Review

- **SketchNet: Sketch Classification with Web Images [CVPR `16] (Speaker. Doheon Lee)**

- **Problem in previous sketch-based image retrieval**
  - People have different sketch style
  - Large difference btw sketch and image
  - Manual Annotation is expensive
- **Solution**
  - Weakly supervised Learning
  - Triplet pair (anchor sketch, positive & negative images)
  - Sketch Net: S-Net (sketch), R-Net (image), and C-Net
  - C-Net: merge feature maps btw image and sketch

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Age Progression/Regression by Conditional Adversarial Autoencoder [CVPR `17]

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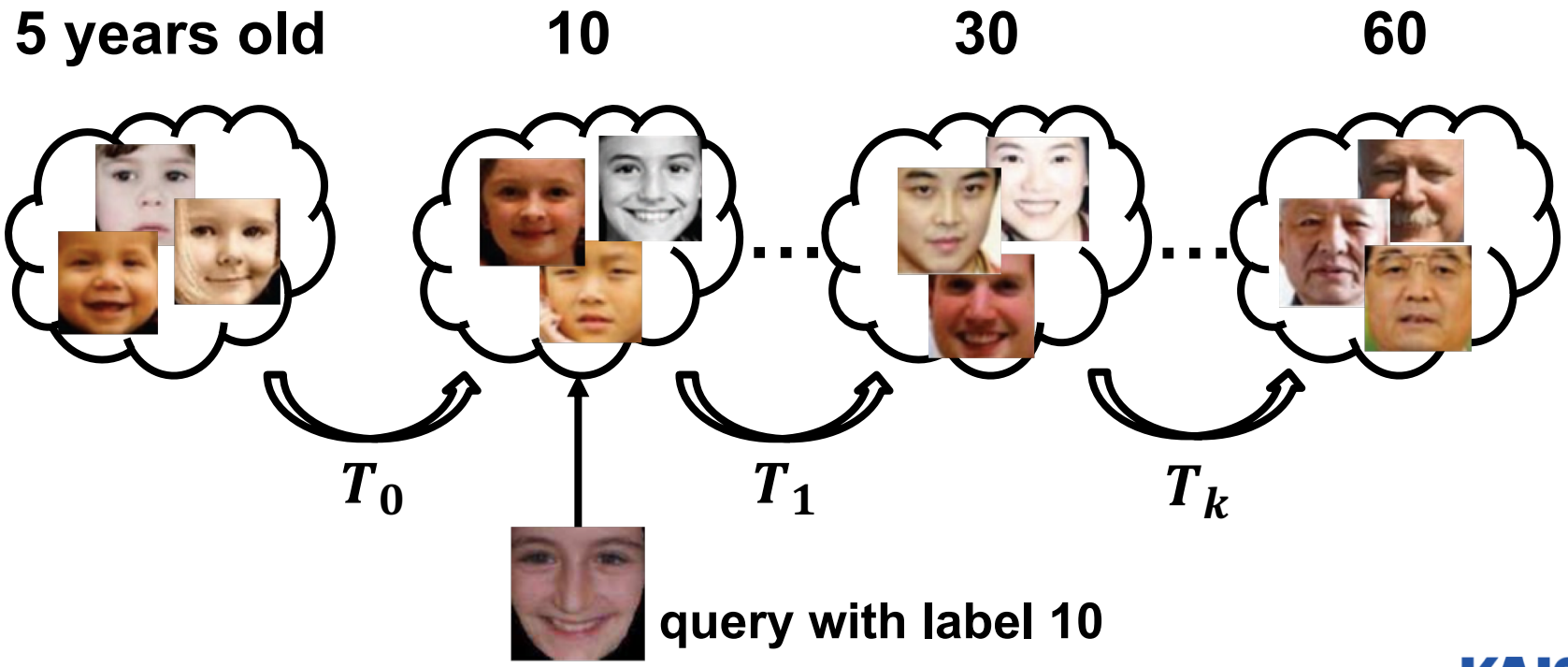
Introduction

- **Age Progression & Regression**

Problems of Previous Works

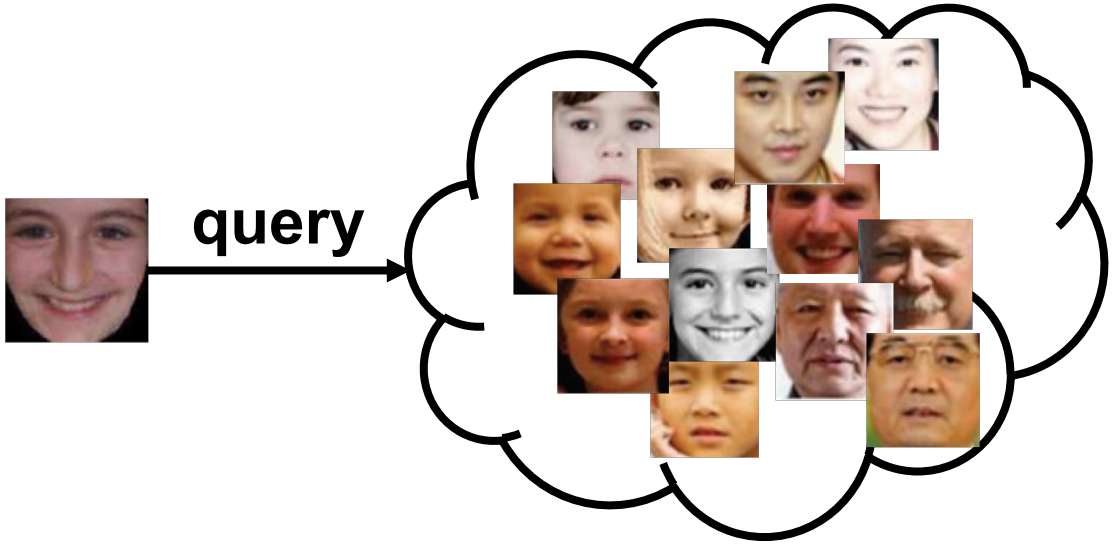
- Group-wised learning
- Query with label
- Step-by-step transition



Main Idea

- ~~Group-wised learning~~ ➔ Joint learning
- ~~Query with label~~ ➔ Query without label
- ~~Step-by-step transition~~

➔ One-step & bidirectional transition



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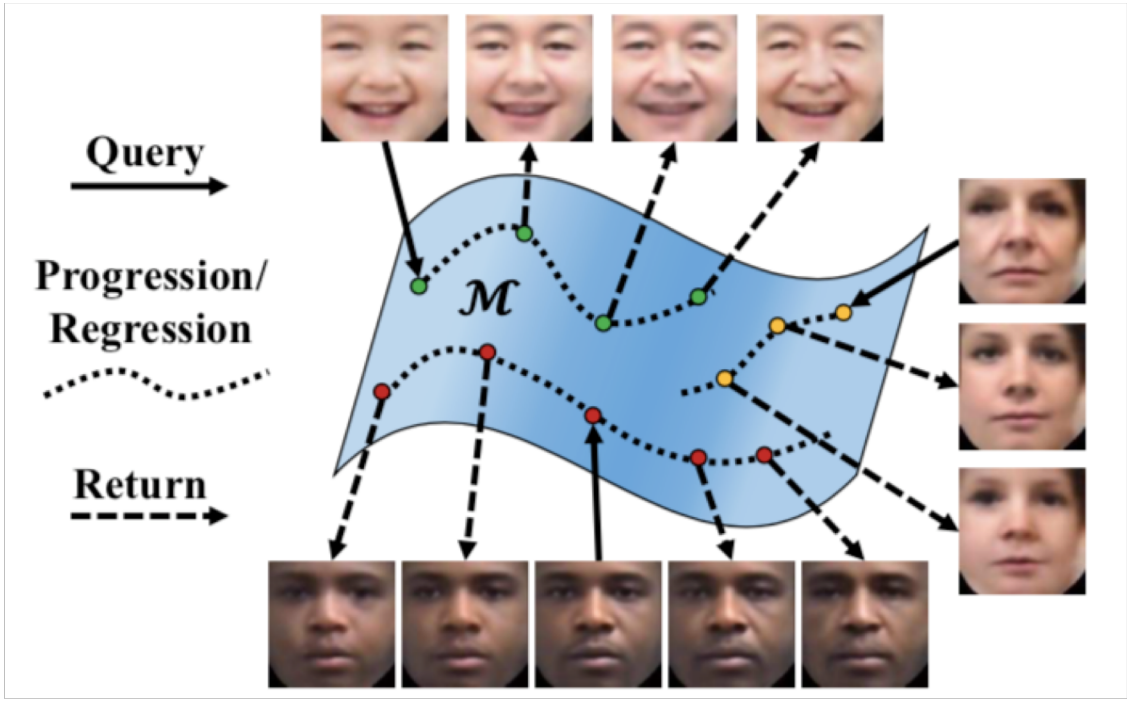
Main Idea: Manifold Traversing

- **Assumptions**
  - The faces lies on a manifold (M)
  - Clustered by ages and personality
  - Traversing on the manifold corresponds to age/personality transformation



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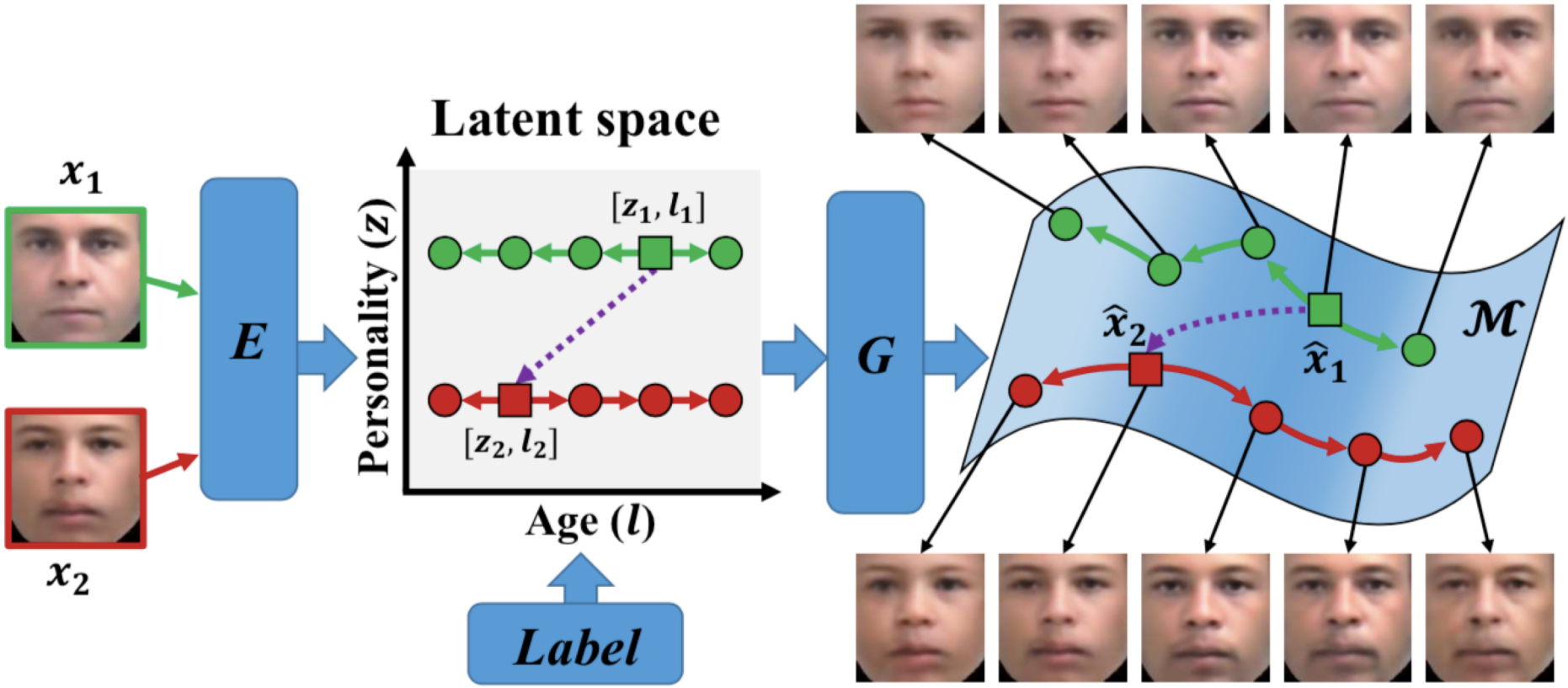
Solution: CAAE

- **Conditional Adversarial Autoencoder**



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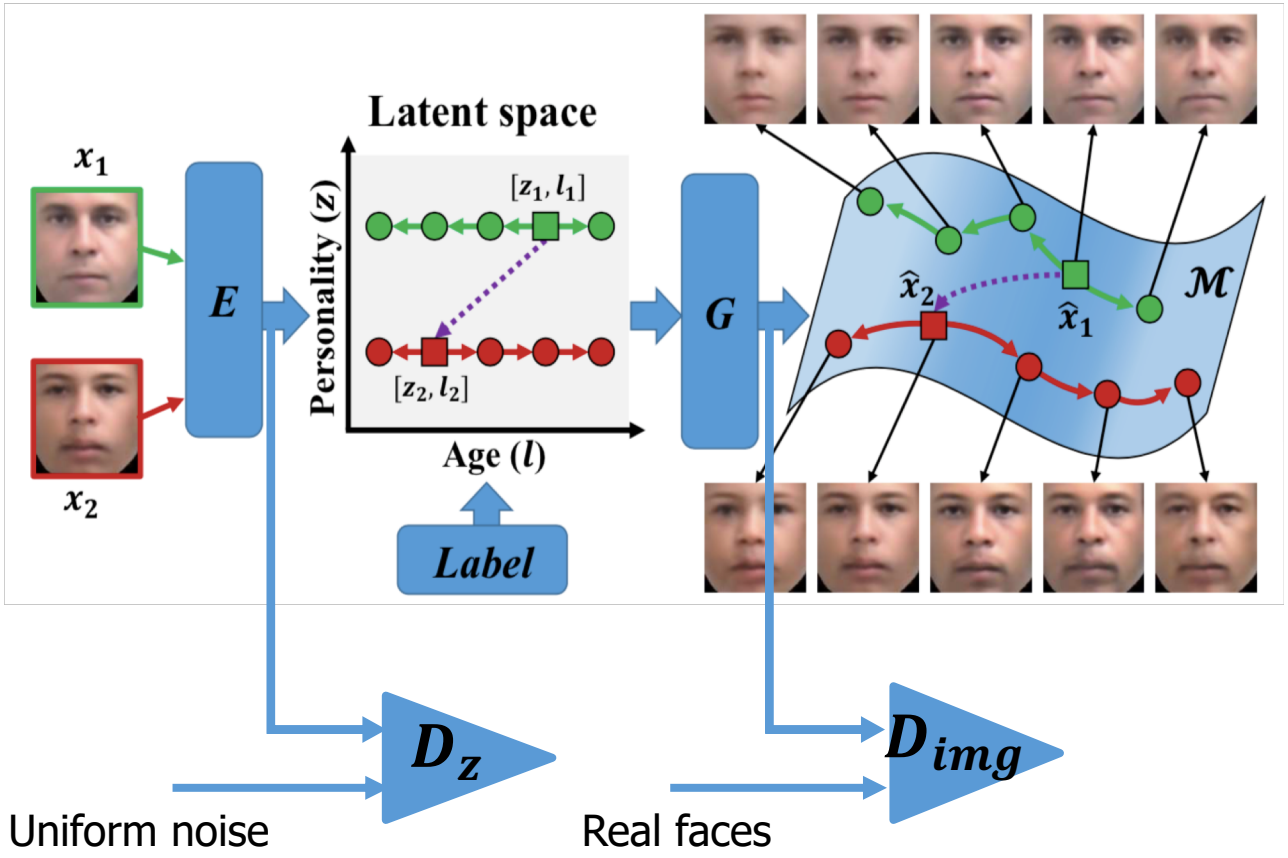
Solution: CAAE

- **Conditional Adversarial Autoencoder**



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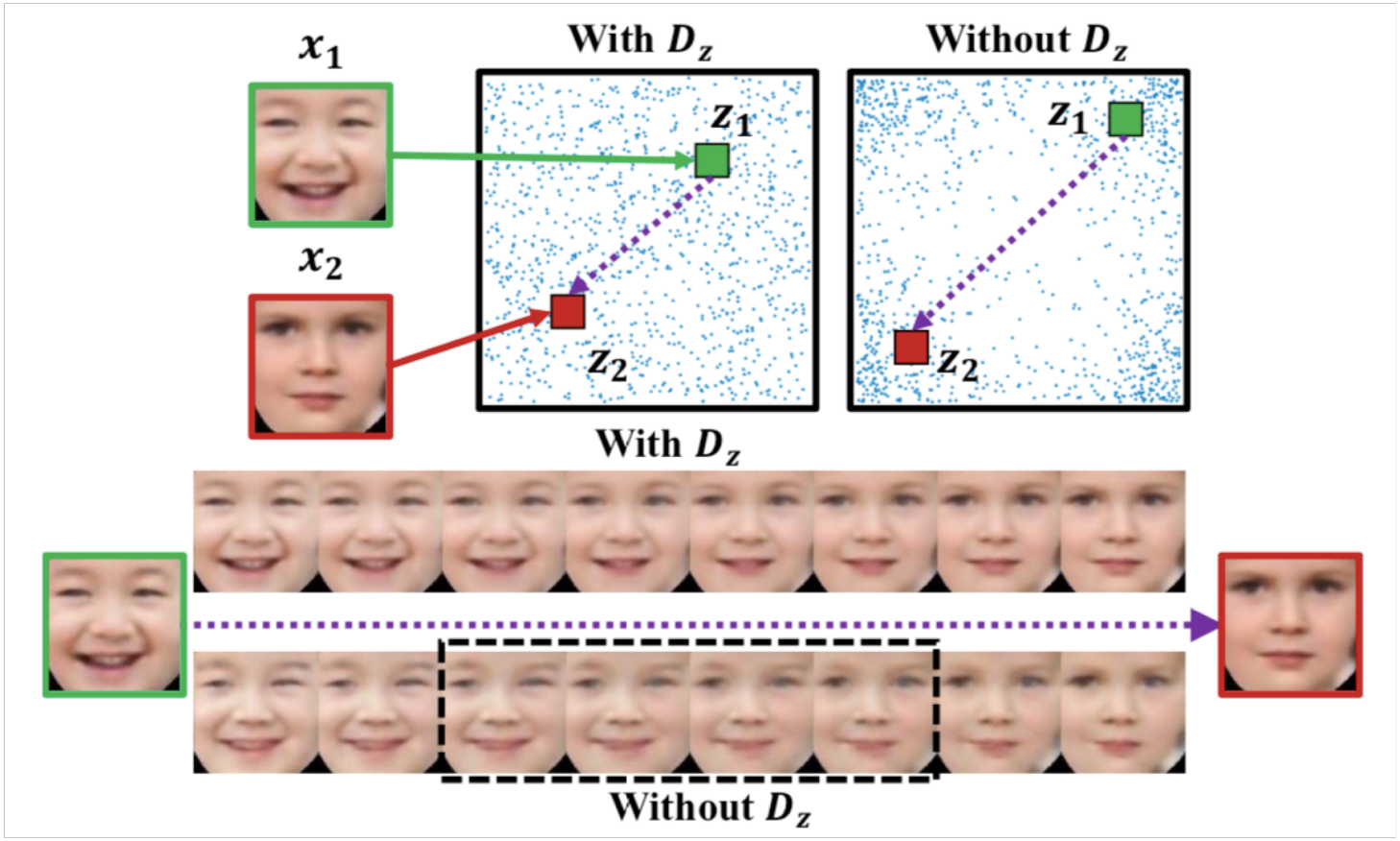
Solution: CAAE

- **Effect of Discriminator on z (D_z)**



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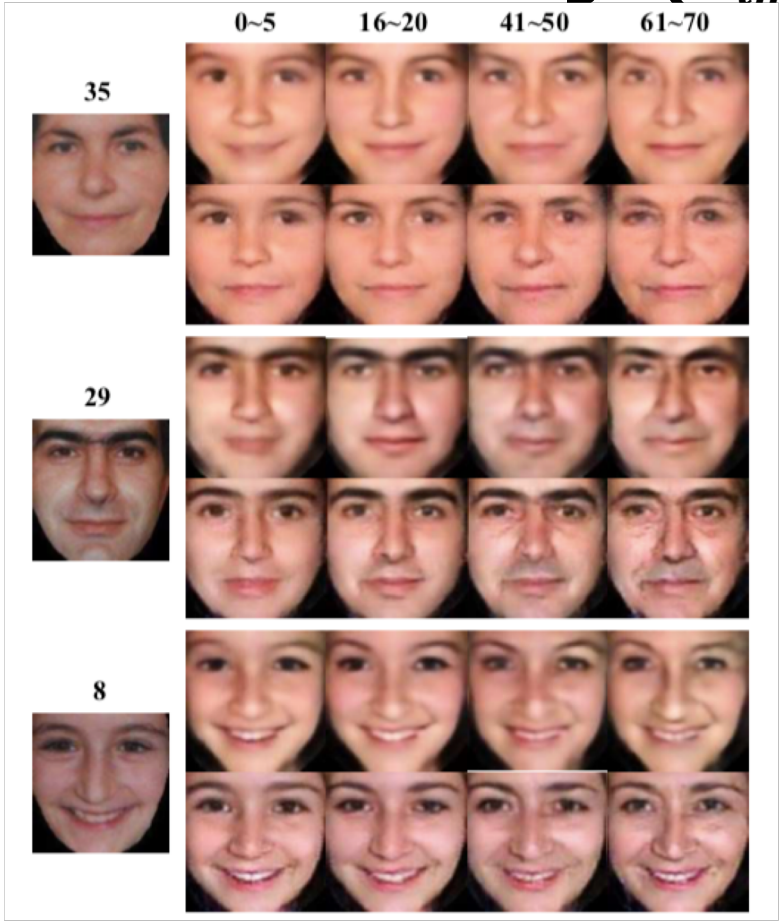
Solution: CAAE

- **Effect of Discriminator on image (D_{img})**



without D_{img}
with D_{img}

without D_{img}
with D_{img}

without D_{img}
with D_{img}

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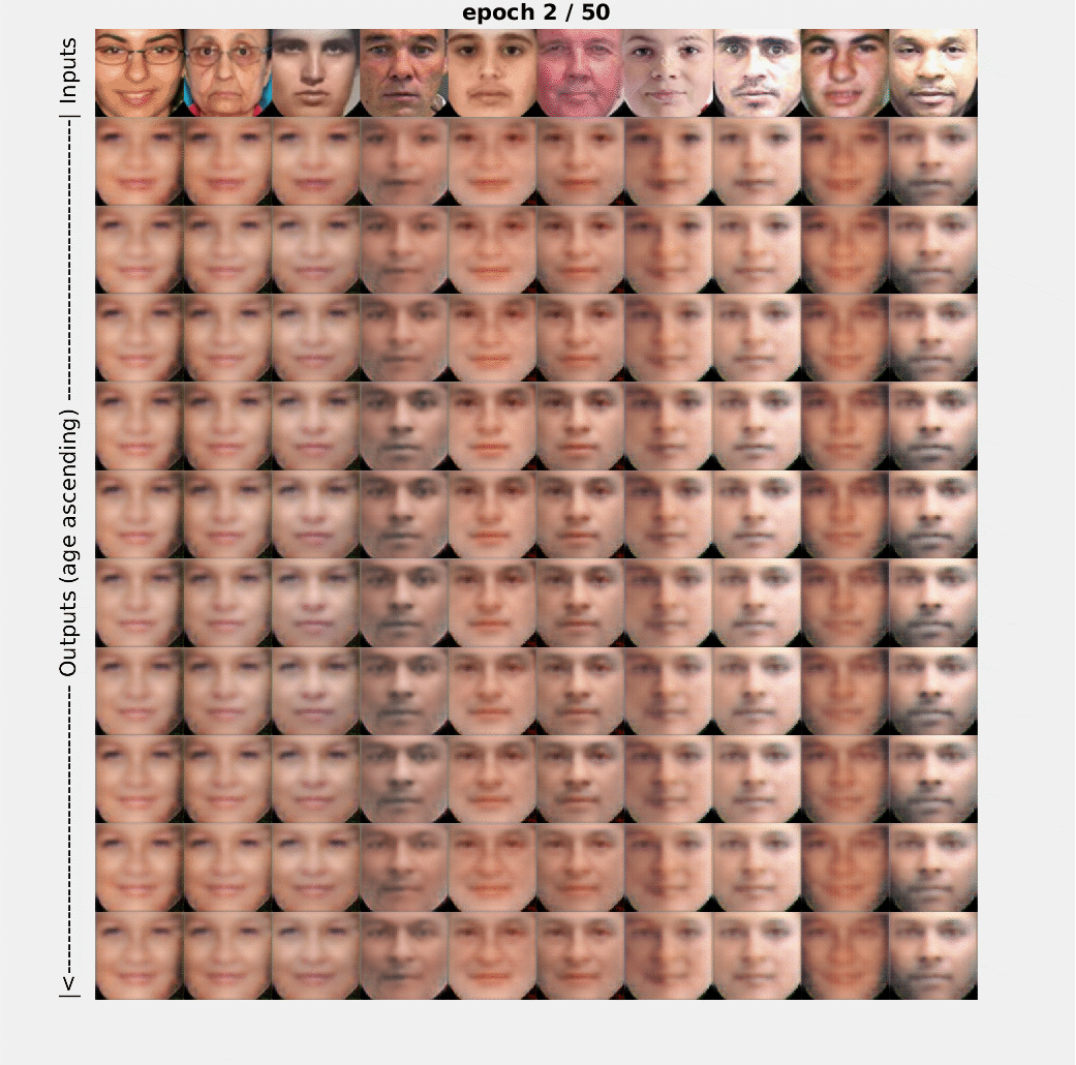
Experiment & Result



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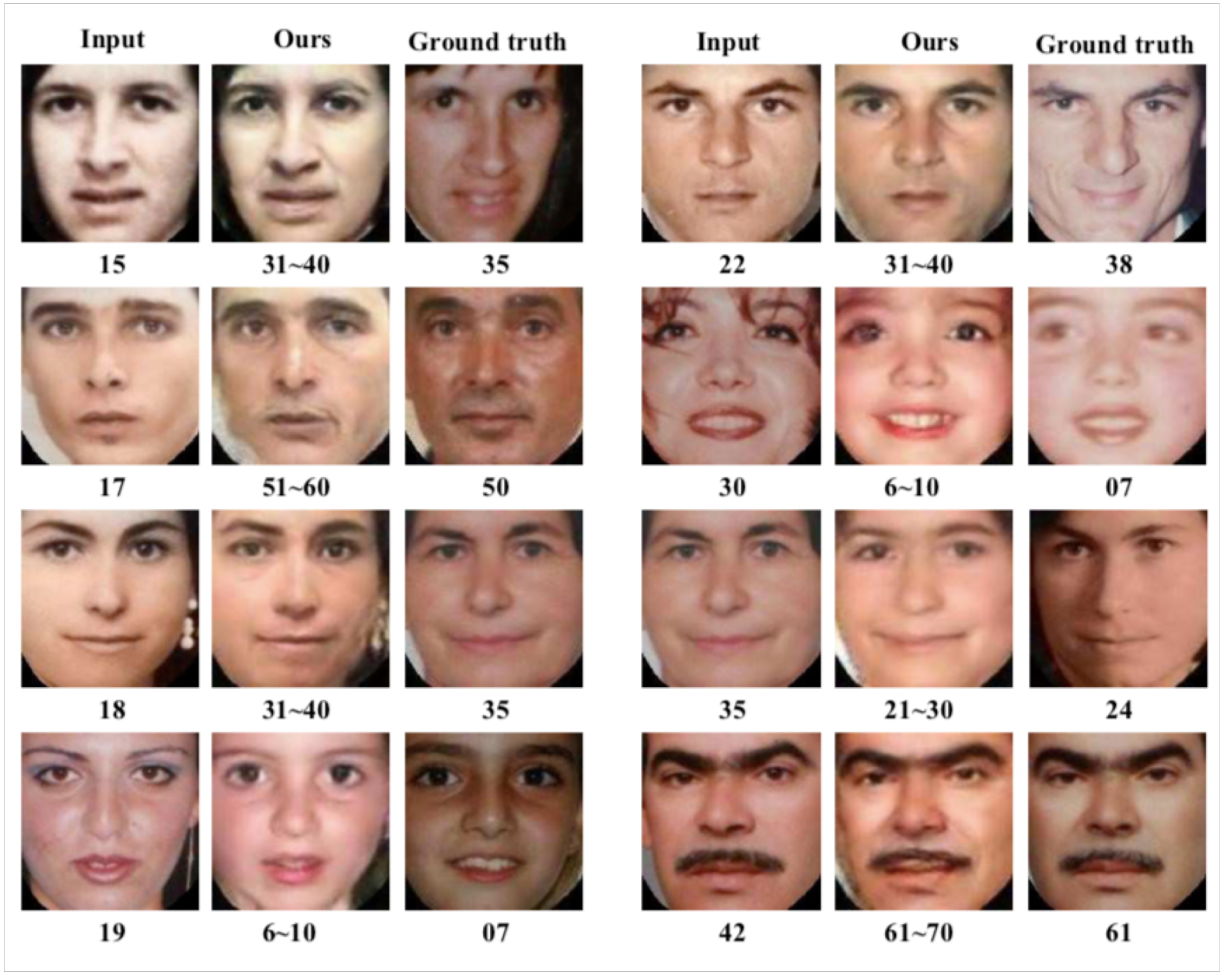
Experiment & Result

- **Comparison with prior work**

Experiment & Result

- **Comparison with ground truth**



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Overview

- CAAE (Conditional Adversarial Autoencoder)
- Manifold Traversing
  - Joint learning
  - Query without label
  - One-step & bidirectional transition
- Discriminator on z
- Discriminator on image

THANK YOU

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