MICHIGAN STATE UNIVERSITY | Graduate School

Certification in College Teaching - Mentored Teaching Project Approval Document

Full Graduate Student Name: Pedro da Cunha Nariyoshi	NETID: A46630785

Context for Project (e.g., course name)	ECE466
Proposed Semester for Project	SS20

I am willing to have a link to my ePortfolio shared on the Graduate School website. **YES** NO (*circle one*)

PROJECT OBJECTIVES:

The goal of this project is to assess the effect of teaching the Radix-3 variant of Fast Fourier Transform (FFT) in students' ability to extrapolate the FFT algorithm to arbitrary length FFT algorithms.

DESCRIPTION OF PROJECT, INCLUDING IMPLEMENTATION, STUDENT OBJECTIVES, TIMELINES, AND YOUR RESPONSIBILITES IN CARRYING OUT THE PROJECT:

The FFT is often only taught for lengths that are powers of 2. While this is the most common implementation of the algorithm, the principles of the algorithm can be applied to any arbitrary length. The goal of this exercise is to compare student's ability to extrapolate the knowledge into any arbitrary length if only presented with only the radix-2 FFT to being presented both radix-2 and radix-3 variants.

As students are taught the FFT algorithm, I intend to teach them only the radix-2 variant of the FFT algorithm. Afterwards, I will apply an exercise where students are asked to compute the weights for a FFT of length 6. Following the exercise, I will present to them the radix-3 variant of FFT and ask them to do the same exercise again.

The two exercises will be collected and the improvement will be quantified.

MENTOR'S ROLE IN THE PROJECT, INCLUDING PLANNED MEETINGS AND PROJECT ASSESSMENT:

Aiding with analysis of data and conclusion. Overseeing the data management (study has been approved by the IRB – STUDY00003875)

METHODS OF ASSESSMENT:

The students will be given the same assignment twice, the calculation of the weights for a length-6 FFT. The first time, they are given it after a traditional instruction on the FFT using the radix-2 variant. The second time, they are given the assignment after being presented the radix-3 variant. The comparison of the results for both assignments will be used to evaluate the effectiveness of the intervention.

SIGNATURES FOR APPROVAL (*#1 and #2 are for pre-project approval; #3 is for post-project approval*)
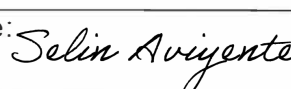
1. *I support the student's participation in the Certification in College Teaching program, and I certify that she/he/they is/are making good progress towards the degree.*

Advisor Name	Dr. John R Deller	Date: 10 Mar. 20	Signature: *John R Weller*

2. *I approve the proposed Mentored Teaching Project as described above, and will assist in project design, implementation and methodology where needed.*

Mentored Teaching Project Mentor Name	Dr. Selin Aviyente	Date:	Signature:

3. *The student has satisfactorily completed the Mentored Teaching Project in the Certification in College teaching program as described above.*

Mentored Teaching Project Mentor Name	Dr. Selin Aviyente	Date: 04/27/21	Signature: *Selin Aviyente*