1) Repositories of customizable, portable and "plug&play" AI/SW/HW components with exposed design and optimization choices

CK JSON API

AI frameworks
- TensorFlow
- Caffe
- Caffe2
- CNTK
- Torch
- MXNet
- ...

CK JSON API

Models
- AlexNet
- GoogleNet
- VGG
- ResNet
- SqueezeNet
- SqueezeDet
- SSD
- MobileNets
- ...

CK JSON API

Libraries
- cuDNN
- ArmCL
- OpenBLAS
- ViennaCL
- CLBlast
- cuBLAS
- TVM
- gemmlowp
- ...

CK JSON API

Data sets
- KITTI
- COCO
- VOC
- ImageNet
- Real life objects from the community
- ...

CK JSON API

Targets

Linux	Windows
MacOS	Android

...

CK JSON API

Hardware
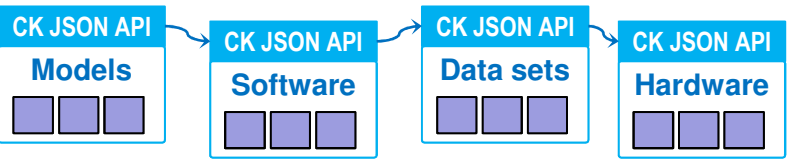
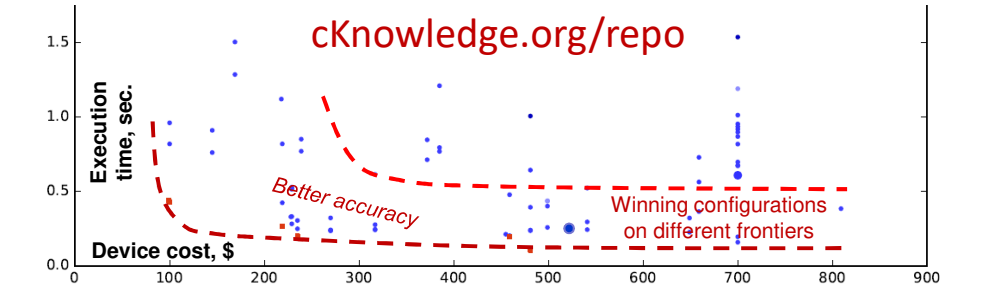|	
CPU	GPU
DSP	NN accelerators
FPGA	Simulators

...

2) Customizable workflow framework for automatic, full stack AI/SW/HW co-design

Assemble scenarios such as image classification as LEGO™

CK JSON API → **CK JSON API** → **CK JSON API** → **CK JSON API**

Models **Software** **Data sets** **Hardware**

3) Open ACM ReQuEST tournaments to share, run and optimize emerging workloads such as deep learning across diverse models, data sets and platforms with GPU,DSP,NN accelerators ...

cKnowledge.org/request

4) Live scoreboard to detect winning AI/SW/HW configurations and workflows – they become available for further customization, optimization and reuse via CK

cKnowledge.org/repo

Execution time, sec.

Better accuracy

Device cost, $

Winning configurations on different frontiers

Winners in different co-design categories

speed / accuracy

speed / cost accuracy

accuracy / energy size

...