloud-Based Intermediate Software Design Course", *Poster presentation*, Third NSF/TCPP Workshop on Parallel and Distributed Computing Education, 2013 (with Laufer, and Thiruvathukal).
- "PDC Modules for Every Level: A Comprehensive Model for Incorporating PDC Topics into the Existing Undergraduate Curriculum", 1st NSF/TCPP Workshop on Parallel and Distributed Computing Education, 2011.
- "Delay Constrained Sub-tree Homeomorphism Problem with Applications", IEEE *Transactions in Parallel and Distributed Computing*, Vol. 22, 12, pp: 1978 – 1985, Dec. 2011. (with Banik, Radhakrishnan)
- "On the Heterogeneous Postal Delivery Model for Multicasting", *Journal of Communications and Networks.* vol.13:pp536-543, Oct. 2011. (with Sarangan, Radhakrishnan).
- Implementation of Distributed Protocols on Overlay Networks", *IEEE Transactions on Parallel and Distributed Systems,* vol. 19, 8, pp.: 1057-1070, 2008. (with Banik and Sridhar).
- "Multicast Routing with Delay and Delay Variation Constraints for Collaborative Applications on Overlay Networks", *IEEE Transactions on Parallel and Distributed Systems*, vol. 18, 3, pp.: 421-431, March 2007. (with Banik, and Sridhar).
- "In silico retrieval and cataloging of GenBank DNA sequences adjacent to interspersed repetitive elements", Bioinformatics Conference, Poster, Northwestern University, October 2007 (with Akhtar, Laten, and Steinway).
- "Distributed Floor Control Protocols for Computer Collaborative Applications on Overlay Networks". First IEEE International Conference on Collaborative Computing: Networking, Applications and Work-sharing (CollaborateCom 2005), San Jose, CA, pp: 10, December 2005.
- "Community Information Technology Entrepreneurship Project", Conference on ACMSIG Information Technology Education, Extended Abstract, 2005. (with G. Thiruvathukal).

- "Multicast Routing for Multimedia Applications," Proceedings of the 7th IEEE International Conference on High Speed Networks and Multimedia Communications (HSNMC 2004), Toulouse, France, July 2004, LNCS 3079, pp. 399-411. (with R. Sridhar).
- "Fusion-Oriented Real-time Multi-Agent Testbed for the Future Force", US ArmyResearch Laboratories, White Sands Missile Range, Proceedings SCI 2004, July 2004. (Dumais, Raby, and Tenmi).
- "Performance evaluation of wireless TCP with rerouting in mobile Networks", Gopal Racherla, Sridhar Radhakrishnan, Chandra N. Sekharan, Computer Communications Vol. 26, pp. 542–551, 2003.
- "Protocol for Dynamic Ad-Hoc Networks Using Distributed Spanning Trees," S. Radhakrishnan, G. Racherla, Chandra N Sekharan, N.S.V. Rao, and S.G. Batsell, Wireless Networks Vol. 9, pp. 673-686, 2003.
- "Interaction of Wireless TCP Schemes and Rerouting: Analytical Models and Simulation". W. S. Al-Numay, Radhakrishnan Sridhar, T. Zheng, Chandra N. Sekharan , IEEE International Conference on Distributed Computing Systems Workshop pp. 883-889, Rhode Island, May 2003.
- "Duplicating Delays in Network Multicasting: Model, Algorithm, and Validation" C.N. Sekharan, S. Radhakrishnan, S.M. Banik, and N.S.V. Rao , International Conference on Communications, Internet, and Information Technology CIIT Scottsdale, AZ, pp. 541-546, October 2003
- "Data Warehousing System for Integrated Weather Analysis (SIWA) for the Objective Force", Chandra N Sekharan, Y.Kanitkar, and Barbara Broome,Proceedings of World Multiconference on Systemics, Cybernetics and Informatics, Orlando, Florida, pp. 775-781, July 2003.
- "Fast Parallel Reordering and Isomorphism Testing of k-trees", Algorithmica, Springer-Verlag., 2002.
- "Scalability of International Fare Construction on High Performance Supercomputers", IEEE Proc. High Performance Computing, December 2002.
- Performance of Wireless TCP under different Routing Techniques in Mobile Networks", IEEE Region Ten Conference on Computers, Communications and Controls (TENCON 99), December 2000. (with Racherla, and Sridhar).
- "DST-A Routing Protocol for Adhoc Networks using Distributed Spanning Trees", 1999 IEEE Wireless Communications and Networking Conference, Sep 1999, New Orleans, pp.100-104. (with Racherla, Sridhar, Rao and Batsell).
- "L(2,1) problem on recursive families of graphs", Lecture Notes in Computer Science, Springer-Verlag, 2000.
- "Performance of Wireless TCP under different rerouting schemes in Mobile Networks", IEEE Region Ten Conference on Computers, Communications and Controls (TENCON 99), December 1999. (with Racherla, and Sridhar).
- "DST-A Routing Protocol for Adhoc Networks using Distributed Spanning Trees", 1999 IEEE Wireless Communications and Networking Conference, Sep 1999, New Orleans, pp.100-104. (with Racherla, Sridhar, Rao and Batsell).
- Solving the All-Pair Shortest Path Query Problem on Interval and Circular-Arc Graphs", Networks, vol 31, 4, July 1998. (with D. Chen, D.T.Lee, and R. Sridhar).
- "A Distributed Rerouting Algorithm for Mobile-Mobile connections in Connection-oriented Networks", in Proc. 7th International Conference on Communication and Networks, pp: 249-257, 1998. (with Sridhar and Racherla).

- "Interaction and Concurrency in the Curriculum - A Sophomore Course", in Proc. of the OOPSLA Workshop on Education, 1998. (with Colby, Jagadeesan, and Laufer).
- "Parallel Algorithms on Doubly Chordal Graphs", in Proc. of High Performance Computing Conference, Taiwan, Korea, 1997. (with R. Sridhar).
- "Unified All-Pairs Shortest path algorithms for Chordal Hierarchy", Discrete Applied Mathematics, Vol. 77, pp: 59-71, 1997. (with R. Sridhar and K. Han)
- "Space-time Trade-offs in the Relative Unranking of Binary Trees", Computer Journal, vol. 39, No.1, and pp: 36-44, 1996. (with J. Del Greco)
- "MasPaWS - A Massively Parallel War Simulator", Simulation Practice and Theory 4, pp: 265-282, 1996.
- "Load Balancing Methods for Ray Tracing and Binary Tree Computing Using PVM", Parallel Computing, 21, pp: 1963-1978, 1995. (with R.Sridhar and V. Goel).
- "Highly Parallelizable Problems on Sorted Intervals", Parallel Computing, 21, pp: 433-446. 1995 (with R. Sridhar)
- "Efficient Algorithms for Shortest Distance Queries on Special Classes of Polygons", Theoretical Computer Science, vol. 140, pp. 291-300, 1995.
- "Efficient Algorithms for Computing Matching and Chromatic Polynomials in Series-Parallel Graphs", (with Hannenhalli) Journal of Combinatorial Mathematics and Combinatorial Computing, Vol. 15 pp.19-32, 1994.
- "Enumeration Techniques for Certain k-Terminal Families of Graphs", Journal of Combinatorics, Information and System Sciences 19, No.3-4, and pp: 131-148, 1994 (with S.T. Hedetniemi and T. Wimer).
- "The k-Neighbor, r-Domination Problem on Interval Graphs", European Journal of Operational Research, Vol. 79, 2, pp: 352-368, 1994. (with R. Sridhar and D. Joshi).
- "Massively Parallel Battlefield Simulation", in Proc. of Winter Simulation Conference, Orlando, FL, pp: 744-751, Dec. 1994.
- "Efficient Parallel Algorithms for Finding Chordless Cycles in Graphs", Parallel Processing Letters, Vol. 3, and No.2 pp. 165-170, 1993.
- "On the Number of Independent Sets of Nodes in a Tree", Fibonacci Quarterly, (with R. Dutton and B. Brigham), pp. 98-104, May 1993.
- "A Fast Algorithm for Generalized Network Location Problems, in the Proceedings of the 1993 Symposium on Applied Computing, pp. 701-708, 1993. (with D.S. Joshi, R. Sridhar).
- "Ray Tracing and Scheduling Binary Tree Computations in a Distributed System Using PVM", in Mini track in Distributed Systems, HICCS, Jan. 1993 (with V. Goel).
- "A Distributed Algorithm for Ear Decomposition". in the Proceedings of the 5th International Conference on Computing and Information, pp. 180-184, May 1993. (with S. Hannenhalli, K. Perumalla, R. Sridhar).
- "Efficient Algorithms for All-Pairs Shortest Path Problems on Interval, Circular Arc, and Directed Path Graphs", in the Proceedings of the 5th International Conference on Computing and Information, pp. 31-35, May 1993. (with D.S. Joshi, R. Sridhar).
- An Efficient Parallel Algorithm for Min-Cost Flow on Directed Series-Parallel Networks", (with A. Jain), in Proc. 7th International Parallel Processing Symposium, pp.188-192, 1993.
- "Matchings in Uniterminal Graphs", Journal of Combinatorics, Information and System Sciences, 17, 3-4, pp.195-202, 1992.

- "On the Recognition of Strongly Chordal Graphs", in Proceedings of the 29th Annual Allerton Conference on Communication, Control and Computing, pp. 475-483, October 1991. (with R. Sridhar)
- "Isomorphism Testing of k-trees is in NC, for Fixed k", Information Processing Letters 34, pp. 283-287, 1990.
- "NC Algorithms for Recognizing Chordal Graphs and k-Trees", IEEE Transactions on Computers, vol.37, No.10, pp.1178-1183, Oct. 1988. (with S.S. Iyengar).
- "Recognition and Top-Down Generation of Beta-acyclic Database Schemes", Lecture Notes in Computer Science, Springer-Verlag, 181, pp.344-366, 1984.
- "Algorithms for Computing the Chromatic Polynomial", Journal of Combinatorial Mathematics and Combinatorial Computing, 4, pp.213-222, 1988. (with D.R.Shier).
- "Maximal Clique Separators of Chordal Graphs", Congressus Numerantium, vol.62, pp.203-215, May 1988, (with R. Laskar and S.S. Iyengar).
- "Chromatic Polynomials of Chordal Graphs", Congressus Numerantium, vol.61, pp.133-142, May 1988. (with R. Laskar and C.E. Veni Madhavan).
- "On the Complexity of the Minimum Vocabulary Problem", Journal of the American Society for Information Science, 38, 4, pp.234-238, 1988.
- "A Denotational Semantics for the Generalized Entity-Relationship model and a simple Entity-Relationship Algebra", International Journal of Computer Mathematics, 24, pp.99-114, 1988.
- "Fast Parallel Algorithms for Tree Decomposing and Parsing Partial k-Trees", in Proc. 26th Annual Allerton Conference on Communication, Control and Computing, Urbana-Champaign, Illinois, pp. 283-292. 1988 (with S.T. Hedetniemi).
- "Fractional Domination in Graphs", in Proc. Seventh Hungarian Colloquium on Combinatorics, Finite and Infinite Fields, Eger, Hungary, 1987. (with S.T. Hedetniemi, R. Laskar, and A. Majumdar).

Books and Manuscripts

- Object-Oriented Data Structures Featuring C++, (with R. Sridhar, and Lee Wise), Amazon publishing, 2013.
- Object-Oriented Data Structures Featuring Java, (with R. Sridhar, and Lee Wise), (manuscript), 2006

Research with Students

- I supervised the M.S. Thesis work of 9 students at University of Central Florida. At Loyola, I have supervised the work of 72 undergraduate and graduate students on independent study and programming projects.

Doctoral Committee Work

- Doctoral Committee member for 1 student at TAMUCC in Drone swarms research, 2023-2024
- Caroline St. Claire, "A Usefulness Metric and Its Application to Decision Tree Based Classification", DePaul University, 2000 (external committee member).
- Amit Jain, "Multiselection and multisearch: parallel algorithms" Computer Science, University of Central Florida, committee member until 1993.
- Muralidhar Medidi, "Data structures and optimal algorithms for parallel priority deques and parallel dictionaries", Computer Science, University of Central Florida, (committee member until 1993).

- Thomas Wilson, "Parallel algorithms for ray tracing on a general-purpose shared-memory multiprocessor" Computer Science, University of Central Florida, 1993, (committee member).

Editorial & Professional Services

- ABET/CAC member on AI and Emerging Areas in Computing in Criteria subcommittees 2023-2024.
- Refereed for the following organizations, conferences, and journals: IEEE Access, IEEE Transactions on Computational Social Systems, Algorithmica, IEEE Transactions on Computers, NSF, Discrete Applied Mathematics, Information Processing Letters, IEEE Symposium on Parallel and Distributed Computing, International Parallel Processing Symposium, International Conference on Parallel Processing, and Foundations of Software Technology and Theoretical Computer Science.
- Program Committee Member: EduHPDC -- Workshop on Parallel, Distributed, and High-Performance Computing in Undergraduate Curricula, 2013, 2014
- Session Chair – IEEE Computing and Communication Conference, Jan. 2017.
- Reviewer for the VLDB (Very Large Data Bases) journal, Springer-Verlag, 2015.

Invited Talks and Conference Presentations

- Presentations/invited talks at various conferences and academic institutions (e.g., University of Toronto, Wayne State, Washington State University, University of New Hampshire, University of Bordeaux, Indian Institute of Technology, Indian Institute of Science) on parallel processing, networking, and combinatorial optimization.

Membership in Professional Organizations

- Association of Computing Machinery
- Senior Member, Institute of Electrical and Electronic Engineers
- Council of Fellows of the American Council on Education.