

Name: **SANTONU SARKAR**
Birth: Indian. Born on 5/5/1966, Calcutta, India

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Bangalore-560076.

EXECUTIVE SUMMARY

- Over 30 years of experience with a unique blend of in-depth academic research, goal-oriented industrial research, hands-on complex software development (C++, Java, Python, C#), and architecture consulting. Demonstrated leadership in client management and business development
- Strong research expertise in the cloud and edge based, service-oriented system design as well as science of classical software development. Worked extensively in the areas of industrial automation, dependability of SAAS and service-oriented systems, software architecture, modularity, automated software engineering. Worked extensively on developing machine learned systems.
- Built research groups in i) software engineering ii) dependability of cloud based systems and services, in collaboration with Purdue University, the University of Illinois at Urbana Champaign and University of Naples. Published a book chapter on the dependability of IOT platforms.
- Published 70+ papers in peer-reviewed journals, national and international conferences, 17 patents in software engineering and cloud computing
- Have 5+ years of experience in knowledge creation and dissemination using academic pedagogy. Delivered 20+ national and international invited talks, tutorials and keynotes at various educational institutions and conferences.

EDUCATION

- 1992–1995 Ph.D. Computer Science Indian Institute of Technology, Kharagpur
· Title: An Object Oriented Approach to Digital Circuit Synthesis
· <http://www.idr.iitkgp.ac.in/xmlui/handle/123456789/8679>
- 1990–1992 M.Tech Computer Science Indian Institute of Technology, Kharagpur 9.43/10
- 1984–1988 Bachelor in Engineering Computer Science Indian Institute of Engineering Science & Technology, 82% 1st rank
Shibpur in class

ACADEMIC EXPERIENCE

- 01/2023 onwards **Professor and Head, Dept of Computer Science and Information Systems, Birla Institute of Technology and Science Pilani - K.K.Birla Goa Campus, India**
· *Courses Taught:* Distributed Computing, Cloud Computing, Compiler Design
· *Investigator:* BITS Pilani funded New Faculty Seed Grant “Edge Analytics Solution For Autonomous Condition Monitoring Of Industrial Systems”, from 2023-2025, funding amount INR 18Lakhs
· *Co-Investigator:* CPMU and IIT Jammu, “Ensuring Food Security through AI and Satellite Imaging Technology assisted Robust Agriculture at Scale”, from 2024-2025, funding amount INR 1.98CR
· *Co-Investigator:* ION Exchange, “Developing Advanced Membrane System Design Software”, from 2023-2025, funding amount INR 7.2Lakhs
- 07/2014–11/2019 **Professor, Dept of Computer Science and Information Systems, Birla Institute of Technology and Science Pilani - K.K.Birla Goa Campus, India**
· *Courses Taught:* Software Architecture, Cloud Computing and cyber-physical systems, Compiler Design, Principles of Programming Languages
· *Research:* Head of the research group “Software Sciences” that deals with challenges (performance, ease of design, correctness, resilience) related to HPC, Cloud and Cyber-physical systems.
· *Principal Investigator:* SERB, Govt of India funded project “Addressing Challenges in Application Development for Heterogeneous Computing Platform for Speedup and Power Efficiency”, from 2014-2018, funding amount INR 37.55Lakhs
· *Principal Investigator:* Accenture Technonology Labs, Research Grant USD 25000 from 2015-2018
· *Co-Investigator:* BITS Pilani funded project “Applications of High Performance Computing to Software Engineering and Data Analytics”, from 2016-2018, funding amount INR 14Lakhs
- 09/2018–09/2019 **Visiting Professor, IIIT - Bangalore**
· *Courses Taught:* Advanced Compiler (Optimization and Parallelization)
- 01/1995–02/1996 **Lecturer, Computer Science & Tech., Indian Institute of Engineering Science & Technology - Shibpur India**
· *Courses Taught:* Digital Circuits, Data Structure, VLSI Design
- 1992–1994 **Junior Scientific Officer and Research Assistant, Dept of CSE, IIT Kharagpur**
· *Teaching Assistant:* Introduction to Computing, Data structure, OS Design lab, Compiler design lab, Database lab

- *Additional job as JSO*: Key designer and developer of a fuzzy rule based expert system for Defense Electronics Application Laboratory (DEAL) India.
 - *Achievements*: Resulted in more research projects sponsored by DEAL. The expert system was general enough to be applied in other domain such as Medical Diagnosis.
- 1989–1990 **Programming Assistant, Dept of CSE, IIT Kharagpur**
- Involved in implementation of a Hardware Description language (KIDLAN) compiler for hardware circuit description and synthesis for Department of Electronics India. Developed in HP-UX, C, curses.h package, lex and yacc.

INDUSTRY EXPERIENCE

- 12/2019–01/2023 **Senior Principal Scientist, ABB Corporate Research - India**
- Developing a validator for modular, industrial process control system specification (C#, Rule Engine, ECORE metamodel, AutomationML)
 - Leading a research project on distributed Edge platform for industrial automation (Azure IoT, C#, Python, MQTT, ML techniques)
 - Global leadership role: i) Technology strategy and vision (Software and Control) ii) University relations
- 01/2018–12/2018 **Principal Research Consultant (Sabbatical from BITS Pilani), ABB Corporate Research - India**
- Led a team of size three to migrate a monolithic industrial application to a containerized environment and analyzed the challenges thereof. Responsible for managing multi-country business stakeholders.
 - Windows 10, C#, WCF, dotNET, Docker and AMQP.
- 05/2010–07/2014 **Principal Research Scientist, Infosys Labs - India**
- Role:** Head, Next Generation Computing Research group.
- Responsible for building and leading cloud and HPC research group. Managed a research team of size 7-10.
 - Responsible for building defining research vision, creating research solution, and foster research collaboration with internal and external partners.
 - *Research Area*: i) Building Dependable Systems in Cloud and Virtualized Platform ii) Building and Porting Applications for Multi-core, GPGPU Computing
 - Objective: To address dependability and performance challenges in cloud based, distributed (like Hadoop) and GPGPU applications
 - Built a corporate sponsored “dependability center of excellence”, to develop data-driven, modeling and prediction tools to help practitioners assess and analyze a “Dependability issues” of applications. Created a new consulting service model on Dependability assessment for the organization
 - Deployed solutions to various SaaS platforms, and actively involved in consulting, pre-sales of the new service-line with the client facing group to promote research outcome. Helped wining deals on dependability solutions.
- 11/2007–05/2010 **VP and Research Lead, Accenture Technology Labs - India**
- Role:** Lead, Software Engineering Research
- Responsible for applied research based asset development, manage the India lab research group,
 - Build research network and ecosystem within and outside the firm, manage research hiring and global internship program (such as MIT Accenture relationship program). Filed several patents and published papers in the area of software design.
 - *Research Area*: i) Software Design & Code, and ii) Application Maintenance
 - Conceptualized a long term research agenda applicable during software design and maintenance. Initiated a umbrella of projects to develop a tool to perform i) Design recovery using architecture description DSL ii) Impact analysis iii) Design automation and iv) Design quality analysis v) Application Maintenance Optimization program .
- 09/2002–11/2007 **Principal Architect, Infosys Labs - India**
- Role:** Senior researcher in the area of software engineering
- Managed a research team of size 6. Responsible for building research collaboration.
 - Also involved in several delivery projects as architecture consultant, such as Architecture assessment and recommendation of Banking Product and Architecture assessment and performance analysis (workload modeling, network bandwidth analysis) of a J2EE based financial application in Chicago.
 - Provided proposal & Presales support for more than 5 large multi-year projects.
 - *Research Area*: Large System Comprehension & Modularization
 - Invented a set of new metrics to measure modularity of software. Build toolset to measure and diagnose the modularity problems exist in the software. Worked on measuring architectural layering violation and automatic discovery of architectural layers. Worked on identifying functional/business concepts from source code using machine learning technique like LDA.
 - *Research Area*: Software Architecture

- 03/2002–
09/2002

 - Conceptualized, led and deployed a research project on Application Architecture Methodology that involves definition and deployment of an architecture process, definition and implementation of an architecture modeling language. The modeling language is influenced by the standards like Component-connector formalism, IEEE 1471, MDA. Involved in the capacity of a mentor in Enterprise Architecture Solution offering.

Senior Tech Lead, Hughes Software Systems - Bangalore India and Germantown MD USA
Role: Worked as the architect in building Direcway™ wireless internet access service for Hughes Network Systems (Germantown, USA).

 - The service is built in Java (JDK 1.3) and uses Weblogic 6.1 server & Oracle 8.1 database, RADIUS server for network authentication and USG devices.
 - Involved in requirement analysis, architecture definition, a part of user interface design, low level design and prototyping. Also acted as on-site coordinator for the Hughes off-shore team.
 - *Achievements:* More downstream projects at Hughes Bangalore. Successful launching of the final product at various commercial outlets
- 01/2002–
03/2002

Programmer Analyst, TCG Software Services - Edison NJ, USA
Role: Business Analyst

 - Client Interaction, requirement collection, high level design of a genetic banking project
- 06/2001–
12/2001

Senior Software Developer, Encoda Systems - Boston MA, USA
Role: Technical lead in building an ad-commerce product (MOS) for Encoda Systems (Boston USA) for the media industry.

 - Built using JDK 1.3, Weblogic 5.1 server, XML, Oracle 8.1 database and SONIC MQ.
 - Involved in product feature analysis, design & coding of the current version of the product.
 - *Achievements:* Development, build and release process streamlined. Initiated re-architecting the product for the future version
- 08/1999–
05/2001

Technical Architect, EFORCE Inc. - Boston MA, USA
Role: Project consulting- Discovery and scope definition. Also involved in product architecture

 - Requirement gathering and design of the ClaimPlace Claim Repository system for Hartford Insurance USA.
 - Involved in project planning, architecture design, detail design and coding (MVC framework, EJBs, weekly build process streamlining) of the system. For a 401K portal project, developed the back-end framework development to integrate external entities like Banks, NSCC.
 - Also took part in several architecture consulting projects.
 - Was a key member of the Databroker server (CORBA based high performance, multi-threaded JDBC1.0 type-3 driver- the flagship product of I-Kinetics/eForce) 7.0 design team. Designed and developed pooling, life-cycle model (resembles EJB object's life cycle) and event handling framework. Main contributor of Databroker 7.x framework design. Developed in NT, VC++5.0, Roguewave tools (dbtools and tools), Orbix 2.3 orb, Oracle 8.0.
 - *Achievements:* Quick prototyping and Early product evaluation strategy helped to make significant architectural decision at the early stage of the project. This resulted in minimizing the productivity loss which was appreciated by the client.
- 07/1997–
07/1999

Associate Consultant, Wipro Ltd - Bangalore India and Tokyo Japan
Role: Acted as Solution Architect for the Trade Confirmation System development for Goldman Sachs (Tokyo, Japan) and subsequently an informal account manager role.

 - Involved in Requirement understanding, Functional design, project planning, system architecture design and implementation of the Trade confirmation system.
 - Designed and developed the multi-threaded confirmation server.
 - Developed in Sun Solaris, C++ using Orbix2.3, Actuate Reporting Server, Sybase 11 Database.
 - *Achievements:* This project was considered as one of the strategic projects for business growth in Japan. This project helped in getting three more projects for the organization and the account grew rapidly.
- 02/1996–
06/1997

Project Leader, Lason Inc (Formerly Vetri Software) - Madras India, and Helsinki, Finland
Role: Led a team to develop an Archive and Retrieval System for MERITA Bank at Finland, which served as a repository for information gathered over the past ten years.

 - Involved in the design and implementation of the overall system architecture, Object Model and O/R Mapping for the system, primary and secondary archive server, multi-threaded query server.
 - Coordinated user manual & reference manual preparation with the documentation team.
 - Developed in NT using VC++2.0, SQL Server 6.5, MS Access database and iXOS Jukebox server and Image Gear 6.0.
 - *Achievements:* Successful deployment of the project influenced the organization to embark on productization of the application.
- 08/1988–
02/1989

Systems Executive, Uptron India Ltd - India
 - Responsible for supporting proprietary COBOL software running on Uptron Personal Computer.

Analysis of Bigscholarly Data – <https://github.com/santonus/bigscholarlydata> (2014-2019)

- Collection of projects to crawl, extract topics, and perform predictive analytics on big scholarly data
- Data crawled from ACM/IEEE, AMiner, and Microsoft academic graph

CUDA Microbenchmark – <https://github.com/santonus/benchmark> (2017)

- A set of microbenchmark programs for CUDA

Data analysis for vehicular safety – https://github.com/santonus/iot_safetyanalysis (2018)

- Analysis of publicly available vehicle accident data. A part of my student's masters thesis, jointly supervised from ABB Corp. Research

Dependability Analysis from application and system logs – <https://github.com/santonus/loganalysis> (2017)

- Set of scripts for fault analysis from logs

Predictive Model for Energy Consumption – <https://github.com/santonus/energymodel> (2016-2019)

- Analyses CUDA programs to predict its execution time and energy consumption

Program verification tool – <https://github.com/santonus/codeverification> (2016-2017)

- Python based program verification tool for data race detection in a CUDA program

Library for measuring power and energy consumptions – <https://github.com/santonus/energymeasure> (2016)

- C++ based library called UPAPPI for measuring power and energy consumption of HPC (CUDA, OpenMP) applications

Design Abstraction Library – <https://github.com/santonus/designabstraction> (2016-2019)

- Extends Thrust library to use shared memory, extends library for 2D data, and heterogeneous devices

SERVICES

- 2023
 - Program Co-Chair, 17th International Conference on Cloud Computing (CLOUD) 2023
 - Standardization Committee- IEEE 2975.3 Industrial AI at the Edge - 2023 onwards
- 2021
 - Program Committee, 23rd ACM/IFIP International Conference Middleware 2022
 - Program Committee- 36th IEEE/ACM International Conference Automated Software Engineering Workshop
 - Reviewer Journal "Software Practices and Experiences"
 - Vice Chair ACM ISoft
- 2020
 - Program Committee, 12th ACM ISEC, 2021
 - Program Committee- 25th IEEE Pacific Rim International Symposium on Dependable Computing Main track
 - Program Committee- 14th Intl Conf. on Software Technologies - Main track
- 2019
 - Program Chair, 12th ACM ISEC, 2019
 - Program Committee- 26th IEEE Asia-Pacific Software Engineering Conference Main track
 - Program Committee- 49th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN2019), Main and Industry Track
 - Program Committee- 14th Intl Conf. on Software Technologies - Main track
- 2018
 - Organizing Chair, IFIP WG10.4 Dependable Computing and Fault-Tolerance, 73rd Meeting at Goa India
 - Program Committee- 25th IEEE Asia-Pacific Software Engineering Conference Main track
- 2017
 - Program Chair, 10th ACM ISEC, LNMIIT Jaipur
 - Associate Editor, Sadhana, Springer Journal (<https://www.springer.com/engineering/journal/12046>)
 - Steering committee chair, ISEC
 - Program Committee- 47th IEEE/IFIP Intl Conf. on Dependable Systems and Network, Industry track; 24th IEEE Asia-Pacific Software Engineering Conference Main track
 - Org Committee- 2nd Workshop on "Software Engineering Methods for Parallel and High Performance Applications", collocated with 25th ACM Symposium on High-Performance Parallel and Distributed Computing, Washington DC
- 2016
 - General Chair, and PC committee 9th ACM India Software Engineering Conference
 - Org Committee- Workshop on "Software Engineering Methods for Parallel and High Performance Applications", collocated with 25th ACM Symposium on High-Performance Parallel and Distributed Computing-Tokyo
 - Program Committee- The 3rd IEEE International Workshop on Reliability and Security Data Analysis (RSDA 2016) is co-located with the 46th Annual IEEE/IFIP International Conference on Dependable Systems and Networks
- 2015
 - General Co-chair, 16th Intl Conference on Distributed Computing and Networking
 - Program Committee, The 22nd Asia Pacific Software Engineering Conference 2015
 - Student Symposium Reviewer, 22nd IEEE Conf. on High Performance Computing (HiPC)
- 2014
 - Program Committee Member

- 6th International Workshop on Software Aging and Rejuvenation, collocated with ISSRE
- 37th Intl. Conference on Software Engg (ICSE)- NIER Track
- Intl. Conference on Program Comprehension
- 2nd IEEE International Workshop on Reliability and Security Data Analysis
- 6th IEEE International Workshop on Software Aging and Rejuvenation
- 25th IEEE International Symposium on Software Reliability Engineering, Industry track
- 2008–2014
- PhD forum co-chair in Intl Conference on Distributed Computing and Networking
- Tutorial and Workshop chair in ACM India Software Engineering Conference
- Industry Workshop Organizer in IEEE Intl Symp. On Software Reliability Engg- 2009
- Ad-hoc reviewer in IEEE TSE, IEEE TSC, IEEE TCC, JSS, IEEE SW

ACHIEVEMENTS

- Till 2024 Citations: 2742, h-index: 26, i10 index: 49
- 2018 ACM-India Test of the Time Award for a 2008 publication
- 2014 onward Recipient of Outstanding Potential for Excellence in Research and Academics award from BITS Pilani
- 2007 Key contributor to form global internship program at Infosys, won best mentor award
- 2006 Recipient, Infosys excellence award for innovation

COLLABORATION

- 2017 • Visiting researcher at Univ. of Illinois at Urbana Champaign
- 2015–2018 • Research collaboration with Siemens corporate research India
- 2012–2014 • Research Collaboration with University of Illinois at Urbana Champaign
- Research Collaboration with Univ of Naples, Italy
- 2009 • Managed MIT-Accenture relationship program as a part of Accenture global internship program
- 2005–2007 • Managed Research collaboration with Purdue University

PORTFOLIO

GitHub Portfolio – <https://github.com/santonus/>

DBLP – <https://dblp.uni-trier.de/pers/hd/s/Sarkar:Santonu>

Google Scholar – <http://scholar.google.co.in/citations?user=8UNP6BIAAAAJ>

Linkedin – <https://in.linkedin.com/in/santonusarkar>

THESIS SUPERVISION

- Ongoing PhD supervisor, (student's affiliation: BITS Pilani K K Birla Goa Campus, India)
· Ongoing Research Area: *Dependability Issues of Cyber-physical Systems*
- 2023 PhD supervisor, (student's affiliation: BITS Pilani K K Birla Goa Campus, India)
· Thesis title: *Prediction of Performance and Power Consumption of GPGPU Applications*
- 2023 PhD co-supervisor, (student's affiliation: BITS Pilani K K Birla Goa Campus, India)
· Thesis title: *An Investigation of Various Methodologies for Analysis and Prediction of Operational Failures in Industrial Systems*
- 2020 PhD supervisor, (student's affiliation: BITS Pilani K K Birla Goa Campus, India)
· Thesis title: *Meta Clouds and Meta Services: Constructing an Abstraction Layer Over Multi-clouds*
- 2018 Master's Thesis supervisor, (student's affiliation: BITS Pilani K K Birla Goa Campus, India)
· Thesis title: *Predicting and Analyzing Risky Behaviour in Traffic Accidents*
- 2016 Master's Thesis supervisor, (student's affiliation: BITS Pilani K K Birla Goa Campus, India)
· Thesis title: *Refactoring GPGPU Kernels For Optimized Performance & Energy Efficiency*
- 2016 PhD Thesis co-supervisor, (student's affiliation: IIT Bombay-Monash Academy, India)
· Thesis title: *Improving Energy Efficiency of MapReduce Systems*
- 2014 Master's Thesis supervisor, (student's affiliation: IIIT Bangalore, India)
· Thesis title: *Mining Flow and State based Invariants from SaaS Application Logs*
- 2014 Master's Thesis supervisor, (student's affiliation: University of Naples, Italy)
· Thesis title: *A Fault Injection Tool For Java Software Applications*
· Thesis title: *Mining Invariant Relationships for Failure Analysis of Batch Software Systems*

· Thesis title: *On the Use of Text-weighting Schemes to Detect Anomalies from Security Alerts of a Cloud System*

PUBLIC APPEARANCES

- 2018
- Invited Talk: *Modeling Operational Fairness of Hybrid Cloud Brokerage* – Purdue University, IN USA
 - Invited Talk: – ABB Corporate Research, NC USA
 - Keynote Talk: *Dependability Issues in Cyber-physical Systems* – IEEE CCEM Pre-Conference Workshop and 2nd Symp on Application of Formal Methods for Safety & Security of Critical Systems, India
- 2017
- Invited Talk: *Making Today's Software Resilient* – Ashoka University, India
 - Invited Talk: *Software Development Challenges in Heterogeneous Computing Platforms* – LNMIT, Jaipur
 - Invited Talk: *Building Dependable Software* – Ericsson Research, Bangalore
 - Invited Talk: *Mining Operational logs for Anomaly Detection* – CSL, UIUC USA and SUTD, Singapore
- 2016
- Invited Talk: *Recent advances in Software Engineering Techniques for Heterogeneous Platform* – SVNIT, Surat
- 2015
- Invited Talk: *Dependability Assessment of Operational Systems* – ABB Corporate Research India
 - Invited Talk: *Recent advances in Software Engineering Techniques for Heterogeneous Platform* – **Think Parallel**: Workshop on Parallel Computing for Heterogeneous Platform at Siemens India
- 2014
- Tutorial: *Making applications ready for HPC platform- software engineering challenges and techniques* – ACM Compute Conference, India
 - Invited Talk: *Energy Efficient Distributed Computing* – Indo-Chile workshop on Big Data, BITS Pilani K.K.Birla Goa Campus
 - Tutorial: *Software Fault-tolerance for NextGen Systems: Milieu of models and methods* – 36th Intl. Conference on Software Engineering Conference, Hyderabad India
- 2013
- Tutorial: *Virtualized Environments- Benefits and Overheads* – 14th Intl Conference on Distributed Computing and Networking TIFR Mumbai
 - Tutorial: *Towards Securing The Smart Grid (In collaboration with CSL and Information Trust Institute, UIUC)* – 26th IEEE International Conference on VLSI Design, Pune India
- 2012
- Invited Talk: *Software Engineering Challenges in Next Generation Computing Platform: HPC@Infosys* – AMD Labs, Bangalore India
- 2010
- Invited Talk: *Software Metrics and Measurements* – Siemens Labs Bangalore
- 2009
- Invited Talk: *Modular Design- Metrics for Software that Ceases to be Modular* – SAP Labs, Sophia Antipolis France
 - Invited Talk: *Role of Modeling in Product Line Architecture* – 2nd ACM India Software Engg. Conference, Pune India
- 2008
- Invited Talk: *Are software as a service (SAAS) and Cloud Computing the Future?* – 1st ACM India Software Engg. Conference, IIIT Hyderabad India
 - Invited Talk: *Collaboration and Communication Tools for Agile Development* – Accenture Shaping the Future Workshop
- 2007
- Invited Talk: *Software Engineering Challenges- IT Services Industry Perspective* – 29th Intl. Conference on Software Engineering, Minneapolis USA
 - Keynote Talk: *Enterprise Architecture Infosys Viewpoint and Capabilities* – 2nd EA Summit, Singapore
- 2006
- Invited Talk: *Evolution of Infosys - From Service-Based to a Knowledge-Driven Organization* – Dept of ECE, Purdue University USA

PUBLICATIONS

Journal

- [Sah+24] Snehanshu Saha et al. "quantile-Long Short Term Memory: A Robust, Time Series Anomaly Detection Method". In: *IEEE Transactions on Artificial Intelligence* (2024), pp. 1–11. ISSN: 2691-4581. DOI: 10.1109/tai.2024.3353163.
- [Sar+24a] Santonu Sarkar et al. "Can Tree Based Approaches Surpass Deep Learning in Anomaly Detection? A Benchmarking Study". In: (Feb. 2024). DOI: 10.48550/ARXIV.2402.07281. arXiv: 2402.07281 [cs.LG].
- [Ala+23] Gargi Alavani et al. "Program Analysis and Machine Learning based Approach to Predict Power Consumption of CUDA Kernel". In: *ACM Transactions on Modeling and Performance Evaluation of Computing Systems* 8.4 (July 2023), pp. 1–24. ISSN: 2376-3647. DOI: 10.1145/3603533.

- [Sah+23] Snehanshu Saha et al. "Quantile LSTM: A Robust LSTM for Anomaly Detection In Time Series Data". In: (Feb. 2023). DOI: 10.48550/ARXIV.2302.08712. arXiv: 2302.08712 [cs.LG].
- [SSS23] J Sarkar, S Saha, and S Sarkar. "Efficient Anomaly Identification in Temporal and Non-Temporal Industrial Data using Tree Based Approaches". In: *Applied Intelligence* 53.8 (2023), pp. 8562–8595. DOI: 10.1007/s10489-022-03940-3.
- [VBS22] Sreekrishnan Venkateswaran, Adwait Bauskar, and Santonu Sarkar. "Architecture of a time-sensitive provisioning system for cloud-native software". In: *Software: Practice and Experience* 52.5 (2022), pp. 1170–1198. DOI: doi.org/10.1002/spe.3059.
- [AS21] Gargi Alavani and Santonu Sarkar. "Performance modeling of graphics processing unit application using static and dynamic analysis". In: *Concurrency and Computation: Practice and Experience* 34.3 (2021), e6602. DOI: doi.org/10.1002/cpe.6602.
- [DLS21] Subhajit Datta, Rumana Lakdawala, and Santonu Sarkar. "Understanding the Inter-domain Presence of Research Topics in the Computing Discipline". In: *IEEE Transactions on Emerging Topics in Computing* 9.1 (2021), pp. 366–378. DOI: 10.1109/tetc.2018.2869556.
- [Sar+21b] Jyotirmoy Sarkar et al. "Postulating exoplanetary habitability via a novel anomaly detection method". In: *Monthly Notices of the Royal Astronomical Society* 510.4 (2021), pp. 6022–6032. DOI: 10.1093/mnras/stab3556.
- [VS21] Sreekrishnan Venkateswaran and Santonu Sarkar. "Fitness-Aware Containerization Service Leveraging Machine Learning". In: *IEEE Trans. Serv. Comput.* 14.6 (2021), pp. 1751–1764. DOI: 10.1109/TSC.2019.2898666. URL: <https://doi.org/10.1109/TSC.2019.2898666>.
- [PRS20] Antonio Pecchia, Stefano Russo, and Santonu Sarkar. "Assessing Invariant Mining Techniques for Cloud-based Utility Computing Systems". In: *IEEE Transactions on Services Computing* 13.1 (2020), pp. 44–58. DOI: 10.1109/tsc.2017.2679715.
- [SGM18] Santonu Sarkar, Ajai V George, and Sankar Manoj. "Thrust2D: A new design abstraction framework for structured grid class of algorithms". In: *Concurrency and Computation: Practice and Experience* (2018), e4740. DOI: 10.1002/cpe.4740.
- [Tiw+18] Nidhi Tiwari et al. "Optimizing MapReduce for energy efficiency". In: *Software: Practice and Experience* (2018). DOI: 10.1002/spe.2599.
- [VS18a] Sreekrishnan Venkateswaran and Santonu Sarkar. "Architectural partitioning and deployment modeling on hybrid clouds". In: *Software: Practice and Experience* 48.2 (Mar. 2018), pp. 345–365. DOI: 10.1002/spe.2496.
- [Mar+17] Catello Di Martino et al. "Analysis and Diagnosis of SLA Violations in a Production SaaS Cloud". In: *IEEE Transactions on Reliability* 66.1 (Mar. 2017), pp. 54–75. DOI: 10.1109/tr.2016.2635033.
- [SA17] Santonu Sarkar and Gargi Alavani. "How Easy it is to Write Software for Heterogeneous Systems?" In: *ACM SIGSOFT Software Engineering Notes* 42.4 (Jan. 2017), pp. 1–7. DOI: 10.1145/3149485.3149511.
- [DSS16] Subhajit Datta, Santonu Sarkar, and A. S. M. Sajeev. "How Long Will This Live? Discovering the Lifespans of Software Engineering Ideas". In: *IEEE Trans. Big Data* 2.2 (2016), pp. 124–137. DOI: 10.1109/TBDATA.2016.2580541. URL: <http://dx.doi.org/10.1109/TBDATA.2016.2580541>.
- [Roy+15] Arpan Roy et al. "Secure the Cloud: From the Perspective of a Service-Oriented Organization". In: *ACM Comput. Surv.* 47.3 (2015), 4:1–4:30. DOI: 10.1145/2693841. URL: <http://dx.doi.org/10.1145/2693841>.
- [Tiw+15a] Nidhi Tiwari et al. "Classification Framework of MapReduce Scheduling Algorithms". In: *ACM Comput. Surv.* 47.3 (2015), p. 49. DOI: 10.1145/2693315. URL: <http://doi.acm.org/10.1145/2693315>.
- [SRR09] Santonu Sarkar, Girish Maskeri Rama, and Shubha Ramachandran. "Discovery of architectural layers and measurement of layering violations in source code". In: *Journal of Systems and Software* 82.11 (2009), pp. 1891–1905. DOI: 10.1016/j.jss.2009.06.039. URL: <http://dx.doi.org/10.1016/j.jss.2009.06.039>.
- [Sar+09] Santonu Sarkar et al. "Modularization of a Large-Scale Business Application: A Case Study". In: *IEEE Software* 26.2 (2009), pp. 28–35. DOI: 10.1109/MS.2009.42. URL: <http://dx.doi.org/10.1109/MS.2009.42>.
- [SKR08] Santonu Sarkar, Avinash C. Kak, and Girish Maskeri Rama. "Metrics for Measuring the Quality of Modularization of Large-Scale Object-Oriented Software". In: *IEEE Trans. Software Eng.* 34.5 (2008), pp. 700–720. DOI: 10.1109/TSE.2008.43. URL: <http://dx.doi.org/10.1109/TSE.2008.43>.

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