



Java-DSP – Current and Future Improvements

Shalin Mehta, Arizona State University



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Highlights of the work

- Online DSP Quiz integrated with J-DSP environment.
- Quiz statistics to better understand students' performance.
- Support for simultaneous multiple simulations.
- Interactive animated demos.
- Integrated videos with J-DSP simulation.

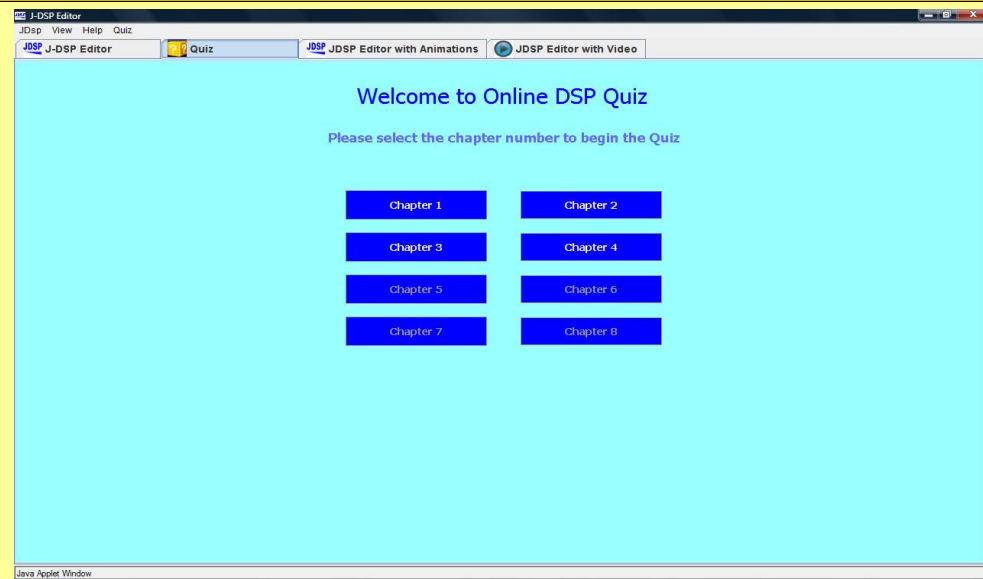


DSP Quiz

- Contains multiple choice questions with facility to add figures in questions and answers.
- Links to J-DSP Demos, Videos and DSP lecture notes.
- Evaluates students' performance at the end of each chapter.
- Uses .csv files to create databases.



Front Page (Quiz)

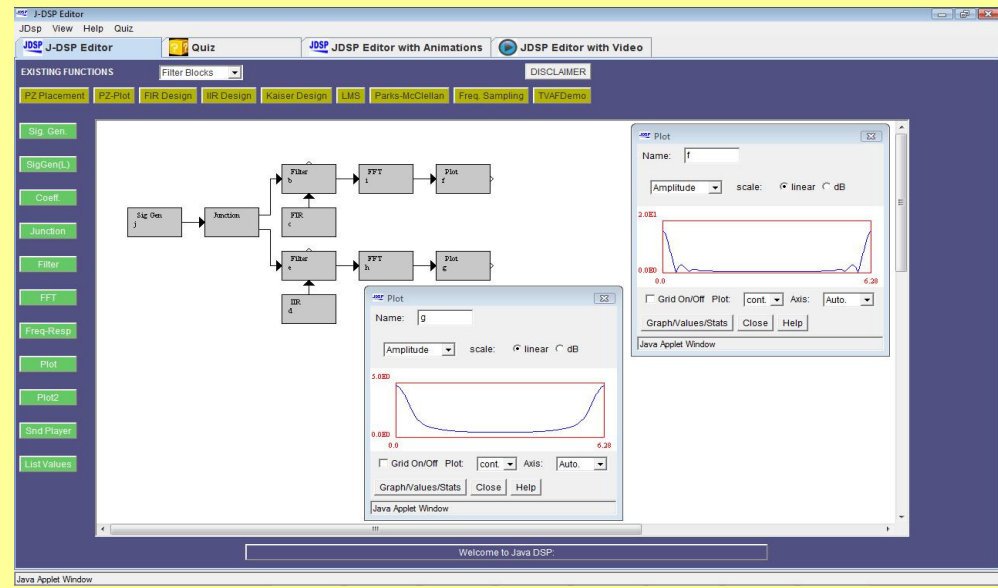
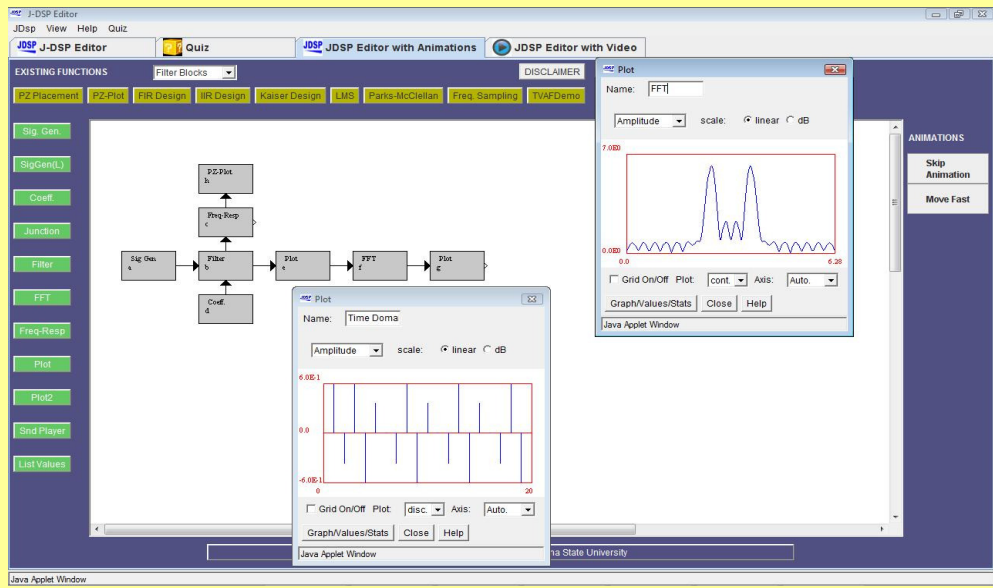


The screenshot shows the J-DSP Editor interface. At the top, there are tabs for 'J-DSP Editor', 'J-DSP Editor with Animations', and 'J-DSP Editor with Video'. The main content area displays 'Chapter 3' and 'Question 2'. The question text is: 'The DTFT can be obtained from the z-transform for $z = \dots$ '. Below the question are four multiple-choice options: a) e^T , b) $e^{2\pi T}$, c) $e^{j\Omega}$, and d) $e^{2m\Omega}$. The correct answer is indicated as 'c)'. At the bottom, there are buttons for 'Evaluate', 'Return to Index', 'Switch to J-DSP Editor', and 'Proceed'. There are also links for 'J-DSP Demo referring to this question', 'Short Description on this topic', and 'Check out a small video on this topic'.

- Quiz Edit: Provides support for database update (changing the data (.csv) files) without logging into the server and from the webpage itself.
- Quiz statistics: Generates statistics to measure students' performance (Chapter wise, Question wise and Student wise distributions).
- Administrator Login: A new privileged login restricts the access of quiz edit, statistics and other functions limited to the administrators.

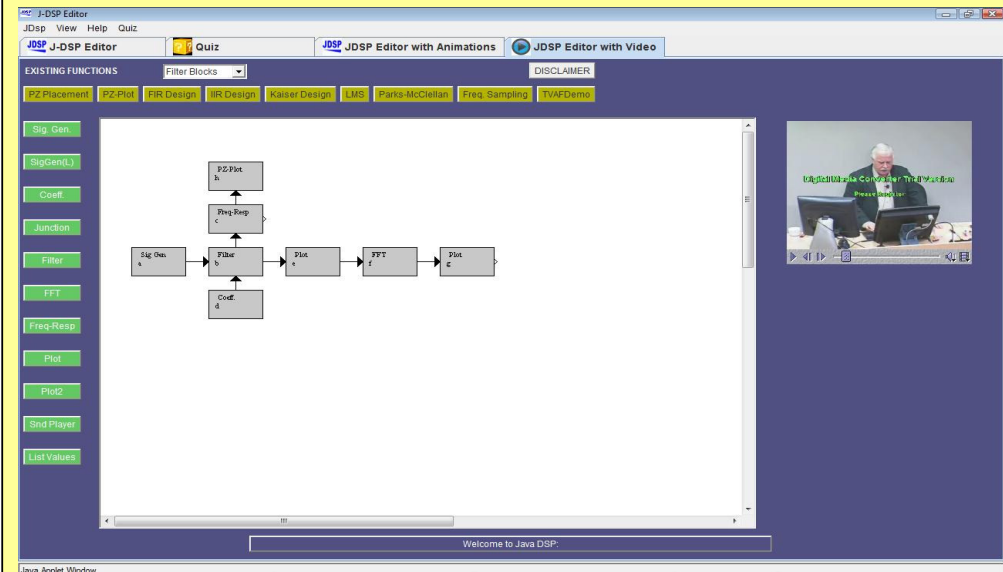
The screenshot shows the 'Quiz Edit' interface. It features a table with columns: Num. Questions, Question Num, Question, Question_Image, Type of Ans, Num of Options, Answer_Image, Option1, and Option2. The table lists 10 questions. Below the table, there is a 'Question: Question Text' field with a text input area containing 'The ROC of a strictly non-causal signal extends:'. There are buttons for 'Insert a Row', 'Update Database', and 'Remove a Row'. A 'Start a Quiz' button is also visible at the top right.

- Currently supports three simultaneous simulations, completely independent to each other.
- The number of simulations running concurrently can further be increased.
- Communication between simulations, e.g. the functions like copy and paste between simulations, comparison between simulation results.
- Support for the students to save their simulations on the server.



- Each quiz question will be associated with an interactive demo with an optional audio support.
- Support is provided to change the animation speed and to completely skip the animation.
- Animation creation is as easy as creating a simulation, without any additional overhead.

- Each quiz question will be associated with an excerpt of DSP video lecture.
- Opens a video in J-DSP simulation environment.
- Support for working on the simulation while video is being played in the same window.



- Each quiz question can be linked to a part of the DSP lecture note, pertaining to the given question.
- Additional notes can be edited into the Comments area of the quiz window, which gets activated as soon as the question is evaluated.

- Arrange Blocks functionality.
- Support for Scroll-bar to create large simulations that extends beyond normal window's dimension.
- News line integrated within the simulation to highlight any ongoing changes, new features or any other information.

Thank You!!!!!!!!!!