Interop

October 25, 2016

1 Interop Project

Please choose a project and a form of interop that appeals to you and your background.

1.1 Project 1: Interfacing with your own scripts

Choose a script from your own work. Modify it so that way it requires and input, and spits out a sensible output. Use Julia's interop functionalities to call this script and retrieve the answer.

1.2 Project 2: Wrapped Least Squares

Use Julia's interop capabilities to solve the least squares problem using your language of choice and retreve the answer back to Julia.

1.3 Tools

These are mature interop libraries provided by Julia:

ccall The documentation page for `ccall` is: http://docs.julialang.org/en/release-0.4/manual/calling-c-and-fortran-code/. Since I found that slightly opaque on my first read, I wrote a tutorial for using ccall to call compile your C-code for usage with `ccall` and writing the wrapper code: http://www.stochasticlifestyle.com/using-julias-c-interface-utilize-c-libraries/

Xeon Phi While not technically supported, note that you can use ccall to control Xeon Phi acceleration cards: http://www.stochasticlifestyle.com/interfacing-xeon-phi-via-julia/

Cxx.jl https://github.com/Keno/Cxx.jl

RCall https://github.com/JuliaInterop/RCall.jl
https://github.com/joshday/Talks/blob/master/SLG2016_IntroToJulia/Slides.ipynb

PyCall https://github.com/JuliaPy/PyCall.jl
https://github.com/joshday/Talks/blob/master/SLG2016_IntroToJulia/Slides.ipynb

MATLAB.jl https://github.com/JuliaInterop/MATLAB.jl

CUDArt.jl http://www.stochasticlifestyle.com/julia-on-the-hpc-with-gpus/
http://www.stochasticlifestyle.com/multiple-gpu-on-the-hpc-with-julia/