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. (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

Accessible Science Labs for visually impaired school children, INR 2,00,000, Apr-Nov 2023

> Role: PI
> Agency: Vision Empower Trust

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

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

> Mobile app development 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

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)