

Industry, Quality, and Social Issues (IQSI) Mini-track

Nancy R. Mead
Carnegie Mellon University
nrmcmu@gmail.com

Elke Hochmüller
Carinthia University of Applied
Sciences
E.Hochmueller@fh-kaernten.at

Abstract

This is an overview of the IQSI Mini-track within the special track on Software Engineering Education and Training. The IQSI mini-track includes 7 accepted papers on a diverse set of topics, including industry studies, cybersecurity, social issues including remote teaching during Covid and gender, and other topics related to quality.

1. Mini-Track Overview

Two papers addressed social and societal issues. These are often discussed but not always explicitly addressed as part of software engineering education. These papers included “A Chatbot Tutor Can Lessen the Gender Confidence Gap in Information Systems Learning” by Cherileigh Leavitt, Madison Corbin, Mark Keith, Ryan Schuetzler, Greg Anderson, and Degan Kettles. The paper explores how chatbot tutors impact confidence differently between 136 women and men in an introductory programming course. The results indicate that chatbot may be a valid tool to lessen the gender gap in the information systems discipline. The paper “Deferring Social Impact: Conceptions of ICTD and Computing Careers” by Philip Garrison and Lucy Pei contributes to the conversation about undergraduate students' conceptions of computer science (CS) and career pathways. It includes a qualitative study of undergraduate involvement on a software research project in the Information and Communication Technology for Development (ICTD) subfield of CS.

The mini-track also includes a paper that is both unique to our times and related to distance education: “Tools and Techniques Adapted for Teaching Software Engineering Topics Remotely during the COVID-19 Pandemic” by Md. Farhad Alam Bhuiyan, Musfiqur Rahman, Fairuza Laila, Sarker Tanveer Ahmed, and Ishtiaque Hussain. The paper focuses on the Software Engineering Education & Training (SEET) courses at the university levels and addresses questions like: What tools and techniques did they

adapt to handle the modality transition challenges? What lessons they learned and what would they do differently the next time? What are the students' perspectives on these, etc.?

There are two papers on cybersecurity. Cybersecurity issues often arise from poor software quality, and hence fit the mini-track theme. The papers include “Using a CTF Activity to Teach Cloud and Web Security” by Joel Coffman, Zachary Romano, Jennifer Windsor, and Mathew VanDerPol. The authors incorporated a capture the flag (CTF) activity into an existing course to illuminate the potential pitfalls and consequences of cloud misconfiguration and to encourage participants to protect against such issues in their own applications. The classroom results are evaluated, and future modifications discussed. The paper “Using Cybersecurity Body of Knowledge (CyBOK) Case Studies to Enhance Student Learning” by Anne Kohnke, Bastian Tenbergen, and Nancy Mead describes a set of case studies, their mapping to the CyBOK, and classroom results of one exemplary case study. The classroom results demonstrated improved understanding by students.

The paper “ScaffoldSQL: Using Parson’s Problems to Support Database Pedagogy” by Otto Borchert and Gursimran Walia examines an interactive tool for helping students learn SQL through a system of interactive scaffolded exercises using Parson’s problems.

The paper “Empirical study on the difficulties of software modeling through class diagrams” by Pamela Flores, Carlos Rodas, and Jenny Torres explores the problems students at the undergraduate level face in their first attempts at modeling software through an empirical study.