Getting Started

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1   Problem

You need to know the basic: how to start torch, stop torch, and get help.

2   Solution

To learn how to start and stop torch and the basics for using it, follow the tutorial at `www.torch.ch/manual/tutorial/index`.

The main forum for torch7 is at `https://groups.google.com/forum/#!forum/torch7`. Use it to post questions and provide answers to others.

Torch is open source and hosted at GitHub as project `torch7` for user `torch`. The URL is `https://github.com/torch/torch7`.

3   Description

Torch is a library for Lua.

`www.lua.com` descibes lua as

- fast: faster than other scripting languages. There is a just-in-time compiler available that makes lua programs even faster. The standard install for torch installs the just-in-time compiler.

- portable: Lua is written in standard C is is hence highly portable. You can run it on large systems and very small systems.

- embeddable: You can write a program in a language that can call C functions and embed the entire lua language into your program. This feature has made lua popular as a scripting engine for applications including games.

- powerful: lua provides a few facilities that allow for object-oriented programming in a user-defined way.

- small: the source code and Lua library take 243K bytes.

- free: distributed under the MIT license.

In addition to these attributes, lua is simpler than some other scripting languages. It provides one data structure, the `table` where some languages provide both lists and hash tables (dictionaries). It has only one numeric data type, the floating point double in torch's instantiation of lua, instead of integers, reals, and complex numbers.

Moreover, lua has a simple syntax that is familiar to C programmers.

Torch extends lua:

- Defines a class structure. Lua itself provides only a way to create classes and objects. Torch implements a class and object facility.

- Defines a tensor structure. A tensor is a compactly-stored n-dimensional array of numbers. Up to 8 dimensions are supported.

- Provides a function library that mimics many MATLAB functions.

Torch might be preferred to MATLAB when speed, avoidance of software licensing costs, and ability to operate on small devices is a concern for a project. If only the licensing cost is a concern, `octave` is a free implemenation of the basic components of MATLAB.

Compared to MATLAB programs, torch programs can be better structured, thanks to careful thinking of the lua design team. However, torch programs tend to be longer than MATLAB programs, because there is no special syntax in lua to directly articulate matrix operations and matrix literal values.

4   See also

A description of torch is this paper:
R. Collebert, K. Kavukcuoglu, and C. Farabet. *Torch7: A Matlab-like Environment for Machine Learning.* in *BigLearn, NIPS Workshop, 2011.*

This paper claims that Torch7 provides a flexible programming environment with good performance:
Roman Collobert,Koray Kavukcuoglu, and Clement Farabet. *Implementing Neural Networks Efficiently.* In *Neural Networks: Tricks of the Trade, G. Montavon, G. Orr, and K-R Muller (Ed), Springer. 2012).*

Both papers may be downloaded from the publications section of Collobert's website
`ronan.collobert.com`

This recipe is free documentation. You can modify it by visiting the github for account "rlowrance" and forking the repo "torch-cookbook."