meta$_{b}locksDocumentation$

Release 0.1.0a3

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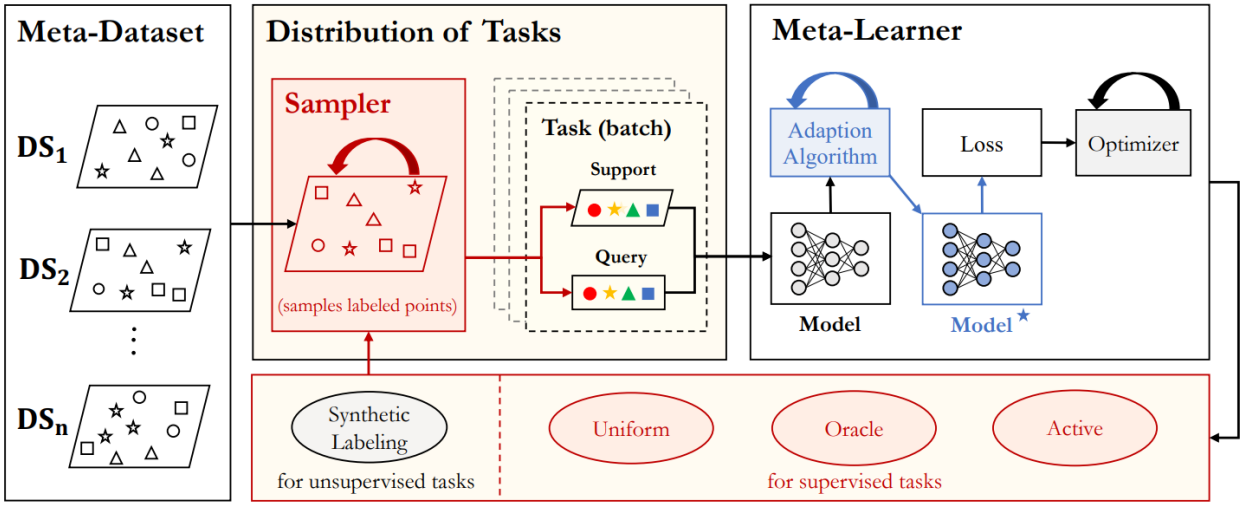
GETTING STARTED

Deployment & Documentation & Stats

Meta-Blocks is a modular toolbox for research, experimentation, and reproducible benchmarking of learning-to-learn algorithms. The toolbox provides flexible APIs for working with `MetaDatasets`, `TaskDistributions`, and `MetaLearners` (see the figure below). The APIs make it easy to implement a variety of meta-learning algorithms, run them on well-established benchmarks, or add your own meta-learning problems to the suite and benchmark algorithms on them.



Meta-Blocks package comes with:

- **Flexible APIs, detailed documentation, and multiple examples.**
- **Popular models and algorithms** such as MAML [FAL17], Reptile [NAS18], Protonets [SSZ17].
- **Supervised and unsupervised meta-learning** setups compatible with all algorithms.
- **Customizable modules and utility functions** for quick prototyping on new meta-learning algorithms.

Key Links and Resources:

- View the latest codes on Github
- Execute Interactive Jupyter Notebooks
- Anomaly Detection Resources

CHAPTER

ONE

INSTALLATION

It is recommended to use **pip** for installation. Please make sure **the latest version** is installed, as **meta-blocks** is updated frequently:

```
pip install meta-blocks            # normal install
pip install --upgrade meta-blocks  # or update if needed
pip install --pre meta-blocks      # or include pre-release version for new features
```

Alternatively, you could clone and run setup.py file:

```
git clone https://github.com/alshedivat/meta-blocks.git
cd meta-blocks
pip install .
```

Required Dependencies:

- albumentations
- hydra-core
- numpy
- Pillow
- scipy
- scikit-learn
- tensorflow==2.2.0rc3

CHAPTER

TWO

EXAMPLES

(Under construction.)

CHAPTER

THREE

META_BLOCKS PACKAGE

3.1 Subpackages

3.1.1 meta_blocks.adaptation package

Submodules

meta_blocks.adaptation.base module

meta_blocks.adaptation.maml module

meta_blocks.adaptation.maml_utils module

meta_blocks.adaptation.proto module

meta_blocks.adaptation.proto_utils module

meta_blocks.adaptation.reptile module

Module contents

3.1.2 meta_blocks.conf package

Module contents

3.1.3 meta_blocks.datasets package

Submodules

meta_blocks.datasets.base module

meta_blocks.datasets.omniglot module

meta_blocks.datasets.miniimagenet module

Module contents

3.1.4 meta_blocks.experiment package

Submodules

meta_blocks.experiment.eval module

meta_blocks.experiment.train module

meta_blocks.experiment.utils module

Module contents

3.1.5 meta_blocks.models package

Submodules

meta_blocks.models.classification module

Module contents

3.1.6 meta_blocks.networks package

Submodules

meta_blocks.networks.simple module

Module contents

3.1.7 meta_blocks.optimizers package

Submodules

meta_blocks.optimizers.multistep_optimizer module

Module contents

3.1.8 meta_blocks.samplers package

Submodules

meta_blocks.samplers.base module

meta_blocks.samplers.uniform module

Module contents

3.1.9 meta_blocks.tasks package

Submodules

meta_blocks.tasks.base module

meta_blocks.tasks.supervised module

meta_blocks.tasks.classic_supervised module

meta_blocks.tasks.limited_supervised module

meta_blocks.tasks.self_supervised module

Module contents

3.2 Submodules

3.3 meta_blocks.common module

3.4 meta_blocks.version module

`meta_blocks` is a modular toolbox for meta-learning research with a focus on speed and reproducibility.

3.5 Module contents

`meta_blocks` is a modular toolbox for meta-learning research with a focus on speed and reproducibility.

CHAPTER

FOUR

ABOUT

(Under construction.)

CHAPTER

FIVE

FREQUENTLY ASKED QUESTIONS (FAQ)

(Under construction.)

CHAPTER

SIX

WHAT'S NEW?

The first alpha version has been released!

References

CHAPTER

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INDICES AND TABLES

- genindex
- modindex
- search

BIBLIOGRAPHY

[FAL17] Chelsea Finn, Pieter Abbeel, and Sergey Levine. Model-agnostic meta-learning for fast adaptation of deep networks. In *ICML*, 1126–1135. JMLR. org, 2017.

[NAS18] Alex Nichol, Joshua Achiam, and John Schulman. On first-order meta-learning algorithms. *arXiv preprint arXiv:1803.02999*, 2018.

[SSZ17] Jake Snell, Kevin Swersky, and Richard Zemel. Prototypical networks for few-shot learning. In *NeurIPS*, 4077–4087. 2017.

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