Workshop - Designing Laboratories, Exercises, and Visualization Demos in Signals and Systems Courses using Java-DSP

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DESCRIPTION

This workshop will expose participants to the utility of the ASU Java-DSP software technology in Signals and Systems courses. The session will be interactive and participants will use and assess an exercise that involves step-by-step online simulations on prepackaged online laboratory exercises that can be disseminated in their junior level signals and systems classes. Assessment forms and pre- and post-evaluation quizzes will be discussed.

WORKSHOP ACTIVITIES

This workshop will include tutorials and examples to demonstrate how instructors can use J-DSP in their classes both as a demonstration tool and as a tool that enables them to provide laboratory experiences to on-campus and distance learning students. The session will be conducted as a computer workshop and participants will attempt to use, program, and execute J-DSP-based exercises and scripts. The objectives are:

- to learn how to use Java-DSP. Documentation and instruction will be given to get participants started.
- to learn how to use the signal generator and filter design functions. Programming J-DSP demos to help students understand linear system and filtering concepts
- to learn how to use the FFT to compute spectra of signals. Programming demos to help students understand the Fourier transform properties
- to learn how to use other pre-canned signal functions to learn how to use J-DSP scripts to embed demonstrations from web course content
- to enable participants to design their own J-DSP laboratory exercises
- to demonstrate to the participants how to carry an assessment of the exercises and practices with J-DSP

AUDIENCE

The workshop is intended for Electrical Engineering, Computer Science, and Electromechanical Technology instructors, faculty members, engineers and scientists that are interested in integrating laboratory experiences in their signals and systems and DSP related activities and courses. Although the organizers will bring 4-5 extra laptops, participants are strongly encouraged to being their own laptops as well.

EXPECTED OUTCOME

Participants will be able to use the J-DSP software and laboratories, design their own J-DSP based laboratories and exercises, and form and execute an effective evaluation plan of these exercises. Participants will be able to plan an adaptation of these practices and materials to their courses

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