

The SHOGUN Machine Learning Toolbox 3.0

Heiko Strathmann¹, Sören Sonnenburg, Sergey Lisitsyn, Fernando Iglesias, Viktor Gal

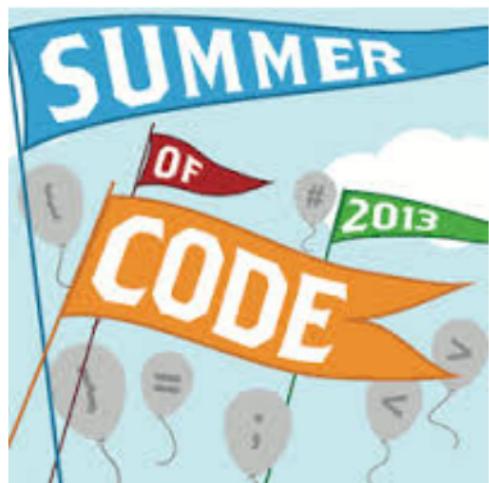
¹Gatsby Computational Neuroscience Unit, University College London.

將軍
sho
gun

What? When? Why?

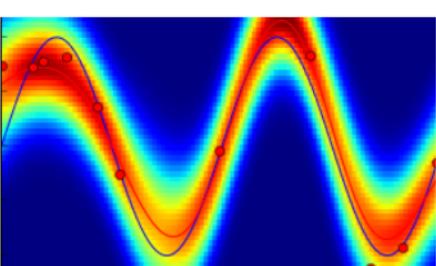
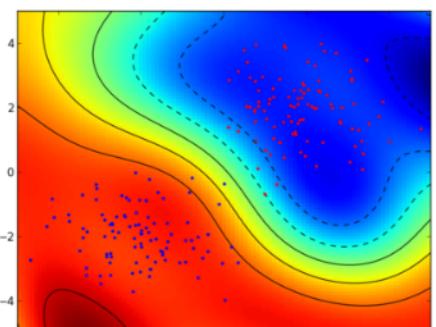
- ▶ Efficient, unified Machine Learning
- ▶ Multi-OS, Multi-language
- ▶ Since 1999
- ▶ Neutral ground for ML algorithms

Active, Growing Community



- ▶ 7 core-developers
- ▶ Yet 21 GSoC projects
- ▶ 25+ authors in 2013
- ▶ Non-profit association

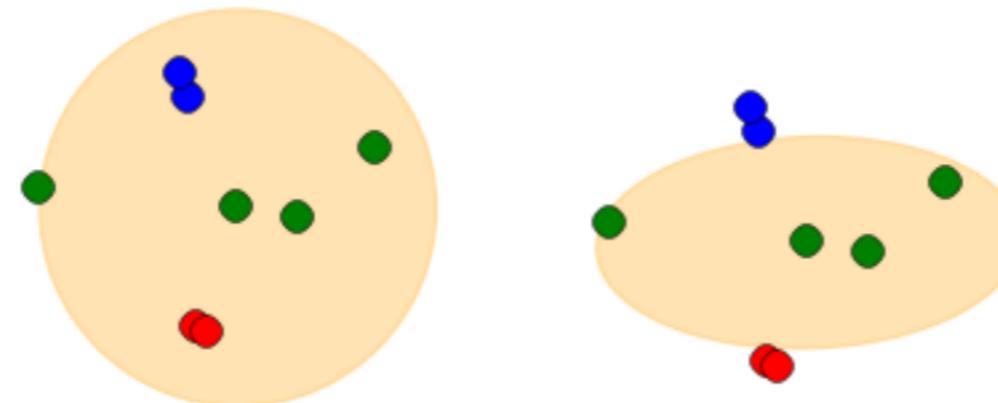
Classical Machine Learning Methods



- ▶ Classification
- ▶ Regression
- ▶ Dimension Reduction
- ▶ Clustering
- ▶ Kernels
- ▶ ...

Cutting Edge Algorithms

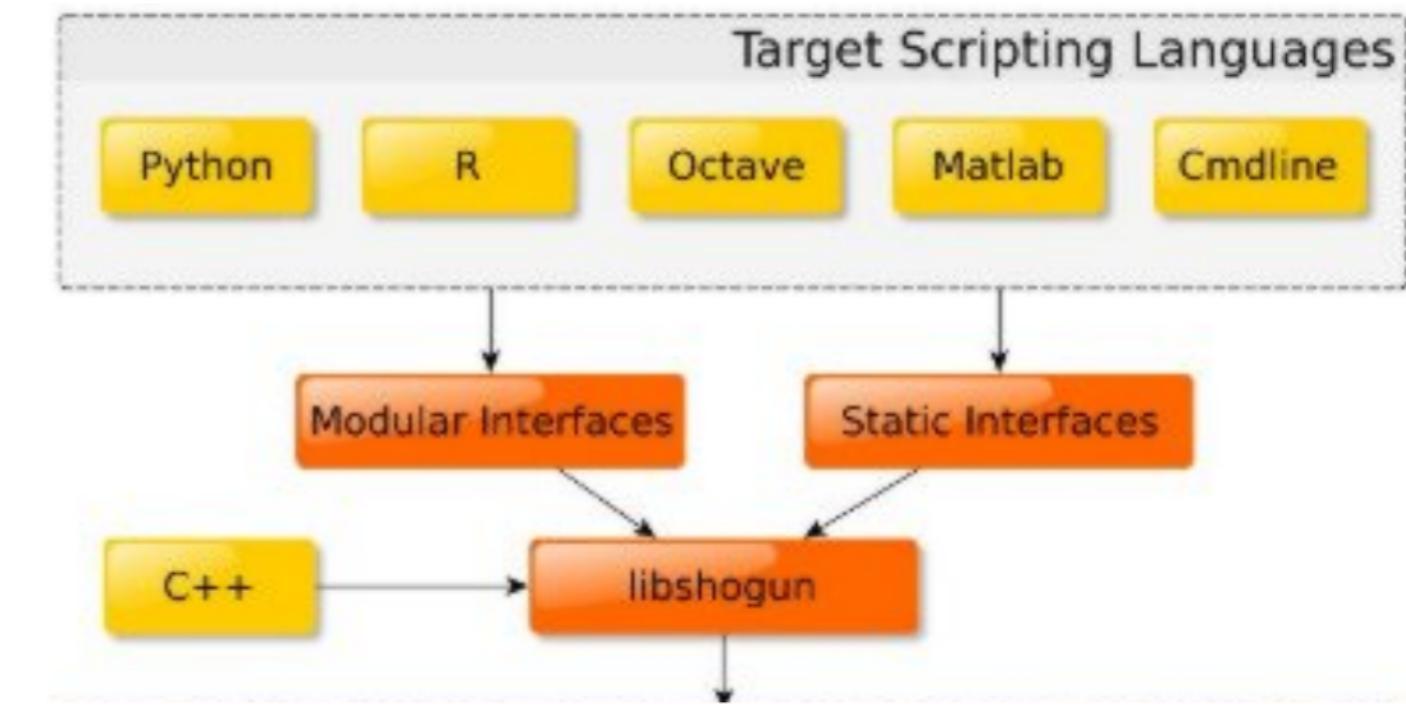
- ▶ MKL and Large-scale linear classification (**COFFIN/LINADD**)
- ▶ Estimating Log-Determinants
- ▶ Distribution Embeddings in RKHS
- ▶ {SO, Multi-task, Metric}-Learning
- ▶ Feature Hashing, Random Kitchen Sinks
- ▶ Online SGD-SVM, ...



Make Your Life Easier!

- ▶ Modular data representation
- ▶ Preprocessing
- ▶ Common performance measures
- ▶ Cross-validation, Grid-search
- ▶ The power of open-source: LibSVM, Malsar, SLEP, Tapkee, VowpalWabbit, GPML

Interface? Your Choice!



- ▶ You choose! Core in C++
- ▶ Interfaces: Python, Octave/MATLAB, R, Java, ...
- ▶ File formats: CSV, HDF5, JSON, XML, LibSVM, mldata.org

In the Cloud

- ▶ IPython notebooks for documentation
- ▶ Try cloud button, works on your phone
- ▶ Interactive demos

