Swaroop Joshi

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Employment

Birla Institute of Technology and Science (BITS) Pilani, KK Birla Goa Campus · Goa India

- Assistant Professor, Computer Science and Information Systems   2021–present

University of Utah · Salt Lake City UT USA

- Assistant Professor – Lecturer, School of Computing   2019–2020

The Ohio State University · Columbus OH USA

- Senior Lecturer, Computer Science and Engineering   2017–2019

Indian Institute of Technology Bombay · Mumbai India

- Senior Project Engineer, GCC Resource Center   2010–2011

SoftJin Technologies Pvt Ltd · Bengaluru India

- Software Engineer   2005–2006

Education

- *The Ohio State University*, Ph.D. in Computer Science & Engineering   2017
- *The Ohio State University*, M.S. in Computer Science & Engineering   2016
- *Indian Institute of Technology Bombay*, M.Tech. in Computer Science & Engineering   2010
- *National Institute of Technology Karnataka, Surathkal*, B.E. in Computer Engineering   2005

Publications

Chapters in Edited Volumes

1. O. Ahlqvist, **S. Joshi**, R. Benkar, K. Vatev, R. Ramnath, A. Heckler, and N. Soundarajan. *Defining a Geogame Genre Using Core Concepts of Games, Play, and Geographic Information and Thinking*. In: Geogames and Geoplay: Game-based Approaches to the Analysis of Geo-Information. Ed. by O. Ahlqvist and C. Schlieder. Springer International Publishing, 2018, pp. 19–35.

Peer Reviewed Conferences

1. W. Aljedaani, P D Parthasarathy, M. M. Eler, and **S. Joshi**. 2025. *Sprint to Inclusion: Embedding Accessibility Sprint in a Software Engineering Course*. In Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSETS 2025). Association for Computing Machinery, New York, NY, USA, 32–38.
2. W. Aljedaani, P D Parthasarathy, **S. Joshi**, and M. M. Eler. 2025. *Accessibility Insights from Student's Software Engineering Projects*. In Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSETS 2025). Association for Computing Machinery, New York, NY, USA, 39–45.

3. D. J. Bouvier, E. Lovellette, E. A. Santos, B. A. Becker, V. G. Dasigi, J. Forden, O. Glebova, **S. Joshi**, S. Kurkovsky, and S. Russell. 2024. *Teaching Programming Error Message Understanding*. In Working Group Reports on 2023 ACM Conference on Global Computing Education (CompEd 2023). Association for Computing Machinery, New York, NY, USA, 1–30.

4. P. D. Parthasarathy and **S. Joshi**. 2024. *Reflections on Incorporating Digital Accessibility in an Operating Systems Course*. In Proceedings of the 2024 on ACM Virtual Global Computing Education Conference V. 1 (SIGCSE Virtual 2024). Association for Computing Machinery, New York, NY, USA, 179–185.

5. P. D. Parthasarathy and **S. Joshi**. 2024. *Teaching Digital Accessibility in Computing Education: Views of Educators in India*. In ACM Conference on International Computing Education Research V.1 (ICER '24 Vol. 1), August 13–15, 2024, Melbourne, VIC, Australia. ACM, New York, NY, USA.

6. P. D. Parthasarathy, I. Kapoor, **S. Joshi**, S. Thomas. 2024. *Influence of Personality Traits on Plagiarism Through Collusion in Programming Assignments*. In ACM Conference on International Computing Education Research V.1 (ICER '24 Vol. 1), August 13–15, 2024, Melbourne, VIC, Australia. ACM, New York, NY, USA.

7. P. D. Parthasarathy, L. Ganesh, Indra R, S. Spruha, **S. Joshi**. 2024. *Digital Conscience: Investigating the State of Ethics in CS Curricula in India*. In ACM Conference on International Computing Education Research V.1 (ICER '24 Vol. 1), August 13–15, 2024, Melbourne, VIC, Australia. ACM, New York, NY, USA.

8. P. D. Parthasarathy and **S. Joshi**. 2024. *Exploring the Need of Accessibility Education in the Software Industry: Insights from a Survey of Software Professionals in India*. In Proceedings of the 46th International Conference on Software Engineering: Software Engineering Education and Training (ICSE-SEET '24). Association for Computing Machinery, New York, NY, USA, 212–220.

9. P. D. Parthasarathy and **S. Joshi**. 2024. *Teaching Digital Accessibility to Industry Professionals using the Community of Practice framework: An Experience Report*. In Proceedings of the 46th International Conference on Software Engineering: Software Engineering Education and Training (ICSE-SEET '24). Association for Computing Machinery, New York, NY, USA, 191–200.

10. P. D. Parthasarathy and **S. Joshi**. 2023. *Serious Games for Enhancing Accessibility Awareness and Skills*. In Proceedings of the ACM Conference on Global Computing Education Vol 2 (CompEd 2023). Association for Computing Machinery, New York, NY, USA, 199.

11. J. S. Bhatia, Parthasarathy P D, S. Tiwari, D. Nagpal, and **S. Joshi**. 2023. *Integrating Accessibility in a Mobile App Development Course*. In Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSE 2023), March 15–18, 2023, Toronto, ON, Canada. ACM, New York, NY, USA, 7 pages.

12. D. Nagpal, J. S. Bhatia, D. Goel, Parthasarathy P D, S. Tiwari, and **S. Joshi**. *Inclusive Thinking Questionnaire: Preliminary Results*. In: Proceedings of the 53rd ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2022), Mar. 2022, Providence, RI, USA.

13. T. Hattingh, S. Sohoni, A. Agrawal, S. Desai, **S. Joshi**. *An exploration of capacity development of journal reviewers through a mentored reviewer program*. In: Research in Engineering Education Symposium (REES), Dec. 2021, Perth WA, Australia. Australasian Association for Engineering Education.

14. **S. Joshi**. *Teaching Accessibility in India: A Work in Progress*. In: Proceedings of the 17th ACM Conference on International Computing Education Research (ICER 2021), Aug. 2021, Virtual Event, USA.

15. P. Bhattacharya, **S. Joshi**, S. Bandyopadhyay and R. Mittal. *Virtual CS Education in India:*

Challenges and Opportunities. In: International Conference on Best Innovative Teaching Strategies (ICON-BITS'21), Jul. 2021, BITS Pilani, India.

16. **S. Joshi**, N. Soundarajan, and J. Morris. *Innovative Approach to Online Argumentation in Computing and Engineering Courses*. In: 125th ASEE Annual Conference and Exposition. American Society for Engineering Education, 2018.

17. N. Soundarajan and **S. Joshi**. *Innovative Approach to Online Argumentation and Models for Structuring the Arguments*. In: 2018 IEEE Frontiers in Education Conference (FIE) (FIE 2018). San Jose, USA, Oct. 2018.

18. **S. Joshi** and N. Soundarajan. *Using Anonymity and Rounds-Based Structure for Effective Online Discussions in STEM Courses*. In: 124th ASEE Annual Conference & Exposition Proceedings. American Society for Engineering Education, 2017.

19. **S. Joshi** and N. Soundarajan. *CONSIDER: A Novel Approach to Conflict-Driven Collaborative Learning in Engineering Courses*. In: 2016 ASEE Annual Conference & Exposition Proceedings. American Society for Engineering Education, June 2016.

20. **S. Joshi** and N. Soundarajan. *Enabling Deep Conceptual Learning in Computing Courses through Conflict-based Collaborative Learning*. In: 2016 IEEE Frontiers in Education Conference (FIE) (FIE 2016). Erie, USA, Oct. 2016.

21. **S. Joshi** and N. Soundarajan. *Exploring conflict-based collaborative learning in engineering courses*. In: ASEE North Central Sectional Conference Proceedings. American Society for Engineering Education, Mar. 2016.

22. **S. Joshi**, N. Soundarajan, and R. Ramnath. *Conflict-Driven Cooperative-Learning in Computing Courses (Abstract Only)*. In: Proceedings of the 46th ACM Technical Symposium on Computer Science Education - SIGCSE '15. Association for Computing Machinery (ACM), Mar. 2015.

23. N. Soundarajan, **S. Joshi**, and R. Ramnath. *Collaborative and Cooperative-Learning in Software Engineering Courses*. In: 2015 IEEE/ACM 37th IEEE International Conference on Software Engineering. Institute of Electrical & Electronics Engineers (IEEE), May 2015.

24. N. Soundarajan, **S. Joshi**, and R. Ramnath. *Work-in-Progress: Conflict-Driven Cooperative Learning in Engineering Courses*. In: 2015 ASEE Annual Conference and Exposition Proceedings. American Society for Engineering Education, June 2015.

25. N. Soundarajan, **S. Joshi**, and R. Ramnath. *Work-in-progress: A novel approach to collaborative learning in the flipped classroom*. In: 121st ASEE Annual Conference and Exposition. American Society for Engineering Education, June 2014.

DISSERTATIONS

1. **S. R. Joshi**. *CONSIDER: A Novel, Online Approach to Conflict-Driven Collaborative-Learning*. PhD thesis. The Ohio State University, Aug. 2017.

2. **S. Joshi**. *Extending the Generic Data-Flow Analyzer (gdfa) in GCC*. Master's Project Report. Indian Institute of Technology Bombay, June 2010.

REPORTS

1. D. J Bouvier, E. Lovellette, E. A. Santos, B. A. Becker, T. Crick, V. G. Dasigi, J. Forden, O. Glebova, **S. Joshi**, S. Kurkovsky, and S. Russell. 2023. *Teaching Students To Use Programming Error Messages*. In Proceedings of the ACM Conference on Global Computing Education Vol 2 (CompEd 2023). Association for Computing Machinery, New York, NY, USA, 207–208.

2. S. Bandyopadhyay and **S. Joshi**. *A Report on the Second International Workshop on Software Engineering for Artificial Intelligence (SE4AI 2021)*. In: 14th Innovations in Software Engineering Conference (ISEC 2021). Association for Computing Machinery (ACM), 2021.

Sponsored Projects

Indian Sign Language Collection

- Role: Co-PI (PI: Prof. Sougata Sen, Other Co-PIs: Prof. Surjya Ghosh, and Prof. Sravan Danda, all from CSIS Dept., BITS Goa; External PI: Prof. Thad Stanner, Georgia Tech University, USA)
- Agency: Google Inc.
- Budget: USD 30,000 (approx. INR 24,00,000)

Tangible Blocks for Teaching Computational Thinking to Children with Disabilities

- Role: PI (Other PI: Prof. Basavadatta Mitra, Humanities and Social Sci., BITS Goa)
- Agency: GCIR BITS Pilani (Cross Disciplinary Research Funding)
- Budget: INR 20,00,000
- Duration: Jul 2024–Jul 2026

Using AI in ASUS Education

- Role: PI
- Agency: National Commission for Indian System of Medicine (NCISM)
- Budget: INR 6,21,500
- Duration: Mar–Jul, 2024

Accessible Science Labs for visually impaired school children

- Role: PI
- Agency: Vision Empower Trust
- Budget: INR 2 L
- Duration: Apr–Nov, 2023

Human-Centered Future Computing (GOA/ACG/2021-2022/Nov/05)

- Role: PI (Other PIs: Sougata Sen and Sravan Danda)
- Program: Additional Competitive Research Grant
- Agency: Sponsored Research and Consultancy Division, BITS Pilani
- Budget: INR 29.75 L
- Duration: Dec. 10, 2021–Dec. 9, 2023

A git and docker based toolchain for introductory programming courses

- Role: PI (Co-PI: Pritam Bhattacharya)
- Agency: Teaching Learning Center, BITS Pilani, KK Birla Goa Campus
- Budget: INR 1.45 L
- Duration: Oct. 2021–Mar. 2022

Sugamyata: Accessibility in Computing Education (BPGC/RIG/2020-21/04-2021/02)

- Role: PI
- Program: Research Initiation Grant (RIG)
- Agency: BITS Pilani
- Budget: INR 2 L
- Duration: Apr. 2021–Apr. 2023

Awards and Honors

- Teaching Excellence Award, BITS Pilani, KK Birla Goa Campus, Sep. 2024

- Lecturer Teaching Development Grant, University Center for Advancement in Teaching, The Ohio State University, Spring 2017

- Best Student Paper Award, American Society for Engineering Education, North Central Section, Spring 2016

Invited Talks

Panel Discussion at Southampton International Symposium on Teaching Accessibility 2025: Jan. 30, 2025

- I presented our work titled 'Using Game-based Learning for Teaching Accessibility' in the context of accessibility in computing education in India.

Life Abroad @ Goa College of Engineering: Jan. 10, 2025

- Sharing my experiences of the educational and professional life abroad with first-year engineering students as part of their orientation program

Android App Development Workshop @ YEB 2023: Mar. 29, 2023

- Mobile app development workshop for the participants of the Young Enterpreneurs' Bootcamp at BITS Pilani Goa. The highschool students developed a simple dice game Cho Han.

Integrating Accessibility Topics in Computing Education @ IIT Bombay: Mar. 24, 2023

- Presentation as part of the weekly seminar at the Education Technology interdisciplinary program at IIT Bombay.

Postman API Classroom Program: API 103, Feb. 2022

- Last of the three modules of Postman's API-based programming course focusing on building a full-stack web application using Glitch, Node.js, Express, axios, handlebar, and Spotify API

CPS in Computing Education: Current Trends, Oct. 2020

- Current Trends in Cyber-Physical Systems (CTiCPS) 2020

Effectively Teaching a Principles of Programming Languages Course, Feb–Apr, 2019

- Indo-Universal Collaboration for Engineering Education, a 10-week web course for 50 CS faculty from various engineering colleges in India

Cooperative and Collaborative Learning in Engineering Classrooms, Jul. 2018

- Indo-Universal Collaboration for Engineering Education Webinar, attended by over 100 engineering faculty across India

Service

Journal Editorial Board

- Associate Editor, Journal of Engineering Education Transformations, 2018–2022

JOURNAL REVIEWER
- IEEE Transactions on Learning Technologies
- IEEE Transactions on Education
- Frontiers in Computer Science
- Journal of Engineering Education Transformations
- The ASEE Computers in Education (CoED) Journal
- SAIEE Africa Research Journal

CONFERENCE LEADERSHIP
- *Co-Program Chair*: ACM India Compute 2025

SENIOR PROGRAM COMMITTEE MEMBER
- ACM SIGCSE Technical Symposium: 2024, 2025
- ACM CompEd: 2023
- ACM India Compute: 2023

CONFERENCE PROGRAM COMMITTEE MEMBER
- ACM India Compute: 2024
- ACM SIGCSE Technical Symposium: 2023, 2022, 2021, 2019, 2018
- Research in Engineering Education Symposium (REES): 2021
- ASEE Annual Conference & Exposition: 2021, 2019, 2018, 2017, 2016
- IEEE Frontiers in Education (FIE): 2018, 2017, 2016
- IEEE Teaching, Assessment and Learning for Engineering (TALE): 2018
- Midwest Instruction and Computing Symposium (MICS): 2020.

LEADERSHIP
- *Secretary-Treasurer*, ASEE Computers in Education Division, 2018–2020

BITS PILANI
- Faculty In-Charge, Computer Center Unit (FIC-CCU): Jan. 2025–Dec. 2026

- Member, Departmental Committee on Academics (DCA): Oct. 2023–present

- Doctoral Advisory Committee

  - Aishwarya Parab, CSIS (Supervisor: Dr. Arnab Paul, Co-supervisor: Dr. Kunal Korgaonkar), Title: *A Scalable and Upgradable Framework for Decentralized Applications Leveraging Smart Contracts in Blockchain*: Apr 2024–present
  - Saumya Mathkar, CSIS (Supervisor: Dr. Vinayak Naik), Title: *A Scalable Cloud and Edge-based Framework to Ease The Deployment of IoT-based Applications*: Aug 2023–present
  - Nitish Yadav, CSIS (Supervisor: Dr. Rajesh Kumar), Title: *Periculo-Procuratio: Analytical tools and techniques for integrated safety-security risk analysis*: May 2023–(Discontinued)

- Guest speakers hosted

  - Dr. M. Balakrishnan, IIT Delhi, *Assistive Technology: Mobility and Education of Visually Impaired*: January 2024
  - Dr. Dominique Blouin, Telecom Paris, France, *An Introduction to Model-Based Systems Engineering and Multi-Paradigm Modeling for the Development of Complex Cyber-Physical Systems*: November 2023

- Dr. Viraj Kumar, IISc, *Should Programming Pedagogy and Assessment Change in Response to Advances in Generative AI?*: April 2023
- Dr. Santosh Nagarakatte, Rutgers University, *A Case for Correctly Rounded Math Libraries*: March 2023
- Mr. Prasad Ranganekar, Former Advisor, Tata Aerospace Systems Ltd., *India @ 75: Dr. Kalam's vision*: October 2022

- Non-Teaching staff hiring committees (Campus/Institute)

  - Graphics & UX/UI Designer (Marketing), December 2023
  - Technician (CS & IS), March 2023

- Ph.D. admissions interview panel: Feb. 2021, Aug. 2021, Jan. 2022, Dec. 2022

- Practice School I: 2021, 2022

- Goa Campus Coordinator, Postman Classroom Program: Oct. 2021–present

- Faculty Advisor, DevSoc: Jun. 2022–present

University of Utah

- Lecturing faculty search committee, School of Computing, 2019–2020

Government bodies

- *Member*, *Governing Council*, Goa State Research Foundation, June 2023–present

Ph.D. Thesis External Examiner

- Karunakara Rai B., *Reasoning Methodology for Estimating the Degradation in the Performance of a Real-Time Fault Tolerant System*. PhD thesis. Visvesvaraya Technological University (VTU), Karnataka India, 2019.
- Sahana B., *Analytical Framework for Fault Management in Communication Networks*. PhD thesis. Visvesvaraya Technological University (VTU), Karnataka India, 2022.

Teaching Experience

Computer Science & Information Systems, BITS Pilani, Goa

- CSF111 Computer Programming (Instructor in-charge: Sp'22, Sp'23; Instructor: Sp'24)
- CSF314 Software Development for Portable Devices (Instructor in-charge: Fa'21, Fa'22, Fa'23, Fa'24)
- ISF341: Software Design (Instructor in-charge; coordinated with PJAIT: Fa'23)
- CSF213 Object Oriented Programming (Instructor: Fa'21, Fa'22, Fa'23)
- CSF363 Compiler Construction (Instructor: Sp'21)

School of Computing, University of Utah

- Mobile App Development
- Senior Capstone
- Data Structures & Algorithms

Computer Science & Engineering, The Ohio State University
- Principles of Programming Languages
- Software II: Software Development and Design
- Software I: Components
- Introduction to Computer Programming In Java
- Data Structures Using Java
- Mobile App Development
- C++ Programming
- Introduction to Computer Programming in C++ for Engineers and Scientists

Teaching Areas
- Programming Languages
- Mobile App Development
- Compiler Construction and Optimization
- CS1/CS2

Professional Memberships
- Institute of Electrical and Electronics Engineers (IEEE)
    - Education Society
    - Computer Society
- Association for Computing Machinery (ACM)
    - Special Interest Group on Computer Science Education (SIGCSE)
    - Special Interest Group on Accessible Computing (SIGACCESS)
    - Special Interest Group on Software Engineering (SIGSOFT)