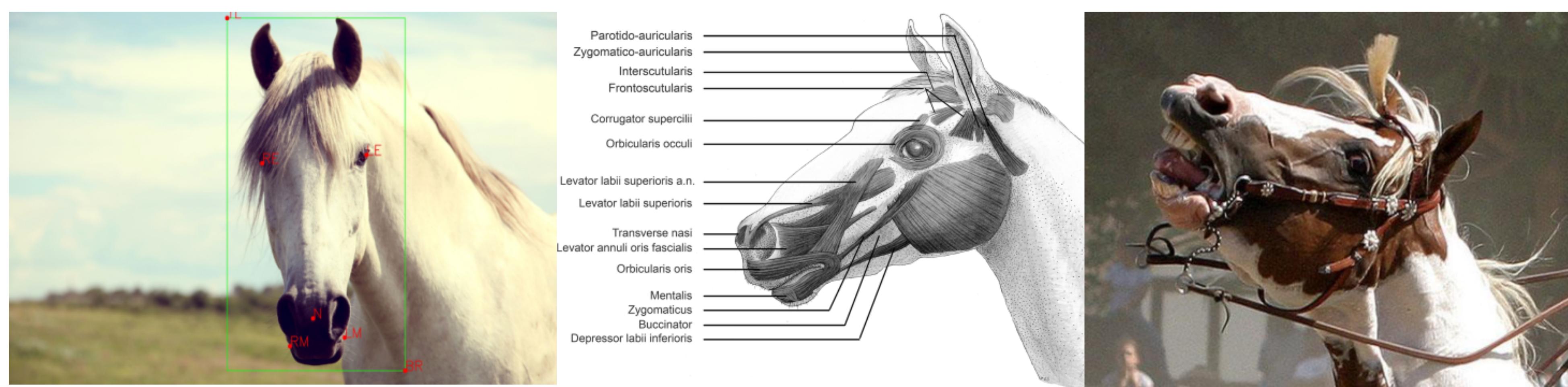


Horse Facial Landmark Detection

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Introduction

Lots of work have been done on human landmark detections, but none on horses. Horse faces quite DIFFERENT from human faces. Human face detector works on cats, monkeys, (more human-like animals), but not on horses. With a small home-brew dataset, we are working on this problem.

Our Approach

-- supervised transformer with fine-tuning

Built on human systems

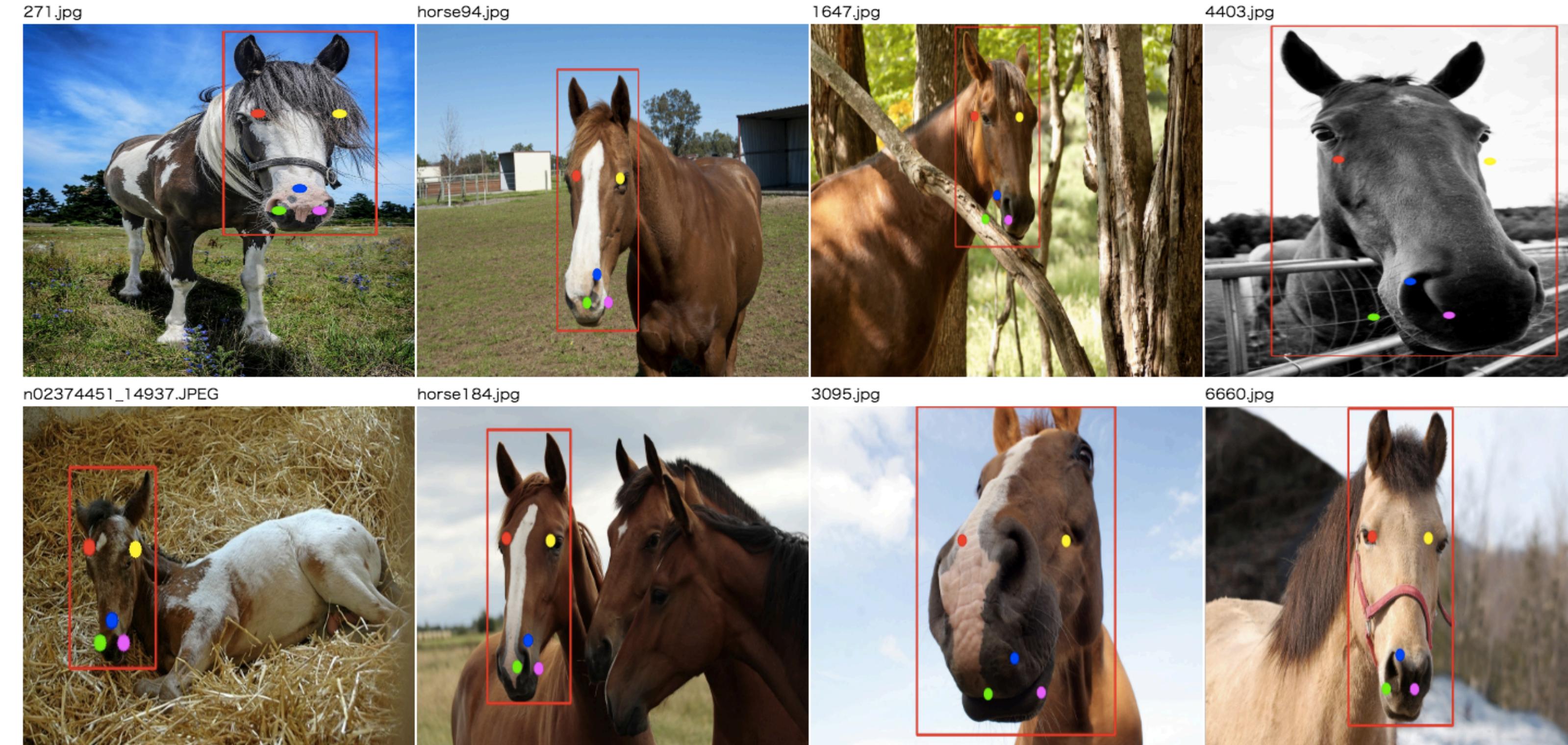
Using Supervised Transformer

- Handle the structural difference
- Methods
 - TPS transformation
 - Warp Network
- Supervision
 - Find a match of similar pose

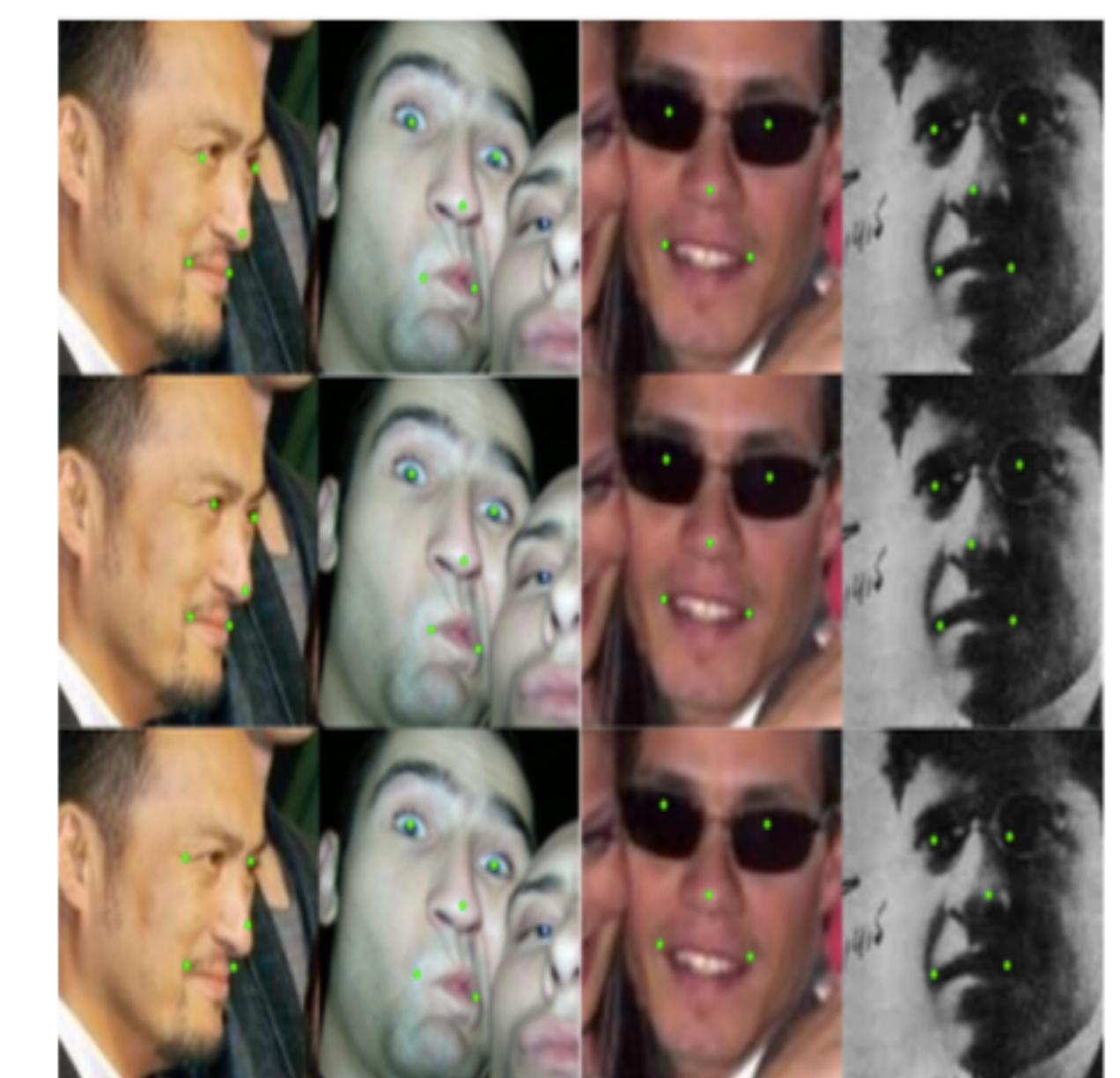
Using Transfer Learning

- Handle the appearance difference
- Methods
 - Traditional fine-tuning
 - On successful human models
- Combine with the Supervised Transformer
 - Train together

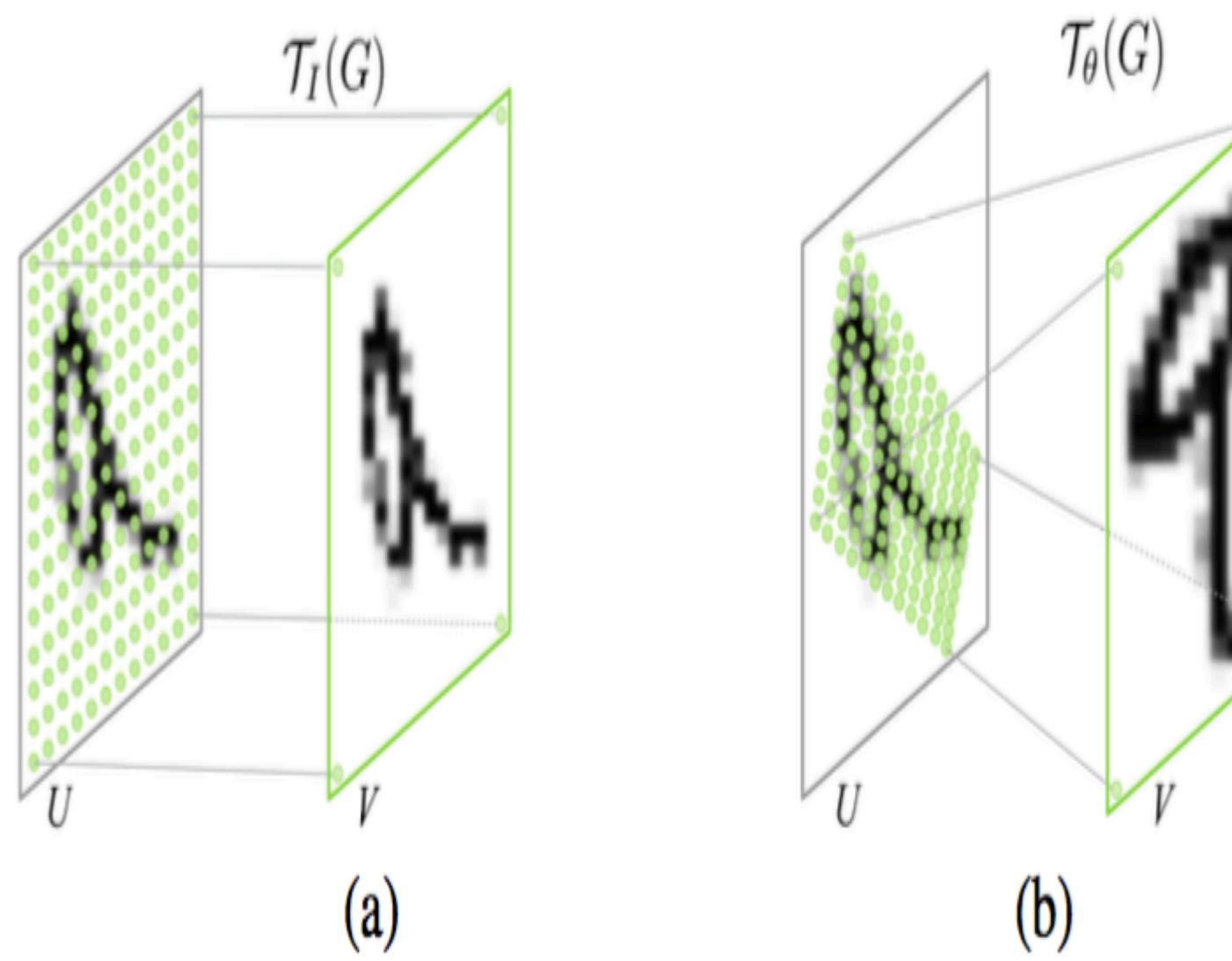
Fine-tuning results



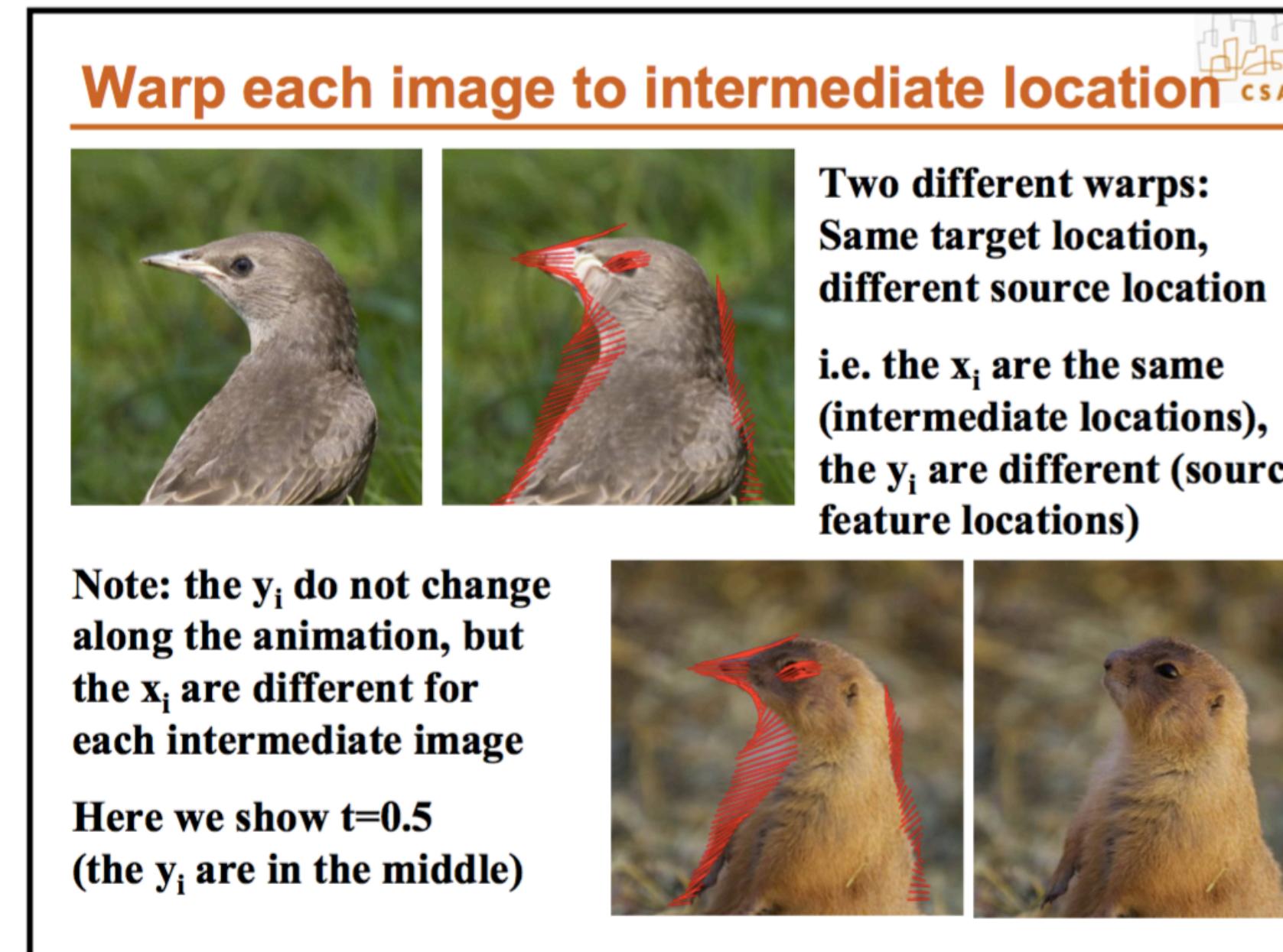
Related work



Human CNNs



Spatial Transformer



Warp & Morph

Experiments

- Train a human model, test on human dataset
- Human model on more human-like animals (cats, monkeys)
- Human model on horses
- Fine-tuned human model on horses
- Combine supervised transformation and transfer learning, on horses

Implications

New task, small dataset
Similar task, large dataset
-> Better transferability

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Matching results

