**The HLS folder contains three files**

**ip:** Convolutional IP and Pooling IP included

**LeNet5\_98\_73:** The Weights and Bias of each layer saved after the Kyle-Net model is trained.dat2bin.c converts the .dat file of the learning parameters exported by tensorflow training into a .bin file that can be recognized by the main control code. The learning parameters in the LeNet5\_98\_73 folder are the same as the Weights\_Bias folder in the Main control code file.

**soc:** call IP and ARM9 to form SOC

**MNIST:** Handwritten digit data set and label

**Main Control Code contains 5 files**

**bit\_tcl\_file:** bitstream, tcl, hwh files exported in vivado software

**Real\_time\_detection:** The test code that uses the hand-drawn board numbers as input

**testing\_data\_set\_detection**: The test code that passes the MNIST test set as input

**Testing\_number:** Tested handwritten number picture

**Weights\_Bias:** Weights and Bias generated by training the Kyle-Net model through TensorFlow

**Tensorflow\_training\_code:** Code for training Kyle-Net model through tensorflow