

# 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

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

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. (Accepted; preprint: <https://arxiv.org/abs/2210.06132>.)

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.

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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

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

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

## OTHER

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.

## Awards and Honors

HUMAN-CENTERED FUTURE COMPUTING, INR 29,75,000, 2021–23

Role: PI (Other PIs: Sougata Sen and Sravan Danda)

Program: Additional Competitive Research Grant

Agency: Sponsored Research and Consultancy Division, BITS Pilani (No. GOA/ACG/2021–2022/Nov/05)

A GIT AND DOCKER BASED TOOLCHAIN FOR INTRODUCTORY PROGRAMMING COURSES, INR 1,45,000, 2021–22

Role: PI (Co-PI: Pritam Bhattacharya)

Agency: Teaching Learning Center, BITS Pilani, KK Birla Goa Campus

SUGAMYATA: ACCESSIBILITY IN COMPUTING EDUCATION, INR 2,00,000, 2021–23

Role: PI

Program: Research Initiation Grant (RIG)

Agency: BITS Pilani (No. BPGC/RIG/2020–21/04–2021/02)

LECTURER TEACHING DEVELOPMENT GRANT, SPRING 2017

University Center for Advancement in Teaching, The Ohio State University

BEST STUDENT PAPER AWARD, 2016

American Society for Engineering Education, North Central Section

## Invited Talks

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

## Teaching Experience

COMPUTER SCIENCE & INFORMATION SYSTEMS, BITS PILANI, GOA

CSF111 Computer Programming (Instructor in-charge Sp'22, Sp'23)

CSF314 Software Development for Portable Devices (Instructor in-charge Fa'21, Fa'22)

CSF213 Object Oriented Programming (Instructor Fa'21, Fa'22)

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

## Service to Profession

ASSOCIATE EDITOR

Journal of Engineering Education Transformations, 2018–2022

JOURNAL REVIEWER

Frontiers in Computer Science

Journal of Engineering Education Transformations

The ASEE Computers in Education (CoED) Journal

SAIEE Africa Research Journal

CONFERENCE PAPER OR POSTER REVIEWER

ACM SIGCSE Technical Symposium on Computer Science Education, 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.

## CONFERENCE OR WORKSHOP ORGANIZER

*Co-organizer*, Software Engineering for Artificial Intelligence (workshop), ACM 14th Innovations in Software Engineering Conference, online, Feb. 2021

## LEADERSHIP

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

## PH.D. THESIS 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.

## Service to University

### BITS PILANI

Department Level Selection Committee (CSIS Faculty hiring): 2022

Faculty Advisor, DevSoc: Jun. 2022–present

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

### UNIVERSITY OF UTAH

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

## 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)