

# **MRS: Interactive Problem Solving Using Mobile Devices in the Classroom**

## **AIMS**

This workshop will present the details of the Mobile Response System (MRS) software, which facilitate anonymous communication, interaction and evaluation of in-class interactive problem solving activities using mobile devices. MRS facilitates a feedback-driven and evidence-based teaching methodology, which is important to enhance student learning. By allowing interactive problem solving using mobile devices and by being easy to use and extensible to other disciplines, MRS makes itself distinctive than similar systems. MRS is a client-server software that allows the faculty to dynamically prompt the students with interactive exercises synchronized with the lecture material in their mobile devices. Students are able to actively interact with the problem and send their answers back to the faculty computer. MRS then facilitates grading of the exercises automatically, by comparing the student made sequence of steps with the correct sequence of steps. After grading, MRS also makes the grading statistics and student submissions available for the faculty to view and share with the students.

This formative assessment information allows the faculty to have real-time evidence of students' comprehension of covered lecture materials on that particular class and also helps faculty to identify the concepts that need to be repeated or reinforced. By utilizing MRS software, faculty is also able to capture screens from student submissions and discuss on those screens if context-sensitive feedback is needed. On the other hand, this approach allows the students to obtain faster and frequent feedbacks that reinforce their learning and help them to identify problem areas. The active interaction with a problem via multiple steps while going back and forth and seeing the consequence of their choices at each step is expected to enhance students' analytical and problem solving capabilities. The other important feature supported by MRS is the ability to submit feedback/question anonymously during the class. The software allows students to send anonymous feedback/questions to faculty and vote on feedback/questions that faculty will choose to review and answer at the end of the class.

## **MAIN TOPICS**

The workshop will have the following agenda and activities:

- Introduction
- Need for interactive problem solving
- Pedagogy used
- Why to extend the pedagogy into mobile devices?
- Overview of Mobile Response System (MRS)
- MRS at Work
- How to extend MRS to any disciplines
- Conclusion

**TARGET GROUP**

Attending this workshop will benefit all computer science/engineering educators, specially faculty who are teaching computer science/engineering or other STEM courses. Audience will learn how to utilize this system and the pedagogy in their classes.

**BACKGROUND KNOWLEDGE EXPECTED OF THE PARTICIPANTS**

No previous knowledge is required.

**WORKSHOP ACTIVITIES**

Presentation, discussions, hands-on activities and watching videos.

**WORKSHOP TIME**

120 minutes.

**PRESENTER**

Mohammad Muztaba Fuad, Ph. D. is an Associate Professor of Computer Science in The College of Winston-Salem State University. He received his doctoral degree in Computer Science from Montana State University. His research interests include self-adaptive computing, mobile computing and computer science education. His research activities have resulted in NSF funded work and numerous publications in prestigious journals and proceedings. Dr. Fuad has been awarded Winston-Salem State University's W. B. Atkinson Distinguished Research Award. Dr. Fuad has more than twelve years of teaching and advising experience and has been awarded Winston-Salem State University's Wachovia Excellence in Teaching Award. Dr. Fuad is responsible for the pedagogy development, system implementation and in-class deployment of MRS.