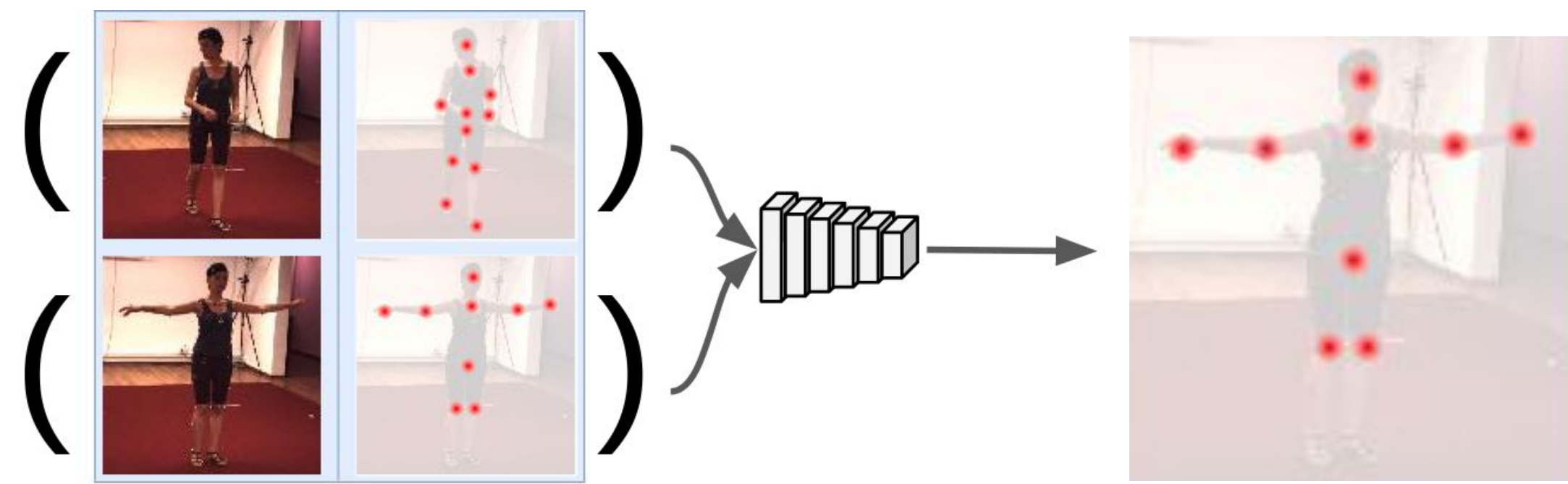


1. Shape Consistence Under Domain Shift

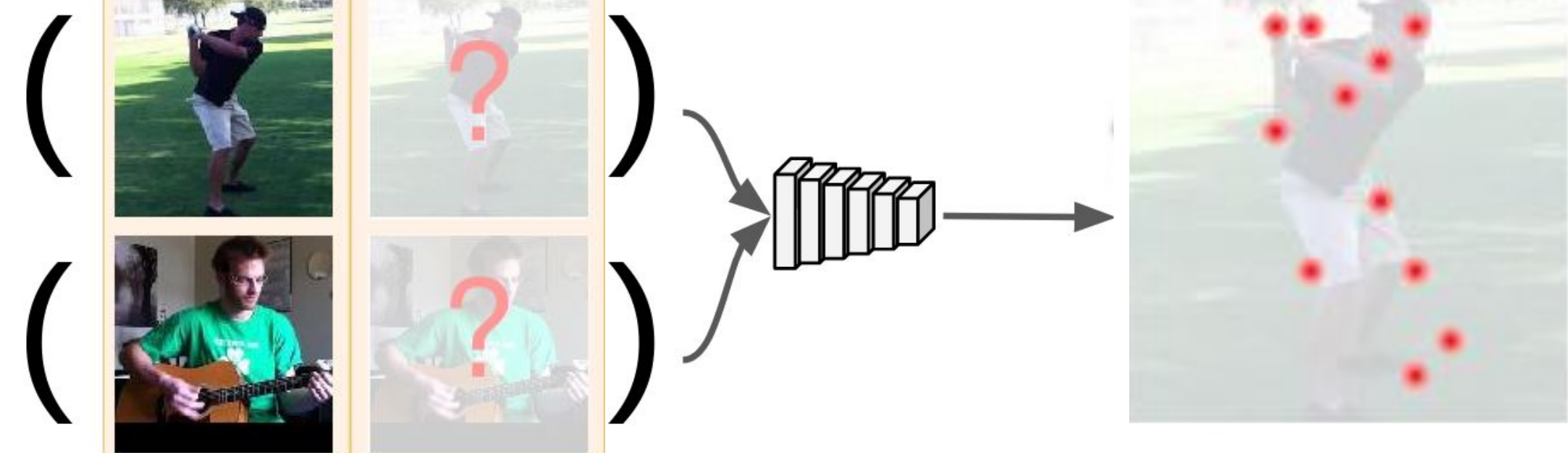
Goal: Adapting a 2D keypoint estimator from a labelled source domain to an unlabelled target domain. While keeping its shape.

Challenge: The two domains may have different input as well as output distributions, e.g.:

Source domain

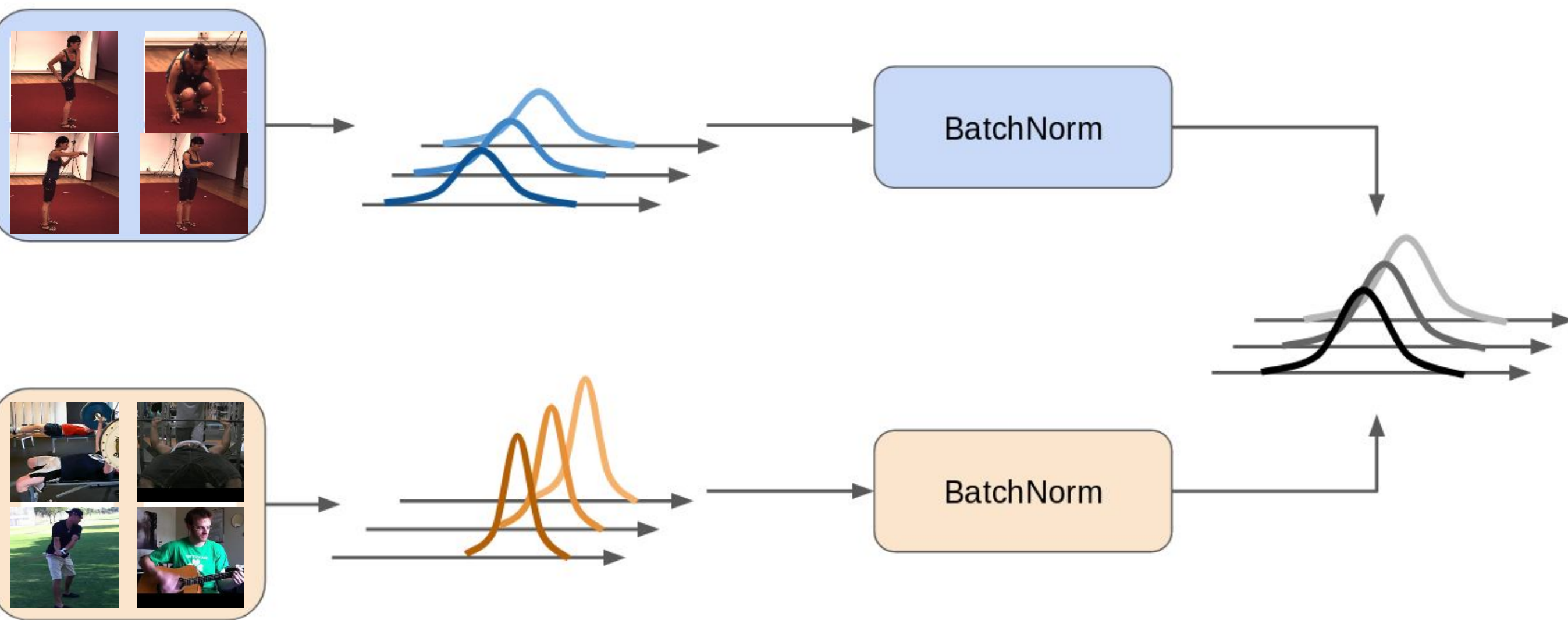


Target domain



2. Feature alignment

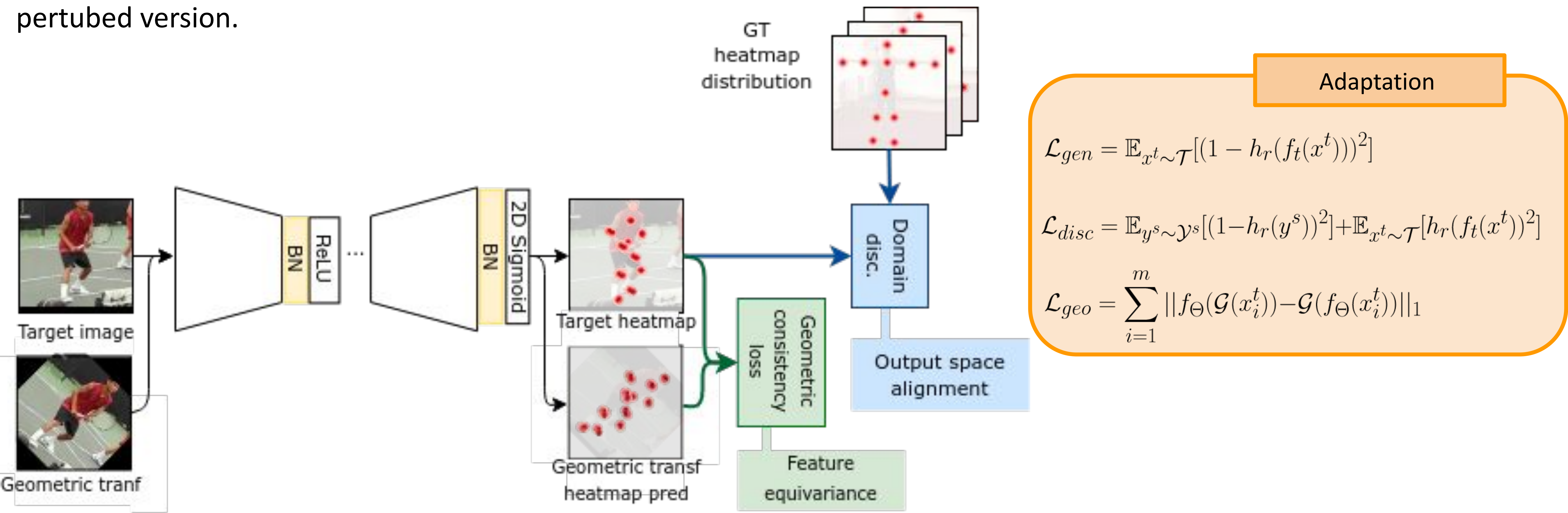
Domain specific BN layers force different domains to be aligned to the same distribution.



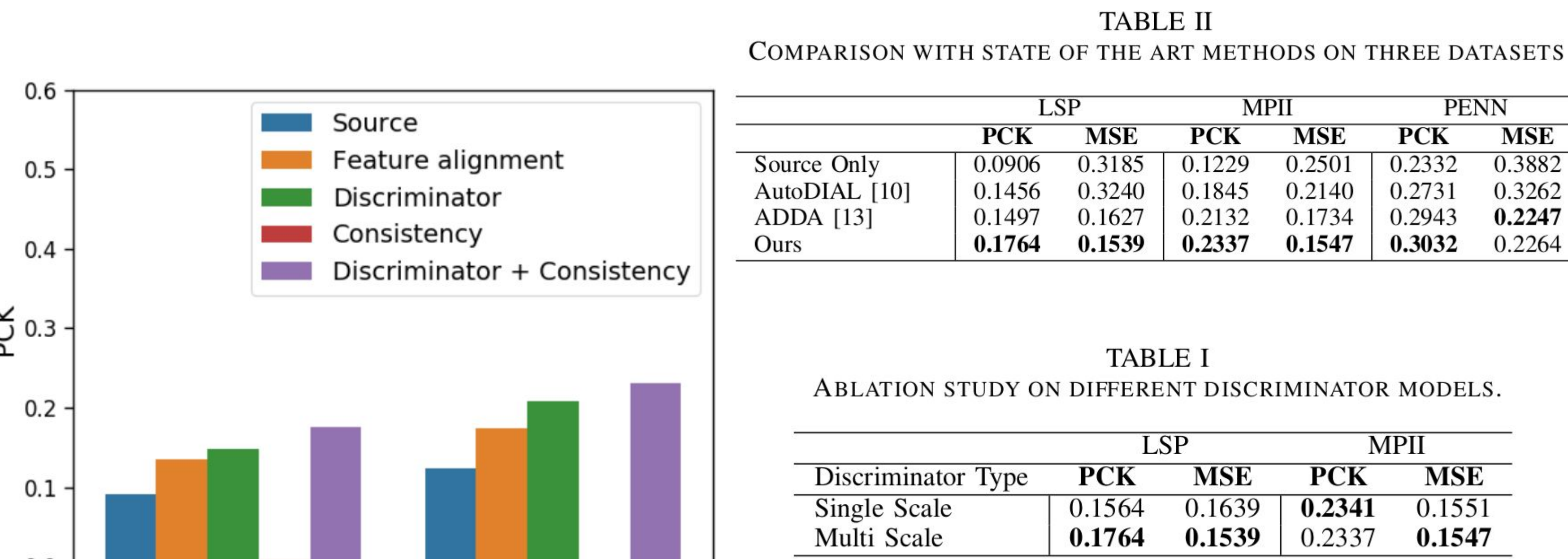
3. Label space alignment

Idea: combine an adversarial term for ensuring aligned predictions in the output space and a geometric consistency term which guarantees coherent predictions between a target sample and its perturbed version.

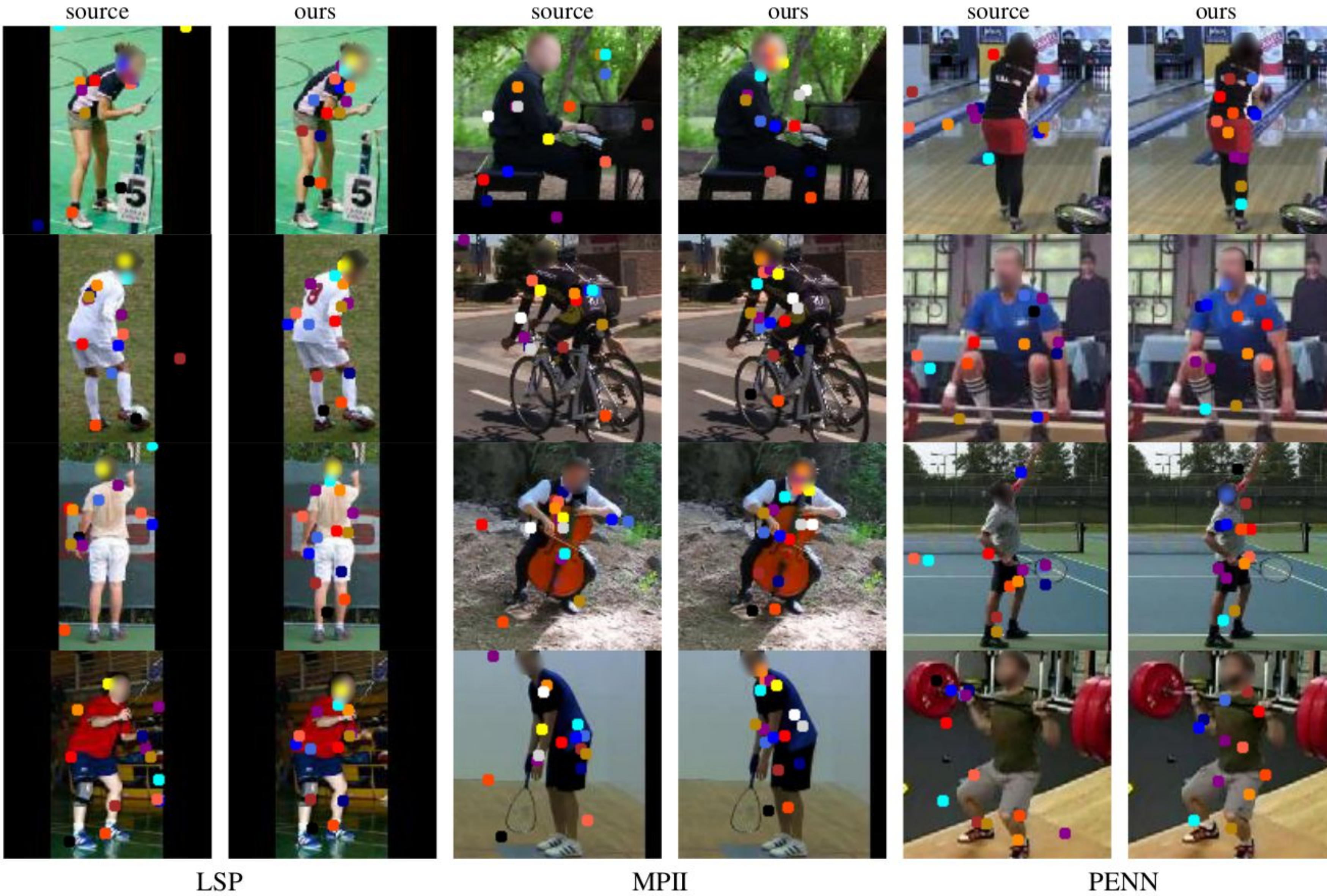
- Train a regression model on source domain
- During adaptation, we exploit the structure knowledge from the source domain by aplying an adversarial term.
- To improve the model’s flexibility, we enforce geometric equivariance between predictions of an input image and its pertubed version.



5. Quantitative Results



6. Qualitative Results



4. Full Framework

- Feature and label alignment are performed simultaneously
- Feature alignment is performed at every layer
- An adversarial term is used during adaptation to perform Label space alignment
- During adaptation, geometric equivariance is used as a regularization term to improve model’s flexibility.

