mohsaied / **mlsys_dev** Private

0 stars 1 fork

Star Watch

Code Issues Pull requests 1 Actions Projects Security Insigh

main

mohsaied Merge pull request #18 from mohsaied/a3_conv2d_gemm ... 4 hours ago 253

View code

README.md

ECE 5545 Machine Learning Hardware and Systems

Course Development Repo.

Procedure for adding *finalized* files to `main`:

- Branch from `dev` into a new staging branch names with each feature. For example if the training script is ready, we can call the new branch `stage_train`. Keep only the files that are ready to be added to `main`.
- Clean up files in the staging branch (e.g. `stage_train`) from any unnecessary comments or imports.
- Test the file thoroughly and set all the default values to the best ones we found, and the ones we think students should use in their final code (our model solution).
- Add instructions and sections within the file (remember this will be used in colab) to explain what's going on to the students.
- [Important] Create a pull request where I will leave comments and ask questions about each file before adding it to `main`. I will also use this time to go test each file and add any missing instructions, notes, figures to make the lab handouts complete.

- After all comments are resolved, I will merge the staging branch (e.g. `stage_train`) with `main`, then we can move on to the next file.
- Note: we can have multiple branches and multiple pull requests going on in parallel.
- Another Note: Please do not commit anything to main without this procedure. Normally there is branch protection to reject commits to a final (release) branch, but I am using a free github account and apparently it's not supported.

Releases

No releases published
Create a new release

Packages

No packages published
Publish your first package

Contributors 4

Lrhelling


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Allan518 Allan Zhang


ZhanqiuHu

Languages

Jupyter Notebook 95.7% **Python** 4.3%

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Course review #19

Merged **mohsaied** merged 13 commits into `main` from `course_review` 5 hours ago

Conversation 0 Commits 13 Checks 0 Files changed 9

Allan518 commented 9 days ago

@mohsaied
While creating the new md file, I also created a dedicated folder "image" to store all image resources, I moved the RoofLine Plot image to this newly created image folder as well for consistency
One suggestion I have is to make our folder name and file name more intuitive so when user navigate the github, they have an good idea by its name. For example: Change folder name from a2 to "Course Notebooks"; change file name from a2.md to "assignment_2_keyword_spotting_with_microcontrollers", etc

Allan518 added 13 commits 9 days ago

Arduino Nano 33 BLE Tutorial.md ···	9b68b2f
Update arduino_nano_33_ble_tutorial.md	b0e9b04
Create serial_monitor.png	3d59fc5
Add images to be used at MD files	0cb23db
Move image files under the same folder	7d5d95d
Update arduino_nano_33_ble_tutorial.md	5279486
Delete open_micro_speech.png.png	b313c85
Delete left_arrow.png.png	7345b71
Add files via upload	5c3f49b

Update arduino_nano_33_ble_tutorial.md a61e8f3
Update arduino_nano_33_ble_tutorial.md 5223a26

Update a1.md ··· ba26332

Delete Roofline_Plot.PNG dfb0a66

Allan518 requested a review from **mohsaied** 9 days ago

mohsaied approved these changes 5 hours ago

View changes

mohsaied merged commit `c2d9c5f` into `main` 5 hours ago Revert

mohsaied deleted the `course_review` branch 5 hours ago Restore branch

Reviewers

mohsaied

Assignees

No one—assign yourself

Labels

None yet

Projects

None yet

Milestone

No milestone

Linked issues

Successfully merging this pull request may close these issues.

None yet

2 participants

mohsaied / mlsys_dev Private

Code Issues Pull requests 1 Actions Projects Security Insigh

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Course review #19

Merged **mohsaied** merged 13 commits into `main` from `course_review` 5 hours ago

Conversation 0 Commits 13 Checks 0 Files changed 9

File filter Conversations Jump to

2 assignment_handouts/a1.md

```
44
45  ## 2. Roofline Plots
46  <p align="center">
47-   <img src= "./Roofline_Plot.PNG" height="300" class="center" />
48  </p>
49
50  Do online research or coding to complete the following graphs. We have provided starter code and additional guidance in the Roofline Plot Notebook.
```

```
44
45  ## 2. Roofline Plots
46  <p align="center">
47+   <img src= "./images/Roofline_Plot.png" height="300" class="center" />
48  </p>
49
50  Do online research or coding to complete the following graphs. We have provided starter code and additional guidance in the Roofline Plot Notebook.
```

67 assignment_handouts/arduino_nano_33_ble_tutorial.md

```
...  @@ -0,0 +1,67 @@
```

```
1  + # Arduino Nano 33 BLE Tutorial
2  + ## Part One: Initial Setup
3  + Please follow this [link](https://www.arduino.cc/en/Guide/NANO33BLE) to setup Arduino Nano 33 BLE Board.
4  +
5  + ## Part Two: Deploy your model to Nano 33 BLE board
6  +
7  + #### Step 1
```

```
+ Open the micro_speech sketch under Examples -> Arduino_TensorFlowLite -> micro_speech.
+ <p align="left">
+   <img src="./images/open_micro_speech.png" height="400" class="left" />
+ </p>
+
+ #### Step 2
+ Connect your board. Then compile and upload the code to your board by clicking the arrow on the top left of the screen. Alternatively, you can verify your code first by clicking the check mark then the arrow.
+ <p align="left">
+   <img src= "./images/left_arrow.png" height="100" class="left" />
+ </p>
+ Try saying yes, no, and any other words to see if the program correctly identifies the words you are saying as “yes”, “no”, “unknown”, or “silence”.
+
+ #### Step 3
+ After the code is successfully uploaded to your board, open the Serial Monitor by clicking the icon on the top right. You may need to reconnect your port.
+ <p align="left">
+   <img src="./images/serial_monitor_icon.png" height="100" class="left" />
+ </p>
+ <p align="left">
+   <img src= "./images/serial_monitor.png" height="300" class="left" />
+ </p>
+ If your board is not responsive enough, you can lower its detection threshold. Locate the file recognize_commands.h. On line 135, you will see where the detection_threshold parameter is set. If you lower the value, your board will become more responsive, but it will also
```

have a higher false positive rate. You will need to recompile after adjustment.

+

+ #### Step 4

+ Find the file micro_features_model.cpp under the same directory with the micro_speech.ino file. You will see a variable named g_model. Once you have finished running the model_conversion notebook, you will have a file in .cpp format. Open or print out the file in your terminal using “cat”. You will find a dictionary of bytes for your own model, and also an integer indicating the length of your model. Replace the default g_model with your own model, and g_model_len with your own model’s length. Make sure the variable types are still the same: const unsigned char g_model and const int g_model_int.

+

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+ #### Step 5

+ Our model requires some additional op resolvers than the default model provided in the micro_speech example. Therefore, we need to modify the op resolver part in micro_speech.ino as follows:

+ ```

+ static tflite::MicroMutableOpResolver<6> micro_op_resolver(error_reporter);

+ if (micro_op_resolver.AddFullyConnected() != kTfLiteOk) {

+ return;

+ }

```
+   if (micro_op_resolver.AddSoftmax() != kTfLiteOk) {
+     return;
+   }
+   if (micro_op_resolver.AddReshape() != kTfLiteOk) {
+     return;
+   }
+   if (micro_op_resolver.AddConv2D() != kTfLiteOk) {
+     return;
+   }
+   if (micro_op_resolver.AddTranspose() != kTfLiteOk) {
+     return;
+   }
+   if (micro_op_resolver.AddPad() != kTfLiteOk) {
+     return;
+   }
+
+ ```
+ #### Step 6
+ Upload your model to the board using the same process in Step 2.
```

0 assignment_handouts/Roofline_Plot.PNG → assignment_handouts/images/Roofline_Plot.png

File renamed without changes.

BIN +20.5 KB assignment_handouts/images/left_arrow.png

Binary file not shown.

BIN +20.3 KB assignment_handouts/images/model_bottom.png

Binary file not shown.

BIN +106 KB assignment_handouts/images/model_top.png

Binary file not shown.

BIN +823 KB assignment_handouts/images/open_micro_speech.png

Binary file not shown.

BIN +239 KB assignment_handouts/images/serial_monitor.png

Binary file not shown.

BIN +7.31 KB assignment_handouts/images/serial_monitor_icon.png

Binary file not shown.