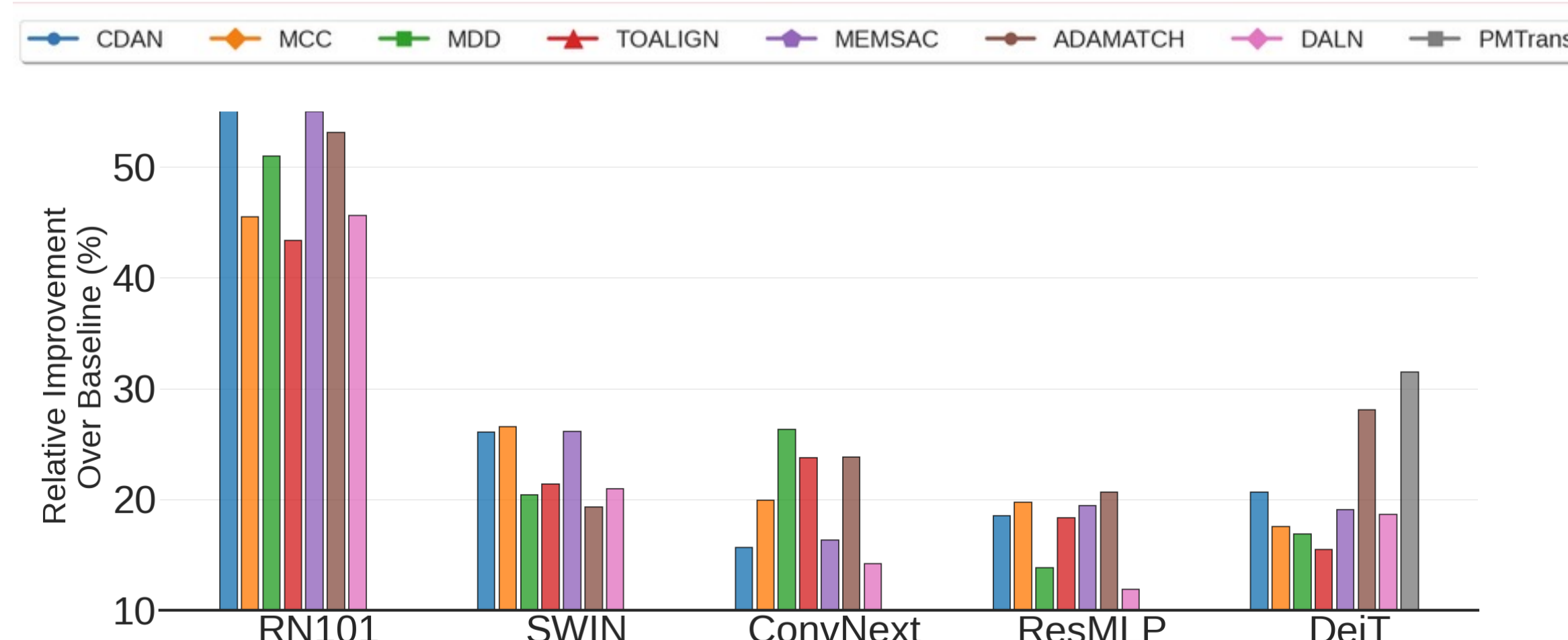


## Empirical Study Using UDA-Bench Framework

- We conduct a large-scale empirical analysis to evaluate the competence of many current UDA algorithms.
- We revisit current UDA algorithms across three axes:
  - I. Backbone Architecture
  - II. Target Unlabeled Data
  - III. Pre-Training Data

## 1. Modern backbones diminish UDA performance.

- UDA methods yield substantially lower gains with advanced backbones such as Swin and DeiT.

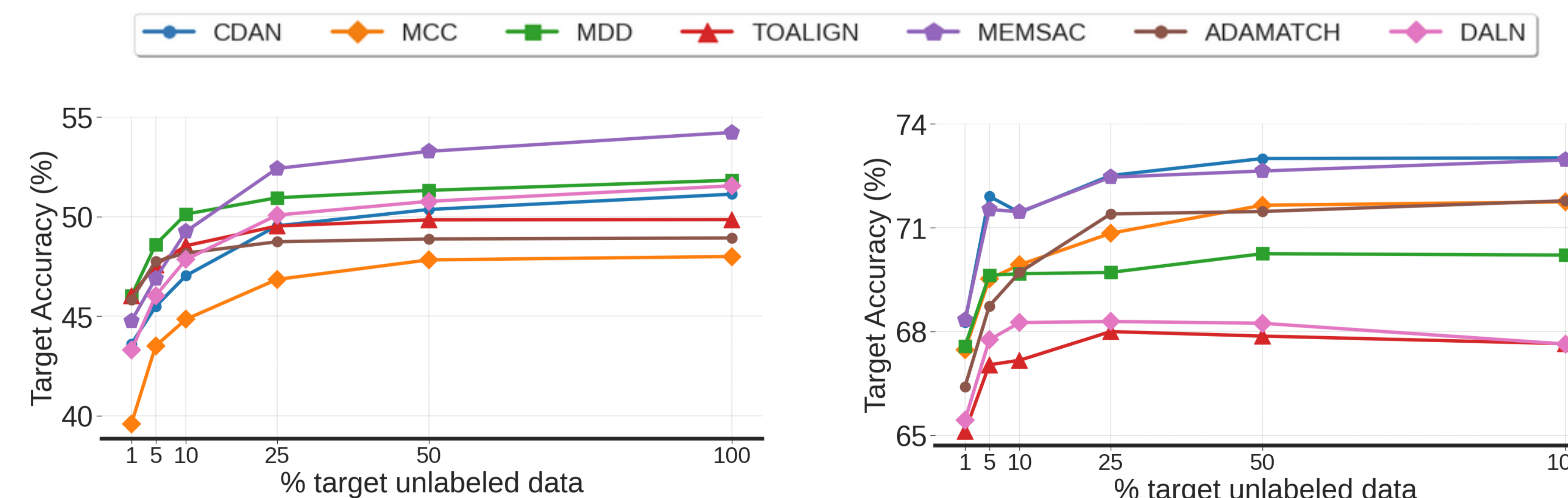


## Got only few seconds? Here's a tldr!

We design a standardized training framework for domain adaptation called UDA-Bench and reveal several important empirical choices to improve the performance of UDA algorithms.

## 2. UDA Methods Under-Utilize Unlabeled Data.

- UDA methods fail to use increasing amount of unlabeled data and saturate quickly.
- 75% reduction in target unlabeled data resulted in only a 1% decrease in target accuracy across all UDA methods studied.



## 3. Nature of Pre-Training Data Directly Impacts UDA.

- In-task supervised pre-training helps unsupervised adaptation.

Pre-training	Plain Transfer (no adapt)			ToAlign [105]			MemSAC [41]		
	DNet	GeoP	CUB	DNet	GeoP	CUB	DNet	GeoP	CUB
IN-1M	<b>41.46</b>	34.55	50.20	<b>49.29</b>	30.42	62.78	<b>50.75</b>	32.98	62.92
PL-1M	35.14	<b>41.95</b>	40.83	38.55	<b>34.9</b>	55.29	41.93	<b>40.16</b>	54.22
NAT-1M	33.77	31.53	<b>58.77</b>	37.65	26.81	<b>67.47</b>	38.67	29.99	<b>67.34</b>

- Self-supervised pre-training on object-centric images helps downstream object-centric adaptation.

Pretraining	SwAV (ResNet50) [12]			MoCo-V3 (ViT-s/16) [16]			MAE (ViT-b/16) [32]		
	DNet	GeoP	CUB	DNet	GeoP	CUB	DNet	GeoP	CUB
IN-1M	<b>44.6</b>	36.33	<b>51.81</b>	<b>34.33</b>	30.35	<b>52.61</b>	<b>44.91</b>	34.07	<b>64.26</b>
PL-1M	36.48	<b>41.14</b>	39.49	30.83	<b>35.51</b>	46.99	39.56	<b>37.00</b>	53.68
NAT-1M	31.6	28.75	45.65	28.24	26.01	48.46	38.48	28.74	59.7

## 4. UDA-Bench publicly available.

- UDA-Bench is open-sourced for training and evaluating UDA methods (scan the QR!)



- Contact for questions:**  
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