Phylanx Meeting Notes

December 7, 2017

* Adrian, Chris, Hartmut, Bibek, Ali, Shahrzad, Rod, Parsa, Steve, Kate, Kevin, Monil
* Chris-
  + Able to add 10 more unit tests for the space filling curves
    - Stuck on a constructor
    - Should be able to add 10 more next week
  + Worked to improve Seg. Fault detection
  + Able to get in contact with Michael Garland
    - Plan to meet with him next week
  + Funding
    - Chris-
      * I have finalized the statement of work and provided them to DTIC
        + DTIC’s administrative work is contracted to Booze-Allen-Hamilton
        + DTIC will send the SOW to you

You then you create a budget for your university

* + - Hartmut-
      * I have some questions about the NDA
      * Chris- The NDA refers only to our contract negotiation with Booze-Allen
  + Performance Counters
    - Hartmut-
      * I think we should teach Phylanx about performance counters
        + Kevin- We can get call backs from Python
      * Create primitives in the AST which perform timing operations
    - Kevin-
      * I think it might be a good idea to have a tighter integration between HPX and APEX timers
      * We need to visualize the tree with execution times and other information
        + It should know about our Phylanx hierarchies

Ie. each primitive

* + - * + Kate- We will need to have hierarchies anyway
* Kevin-
  + Building except on KNL with Intel
    - Working on it
    - Hartmut- Intel has a tool to help
  + Not seeing other problems with builds
  + Was not able to add task data to trace
* Monil-
  + Comparing Phylanx, Spartan, and Tensorflow
* Kate-
  + Been working on getting my tools running on Rostam
    - Looking into how to run on Rostam
* Steve-
  + Not able to run Phylanx
    - Working to figure this out
  + Rod and I are talking about what to do with Python
    - At the moment we cannot input arrays
    - Hartmut- the goal is to get a simple example working first
* Parsa-
  + Implemented performance counters for add primitive
    - Hartmut- you don’t need to count the component instantiation
      * We need to count the number of evals and time the invocations
      * I would like to be able to make a runtime decision whether to invoke eval with a plain action or a direct action
* Rod-
  + Opened a ticket to fix the issues of building HPX twice in CircleCI
  + Discovered an issue with building on Macs
  + Talked with Steve about Python bindings
    - Steve used the operator as a base class
    - I have the data class as the base class
    - Hartmut- This uses the type system of Python
      * Will this work for control structures?
      * Steve- Not sure
* Bibek-
  + Performed preliminary timing on the LRA algorithm
    - We are about 10x slower than the NumPy solution
    - Ran VTune
      * Allocations and the store primitive
    - Created a large CSV file and will perform scaling experiments
    - Blaze has “threasholds” which decide when to run in serial or parallel
      * Talked to Klous, he pointed me to how this is done in the other backends
      * We need to do this for the HPX backend
    - Hartmut-
      * I suspect that NumPy is making shallow copies while we are making deep copies
      * Additionally, we are creating new threads for every primitive when we should probably be using direct actions
* Ali-
  + Working on ALS
    - Started with Rod’s Python code algorithm
      * Uses external Python library
        + Have to implement those in Python directly
* Shahrzad-
  + Been working on creating performance test of SIMD Blaze implementation
    - Checked with Gregor to see that we were using the proper instruction set
* Adrian-
  + Created the Phylanx\_data repo
    - Will make private
  + I would like to change the format of these meetings:
    - I plan to break the team down into divisions and have each division give an update
      * This, hopefully, will reduce status report time down to 15-30min
      * Leave more time for project wide discussion
* Next Meeting: December 14th at 3pmET/2pmCT/1pmMT/12pmPT via Webex