Domain adaptation and pre-trained models

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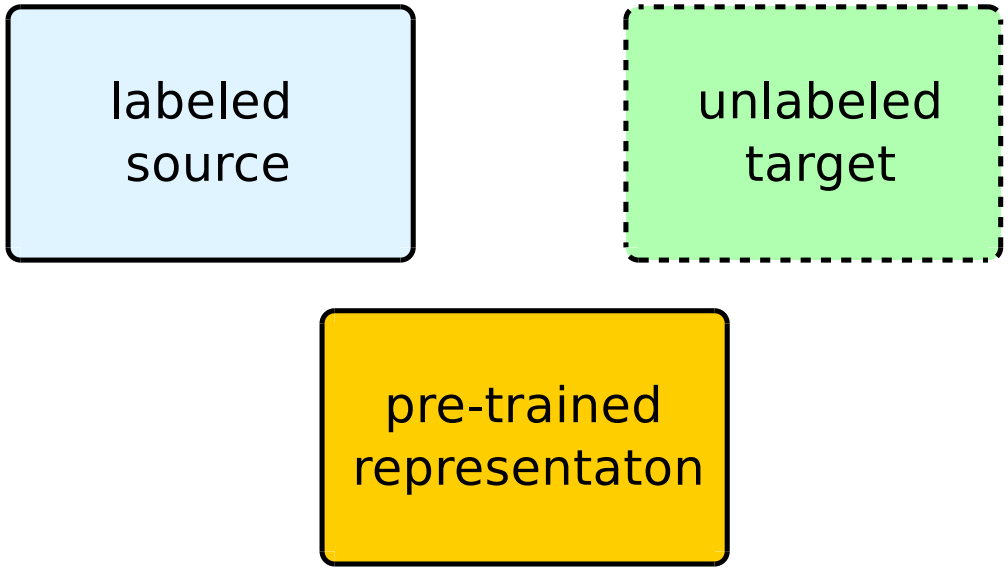
unsupervised DA
+ representation



domain-specific pre-trained models

if you can find a representation trained to your domain, **use it**!

for instance, **SciBERT** (Beltagy et al., 2019) is a BERT-like model trained on scientific papers

SciBERT: A Pretrained Language Model for Scientific Text

Iz Beltagy **Kyle Lo** **Arman Cohan**
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there are also models for finance, clinical notes, patents, Twitter, ...

target domain fine-tuning

alternatively, we may **fine-tune an general pre-trained model to a target domain**

for instance, **BioBERT** (Lee et al., 2019) is a regular BERT model fine-tuned to the biomedical domain

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Data and text mining

BioBERT: a pre-trained biomedical language representation model for biomedical text mining

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better to train from scratch?

Jansson (2019) investigates BERT models for patent clause classification and finds that in this case,

custom pre-training > domain fine-tuning > no domain model

more domain and task fine-tuning

Gururangan et al. (2020) investigate several ways to fine-tune RoBERTa models

they showed that even small amounts of target data can be useful

if target domain data is not available for fine-tuning, it can be crawled

Don't Stop Pretraining: Adapt Language Models to Domains and Tasks

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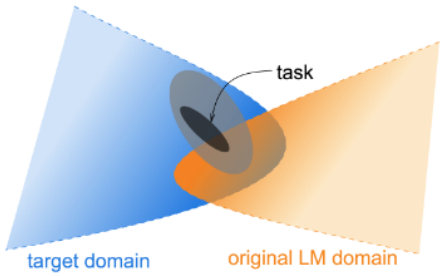
Abstract

Language models pretrained on text from a wide variety of sources form the foundation of today's NLP. In light of the success of these broad-coverage models, we investigate whether it is still helpful to tailor a pretrained model to the domain of a target task. We present a study across four domains (biomedical and computer science publications, news, and reviews) and eight classification tasks, showing that a second phase of pretraining in-



unsupervised DA
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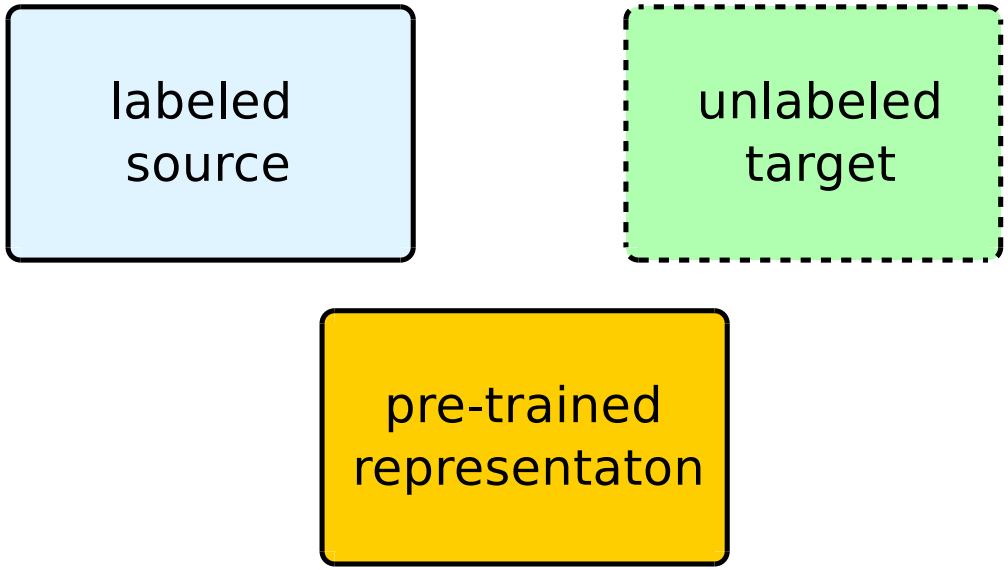

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