Asking friendly strangers: non-semantic attribute transfer

Nils Murrugarra-Llerena and Adriana Kovashka

Department of Computer Science - University of Pittsburgh
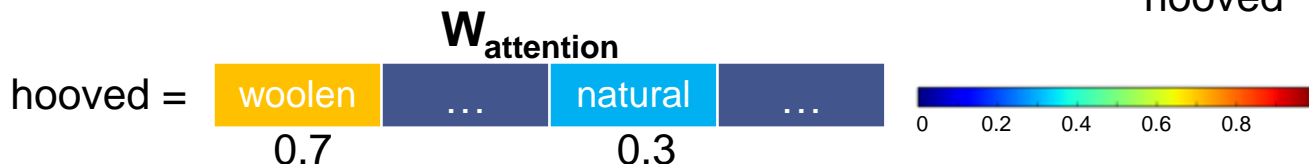
Motivation

- Traditional attribute transfer learning aims to transfer knowledge between semantically related attributes, i.e. from the **same domain**.

- However, what can we do if we have data scarcity, i.e. **no semantically related categories**?

- Transfer knowledge from attribute classifiers in **unrelated domains.**

Key idea

woolen , natural ? → hooved

Approach

$W_{\text{attention}}$

hooved = | woolen | … | natural | … |

0.7   0.3

0 0.2 0.4 0.6 0.8 1

Take away message: Unrelated domains have valuable knowledge for learning attributes.
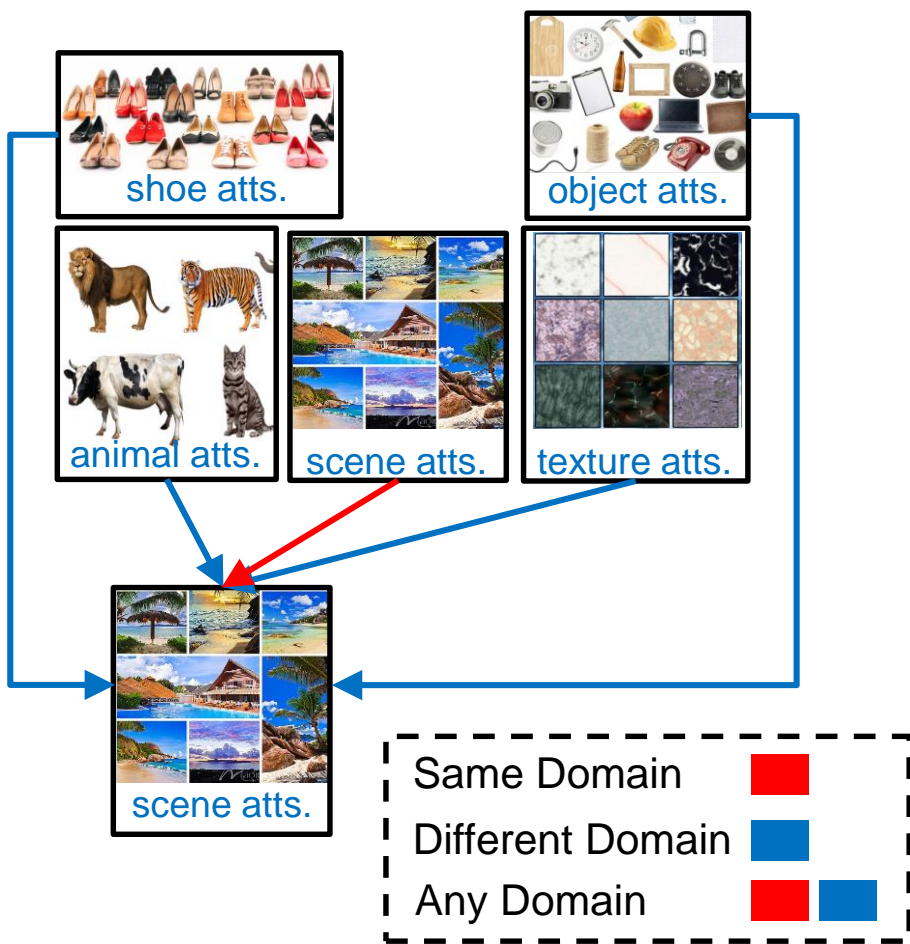
Asking friendly strangers: non-semantic attribute transfer
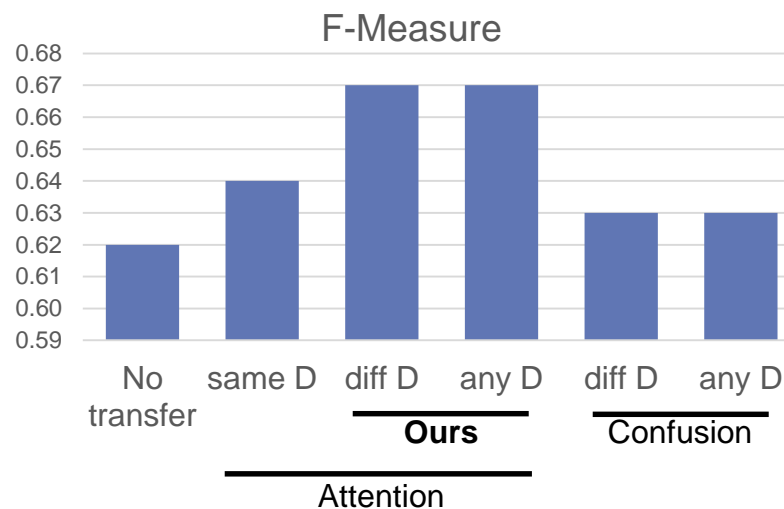
Nils Murrugarra-Llerena and Adriana Kovashka

Department of Computer Science - University of Pittsburgh

Experimental setup

shoe atts.

object atts.

animal atts.

scene atts.

texture atts.

scene atts.

Same Domain

Different Domain

Any Domain

Comparison to strong baselines

F-Measure

No transfer	same D	diff D	any D	diff D	any D
		Ours		Confusion	
	Attention				

- Our method's success is due to *adaptive* parameter transfer (learned **attention weights**) and a **shared** feature representation.

Contributions

- We show **how** to benefit from **attributes from a domain unrelated to the target**, for attribute transfer learning.