

# EE / CprE / SE 491

## Machine Learning Heterogeneous Computing

### Bi-Weekly Report #2

Time: Sep. 17 - Sep. 27  
Client: JR Spidell  
Faculty Advisor: Diane Rover

#### Team Members:

Sandro Panchame  
Rudolph Nahra  
Alek Comstock  
Jeffery Kasper

#### Biweekly Summary

These weeks, the team reviewed our plans for our OpenAMP code with our client to further flesh out the hardware configuration that will be needed to support the system. We have also gotten the Vivado, Vitis, and petalinux tools working and have begun to make iterations of our development.

#### Past Bi-Weekly Accomplishments

**Jeffery K:** Successfully created a Petalinux project and installed the xrt package into the project.

**Sandro P:** Resolved some issues with the new dataset I was working with. Requested a VM for training our model on the new dataset. I took a closer look at Remodnav, and have a better understanding of how to use it for our goals.

**Alek C.** refined pseudocode with the help of JR; changed it to be more specific, leaving in good questions for future research.. I slimmed down our choices for possible versions of openAMP; most versions are not reverse-compatible.

**Rudolph:** Successfully compiled several iterations of petalinux and associated SDKs to include kernel features that will be needed in our design. Tested images on the board. Continued developing OpenAMP code. Significant time spent quantizing and compiling CNN model for the board, but still have errors.

## Pending Issues

**Sandro P:** There may be a caveat I missed when I will mess around with Remodnav. Will have to extract frames from some videos. Not sure how long training will take.

**Alek C.** I will need help learning how to get what version of openAMP is on the board. I will need to spend some time searching through documentation to better answer specifics about the API for openAMP.

**Rudolph:** Need new version of \*.xsa file from Jeffery to recompile petalinux.

**Jeffery K.** Issues compiling petalinux os images using the petalinux tool. I believe that I may have some package version issues that are necessary for compilation.

## Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Sandro Panchame	I took a closer look at Remodnav, and have a better understanding of how to use it. Requested and have gained access to a VM for training our model. Fixed some issues from what was already downloaded from the TEyeD and NVGaze datasets	6	73
Rudolph Nahra	Successfully compiled several iterations of petalinux and associated SDKs to include kernel features that will be needed in our design. Tested images on the board. Continued developing OpenAMP code. Significant time spent quantizing and compiling CNN model for the board, but still have errors.	6	99
Alek Comstock	Created shared pseudocode for better collaboration, picked out several notable versions of openAMP.	6	62
Jeffery Kasper	Creating Petalinux project and troubleshooting petalinux os compilation issues.	5	70

## Plans for Coming Weeks

**Jeffery K** : Continue troubleshooting version issues and compile a petalinux os and create a vitius project.

**Sandro P**: Play around with Remodnav and train the model using the VM. Could get more from the datasets, but will do training with what I have. Going to have to compare the previous model to current.

**Rudolph**: Develop openAMP code to the point of a first prototype. Recompile petalinux with new version of \*.xsa from Jeffery.

**Alek C.**: I plan on trying to get ahold of the board to match our versions of openAMP. I plan on detailing our pseudocode more, and adding callback functions that work (better) with interrupts. I have an example code base but for a different board; I hope to perhaps convert it to our Kria board to better study and understand the API.