

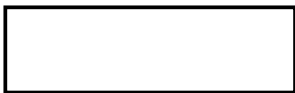
Mentored Teaching Project - Evaluative Letter

To whom it may concern,

This letter is in regards to Pedro Nariyoshi's project named "Assessing the effect of teaching the Radix-3 variant of Fast Fourier Transform (FFT) in students' ability to extrapolate to arbitrary length FFTs". The project's aim is to evaluate whether spending time covering a variant of an algorithm helps students be able to generalize the algorithm. The teaching and learning goals of this project were to determine how well students extrapolate and implement the FFT algorithm for different practical situations. In particular, Pedro evaluated whether teaching different versions of the FFT algorithm, e.g., radix-3, improved the student's understanding of FFT. Pedro designed an in-class activity to evaluate whether presenting both radix-2 and radix-3 versions of FFT increases the likelihood of students' ability to extend the algorithm to arbitrary lengths. First, the radix-2 variant of the FFT was derived with students and the butterfly diagram for length 8 was presented. Afterwards, students were asked to derive the weights for a FFT of length 6. Immediately following this exercise, the radix-3 FFT was derived with a butterfly diagram demonstration for a length 9 FFT. Finally, the previous exercise is repeated. Although both radix-2 and radix-3 variants were presented, the assignment requires the use of a mixed-radix variant, challenging the students to write down their own expression for a FFT expansion. Pedro's assessment showed that presenting both radix-2 and radix-3 forms of the FFT algorithm improved the students' performance and understanding of the FFT algorithm in general. After both forms were presented, a majority of the students were able to implement the FFT algorithm for an arbitrary length.

This project shows the need for representing topics in engineering classes from different perspectives and multiple times. The findings of this project also illustrate the need for providing students the skills necessary for adapting and extending what they learn in the classroom to practical application settings. Overall, this teaching project has been beneficial to both the students and the future instructors in designing their courses.

Sincerely,



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