Julia Resources

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Everything from Today, Including This Doc

`https://www.github.com/nickeubank/JuliaOverview`

Installation / Getting Julia

- You can get Julia at `www.julialang.org/downloads`.

- Interactive Development Environment: the most popular IDE is called Juno, and is provided through that Atom text editor by installing the `uber-juno` package. Note requires prior install of Julia from `www.julialang.org/downloads`. Detailed instructions: `https://github.com/JunoLab/uber-juno/blob/master/setup.md`

Forums / Where to Get Help

- Place for questions: `discourse.julialang.org`

- Where to subscribe for news on 1.0 releases: `https://discourse.julialang.org/c/announce`

Tutorials

- Great tutorials on `www.juliabox.com`. Just log in and go to Tutorials/Intro-To-Julia.

- For 2 hour video of Julia Computing instructor walking through these tutorials, go to `https://julialang.org/learning/` and select *Intro to Julia*.

Cheat Sheets

- All the important Julia syntax: `https://juliadocs.github.io/Julia-Cheat-Sheet/`

- Side-by-side Julia, Python, Matlab syntax comparisons: `https://cheatsheets.quantecon.org/`

Julia on ACCRE

- Julia example scripts and installation: `https://github.com/accre/SLURM/tree/master/julia-job`

Commonly used / well-supported packages

The Julia package community has developed into a set of families (e.g. JuliaStats, JuliaPlots, JuliaData, etc.). In general, the best packages are those found under one of these families (good packages created outside a family tend to get integrated). Here are some big ones:

- `DataFrames.jl`: OK, this is a package not a family (the family is JuliaData), but it's probably the one you'll use most. It's basically `data.frames` from R – it allows for tables whose columns are of different types. Details at `http://juliadata.github.io/DataFrames.jl/stable/`.

  - Note DataFrames is currently a little slow with missing data – this is one of the things the compiler update coming in 0.7 is meant to fix.

  - The missing data type is currently a stand-alone library (`Missings.jl`), but it's getting integrated into the base library in 0.7.

  - JuliaData also manages `CSV.jl`, `Feather.jl` for reading csvs and feather datasets in Julia as DataFrames.

- JuliaPlots: Manages the `Plot.jl` library, which provides a unified front end for plotting. It has one consistent interface, but can be used with lots of different back-ends, including `pyplot`, `plot.ly`, and `GR`. Details at `http://docs.juliaplots.org`.

- JuliaIO: manages most I/O libraries except for the two libraries in JuliaData noted above (`CSV.jl` and `Feather.jl`), including `HDF5.jl`, `JLD.jl` (for saving Julia objects as binaries), and `JSON.jl`.

- JuliaOpt: set of packages for numerical optimization. `https://www.juliaopt.org/`

- JuliaStats: Family of packages that implement core statistics functionality (`https://github.com/JuliaStats/`). `Distributions.jl` for random number generators

from lots of distributions, `StatsBase.jl` for basic (mostly-univariate) statistics, `GLM.jl` for linear models, and `MLBase.jl` for machine learning.

- JuliaGraphs: `LightGraphs.jl` for lightweight graphs, `MetaGraphs.jl` for graphs with node and edge attributes.