Lecture 7: How to Prepare an AI Poster

https://github.com/kaopanboonyuen/SC310005_ArtificialIntelligence_2025s1

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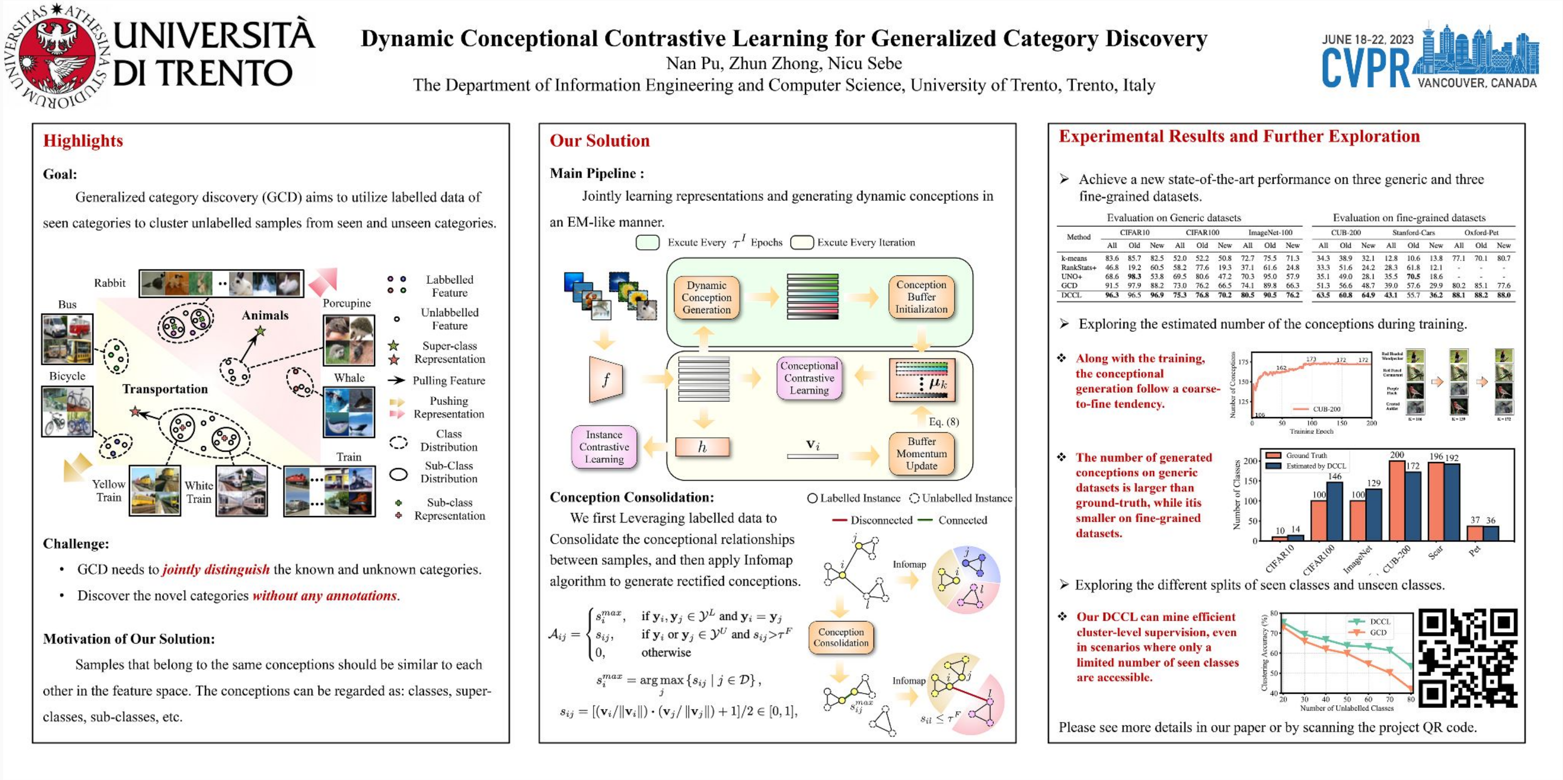
Crafting a World-Class AI Poster for CVPR, EMNLP, NeurIPS

From Research to Eye-Catching Presentation



Dynamic Conceptional Contrastive Learning for Generalized Category Discovery

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UNIVERSITÀ DI TRENTO

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Highlights

Goal:

Generalized category discovery (GCD) aims to utilize labelled data of seen categories to cluster unlabelled samples from seen and unseen categories.

Challenge:

- GCD needs to ***jointly distinguish*** the known and unknown categories.
- Discover the novel categories ***without any annotations***.

Motivation of Our Solution:

Samples that belong to the same conceptions should be similar to each other in the feature space. The conceptions can be regarded as: classes, super-classes, sub-classes, etc.

Our Solution

Main Pipeline :

Jointly learning representations and generating dynamic conceptions in an EM-like manner.

Conception Consolidation:

We first Leveraging labelled data to Consolidate the conceptional relationships between samples, and then apply Infomap algorithm to generate rectified conceptions.

$$\mathcal{A}_{ij} = \begin{cases} s_i^{max}, & \text{if } \mathbf{y}_i, \mathbf{y}_j \in \mathcal{Y}^L \text{ and } \mathbf{y}_i = \mathbf{y}_j \\ s_{ij}, & \text{if } \mathbf{y}_i \text{ or } \mathbf{y}_j \in \mathcal{Y}^U \text{ and } s_{ij} > \tau^F \\ 0, & \text{otherwise} \end{cases}$$

$$s_i^{max} = \arg\max_j \{s_{ij} \mid j \in \mathcal{D}\},$$

$$s_{ij} = [(\mathbf{v}_i/\|\mathbf{v}_i\|) \cdot (\mathbf{v}_j/\|\mathbf{v}_j\|) + 1]/2 \in [0, 1],$$

Experimental Results and Further Exploration

- Achieve a new state-of-the-art performance on three generic and three fine-grained datasets.

Evaluation on Generic datasets / Evaluation on fine-grained datasets

Method	CIFAR10			CIFAR100			ImageNet-100			CUB-200			Stanford-Cars			Oxford-Pet		
	All	Old	New	All	Old	New	All	Old	New	All	Old	New	All	Old	New	All	Old	New
k-means	83.6	85.7	82.5	52.0	52.2	50.8	72.7	75.5	71.3	34.3	38.9	32.1	12.8	10.6	13.8	77.1	70.1	80.7
RankStats+	46.8	19.2	60.5	58.2	77.6	19.3	37.1	61.6	24.8	33.3	51.6	24.2	28.3	61.8	12.1	-	-	-
UNO+	68.6	**98.3**	53.8	69.5	80.6	47.2	70.3	95.0	57.9	35.1	49.0	28.1	35.5	**70.5**	18.6	-	-	-
GCD	91.5	97.9	88.2	73.0	76.2	66.5	74.1	89.8	66.3	51.3	56.6	48.7	39.0	57.6	29.9	80.2	85.1	77.6
DCCL	**96.3**	96.5	**96.9**	**75.3**	**76.8**	**70.2**	**80.5**	**90.5**	**76.2**	**63.5**	**60.8**	**64.9**	**43.1**	55.7	**36.2**	**88.1**	**88.2**	**88.0**

- Exploring the estimated number of the conceptions during training.
  - **Along with the training, the conceptional generation follow a coarse-to-fine tendency.**
  - **The number of generated conceptions on generic datasets is larger than ground-truth, while itis smaller on fine-grained datasets.**
- Exploring the different splits of seen classes and unseen classes.
  - **Our DCCL can mine efficient cluster-level supervision, even in scenarios where only a limited number of seen classes are accessible.**

Please see more details in our paper or by scanning the project QR code.

https://cvpr.thecvf.com/virtual/2024/poster/30947

Why a Poster Matters

- **Purpose of a Poster**
    - Showcase research highlights in *minutes*
    - Attract attendees and spark conversation
    - Build valuable academic connections
- **Poster = Elevator Pitch + Visual Story**
- **Key Thought:** *A great poster gets you noticed before you speak.*

Poster Goals

- Communicate **clearly and visually**
- Make your **main contribution obvious in 5 seconds**
- Keep **details available for deeper discussion**
- **Guide the viewer's eye** from top-left → bottom-right
- Leave a **memorable impression** after they walk away

Poster Structure (Common in CVPR / NeurIPS)

1. **Title & Authors** – Large, readable from 3 meters
2. **Motivation** – Why this research matters
3. **Problem Statement** – What gap you're addressing
4. **Method** – Architecture diagram, pipeline, or key equation
5. **Results** – Tables, metrics, and qualitative examples
6. **Conclusion & Future Work** – Short and punchy
7. **References & Acknowledgments** – Keep compact

💡 *Tip:* Your "teaser figure" from the paper works perfectly as the centerpiece.

Visual Design Principles

- **Fonts:** Use clean sans-serif (Helvetica, Roboto, Calibri)
- **Font Sizes:**
    - Title: 80–120 pt
    - Section Headings: 40–60 pt
    - Body Text: 24–32 pt
- **Colors:** Limit to 2–3 main colors from your university or lab palette
- **Whitespace:** Use margins generously for clarity
- **Icons & Graphics:** Replace text with visuals whenever possible

Content Design Tips

- Use **one big, high-impact figure** to draw attention
- Turn methods into **step-by-step visual flows**
- For results: **highlight key numbers in bold or color**
- Keep text **bullet-based**, avoid long paragraphs
- Include **QR code** to your paper, code repo, or demo video

Presentation Strategy at the Conference

- **Opening Hook:** One-sentence summary of your research
- **Walkthrough Flow:** Problem → Method → Key Result → Impact
- **Engagement:** Ask attendees about their research, relate your work
- **Leave-Behind Material:** Handouts, QR codes, or business cards

Common Mistakes to Avoid

- Overloading with text or too many figures
- Using small fonts that can’t be read from a distance
- Poor color contrast (light text on light background)
- Crowding all results without storytelling
- Ignoring whitespace

Checklist Before Printing

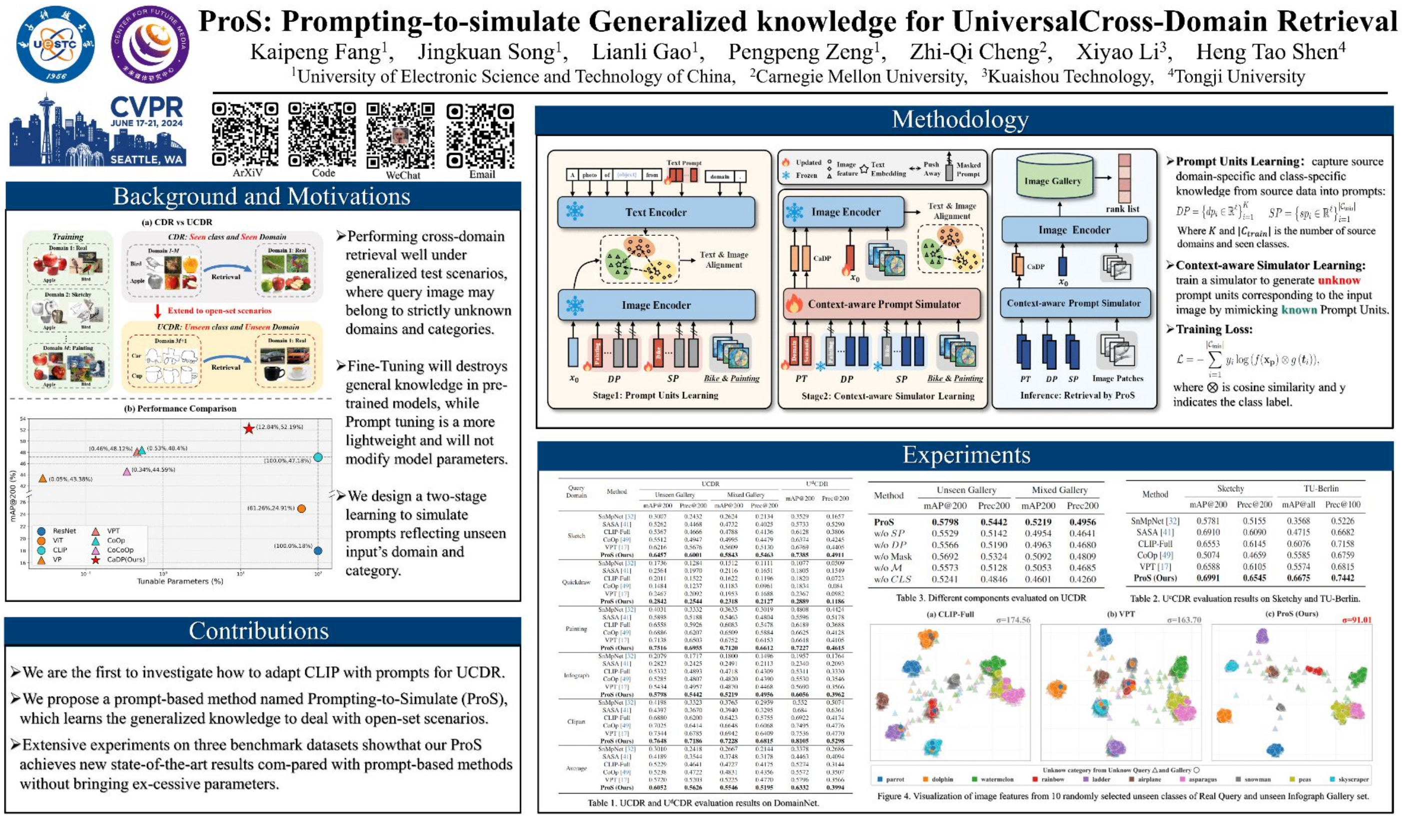
- Main contribution visible from a few meters away
- All fonts readable from ~1.5 meters
- Colors consistent and print-safe (CMYK)
- No typos or inconsistent terminology
- QR code tested and functional

Final Thought

"Your poster is not just a display — it’s a conversation starter, a networking tool, and a visual summary of months or years of research. Make it count."

Sample AI Posters

at a top-tier international conference (e.g., NeurIPS, ICML, CVPR, AAAI).



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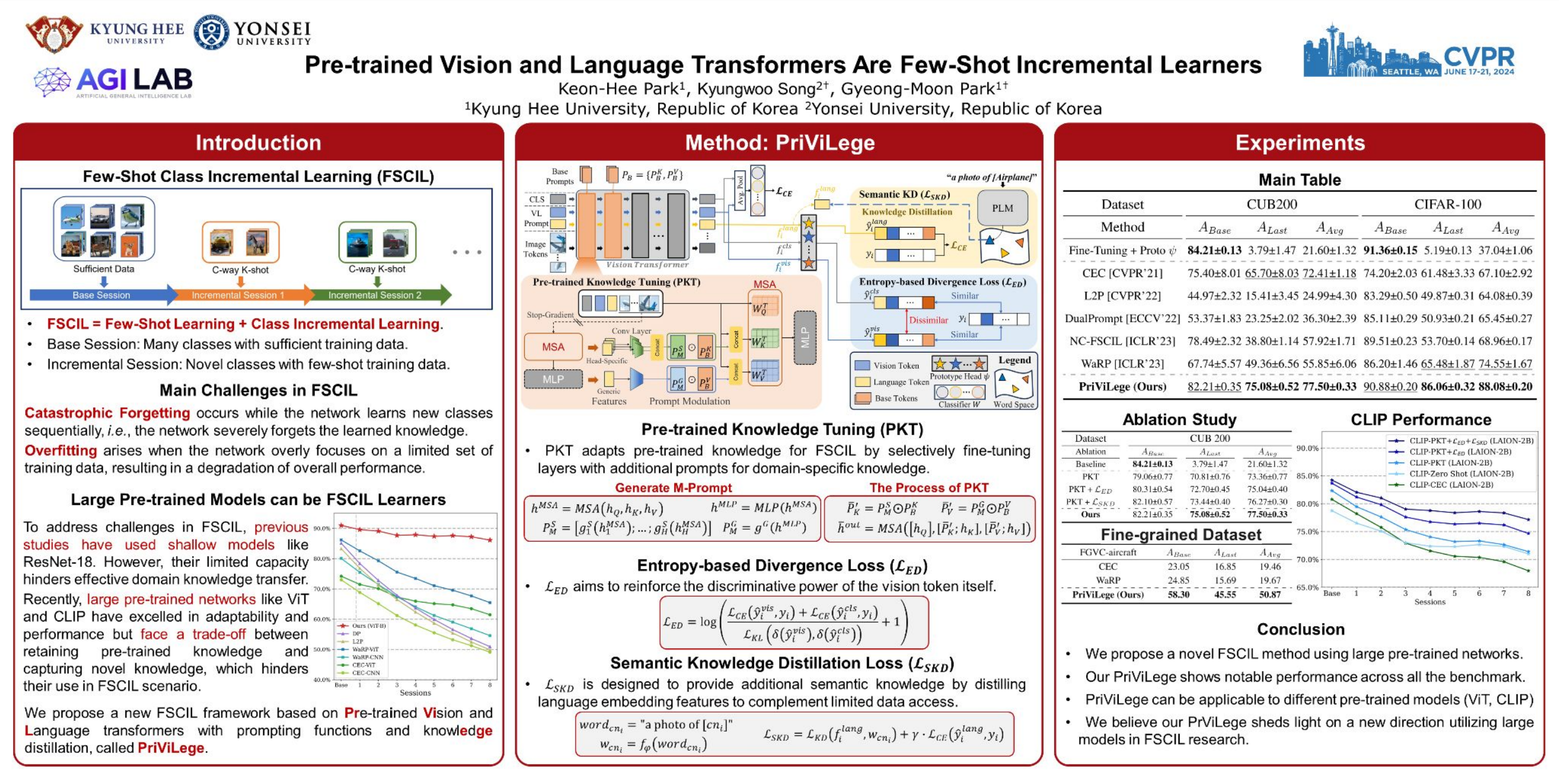

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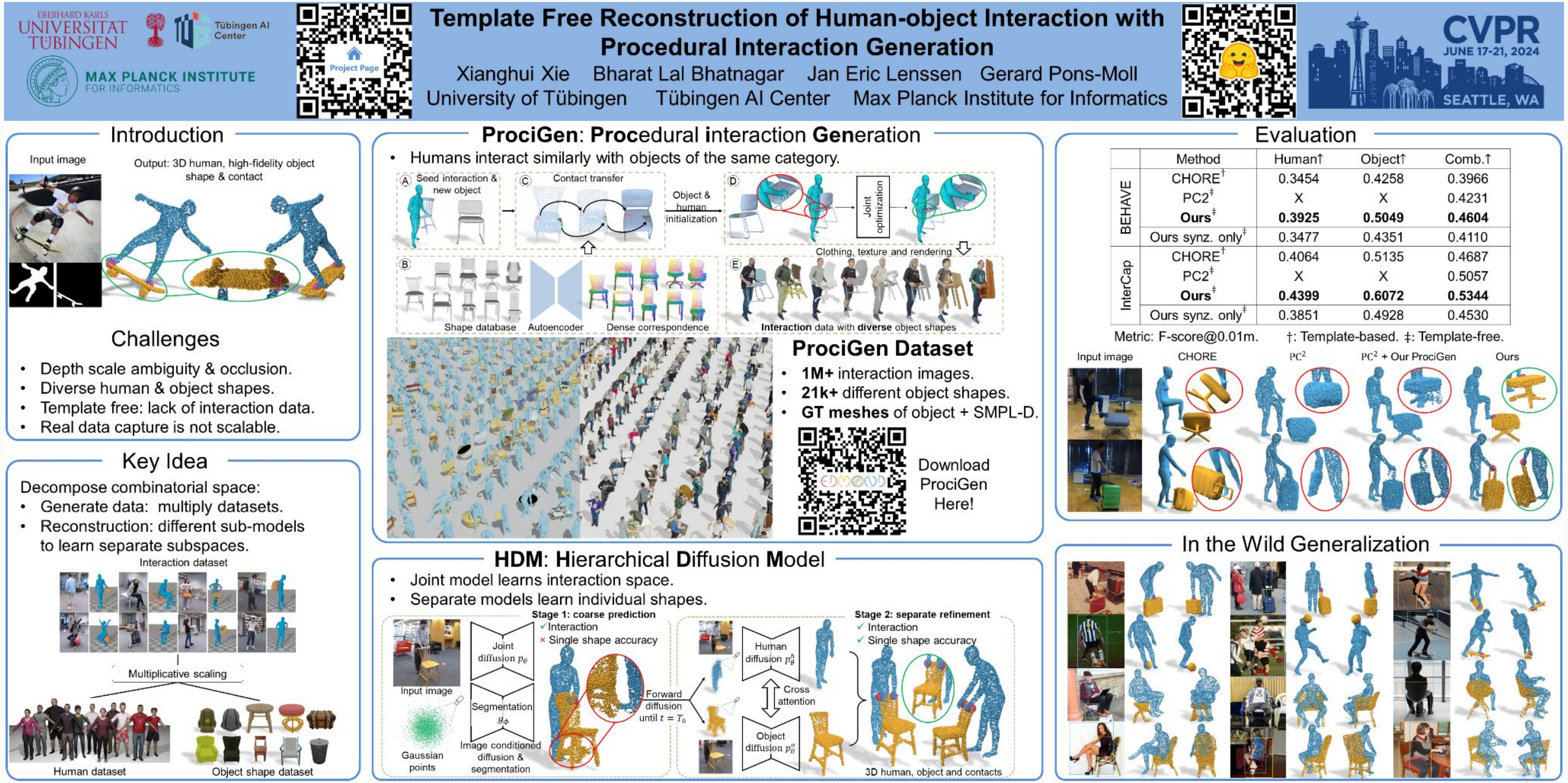

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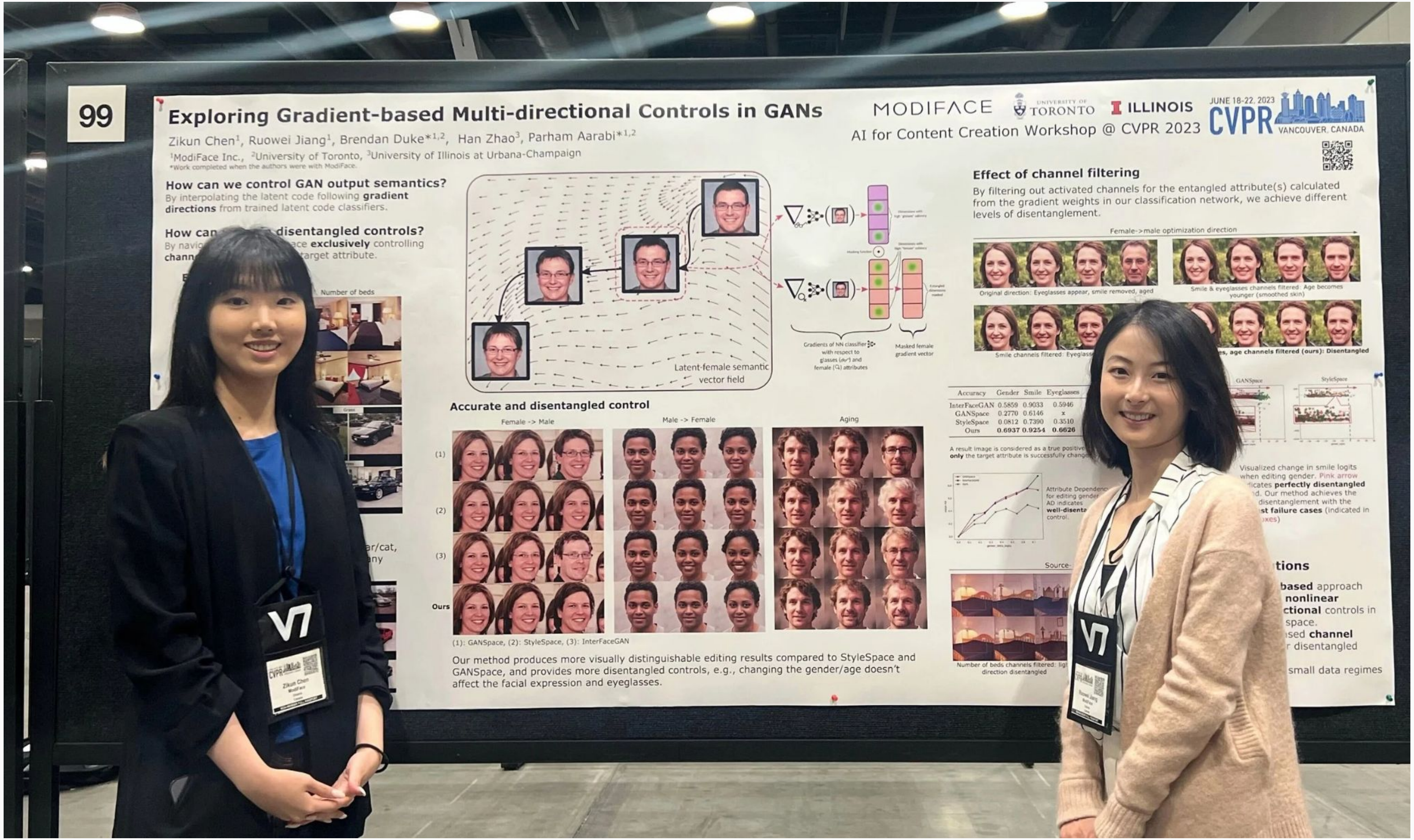
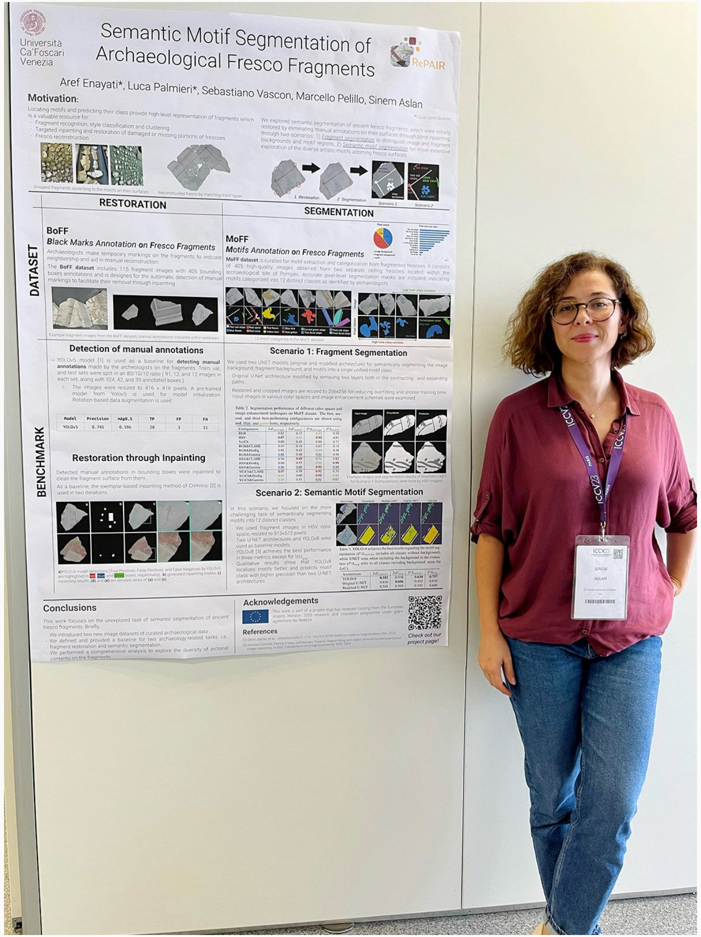
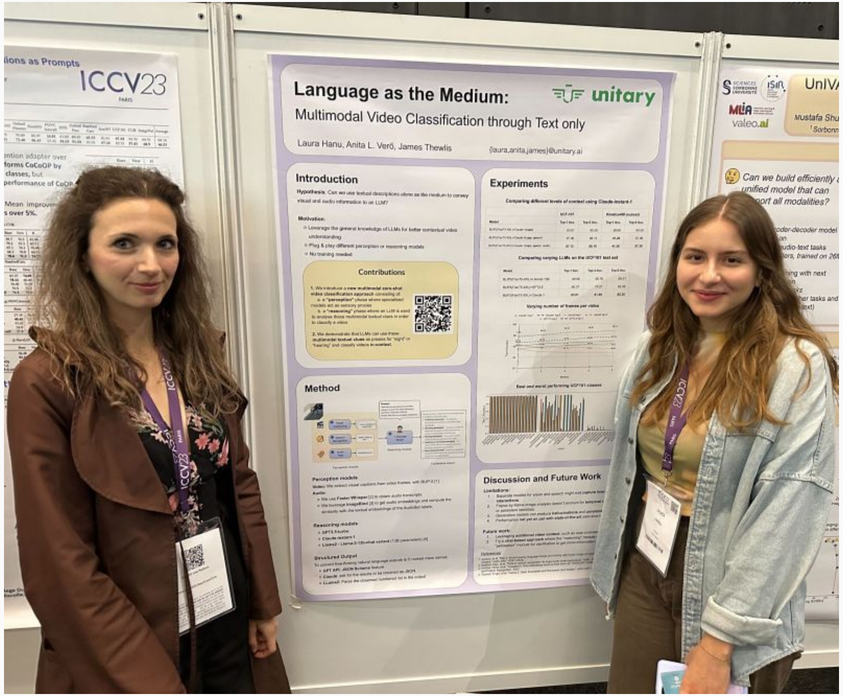

99
Exploring Gradient-based Multi-directional Controls in GANs
Zikun Chen1, Ruowei Jiang1, Brendan Duke*1,2, Han Zhao3, Parham Aarabi*1,2
1ModiFace Inc., 2University of Toronto, 3University of Illinois at Urbana-Champaign
MODIFACE
UNIVERSITY OF TORONTO
ILLINOIS
AI for Content Creation Workshop @ CVPR 2023
JUNE 18-22, 2023
CVPR
VANCOUVER, CANADA
How can we control GAN output semantics?
By interpolating the latent code following gradient directions from trained latent code classifiers.
disentangled controls?
exclusively controlling
target attribute.
Latent-female semantic vector field
Accurate and disentangled control
Female -> Male
Male -> Female
Aging
Ours
(1): GANSpace, (2): StyleSpace, (3): InterFaceGAN
Our method produces more visually distinguishable editing results compared to StyleSpace and GANSpace, and provides more disentangled controls, e.g., changing the gender/age doesn't affect the facial expression and eyeglasses.
Effect of channel filtering
By filtering out activated channels for the entangled attribute(s) calculated from the gradient weights in our classification network, we achieve different levels of disentanglement.
Female->male optimization direction
Accuracy Gender Smile Eyeglasses
InterFaceGAN 0.5859 0.9033 0.5946
GANSpace 0.2770 0.6146 x
StyleSpace 0.0812 0.7390 0.3510
Ours 0.6937 0.9254 0.6626
Source
small data regimes

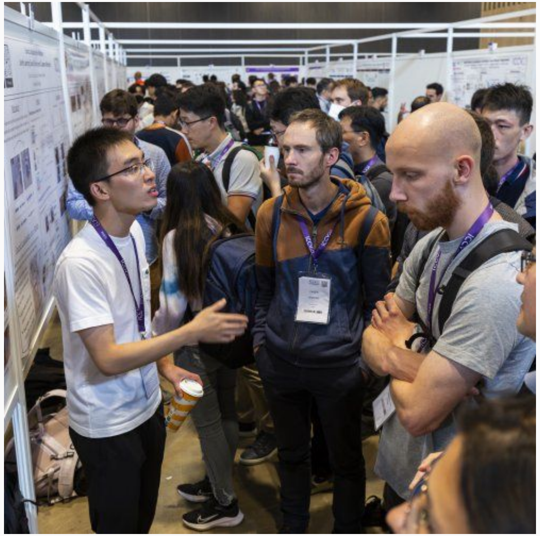
SAMPLE

https://pavliclab.org/tag/cvpr2024/

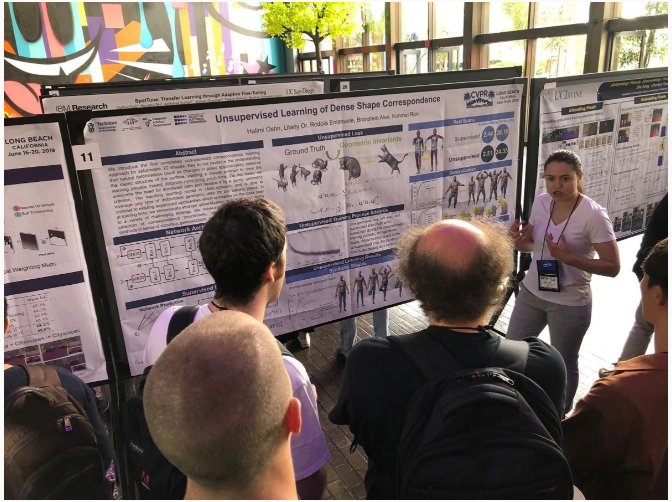


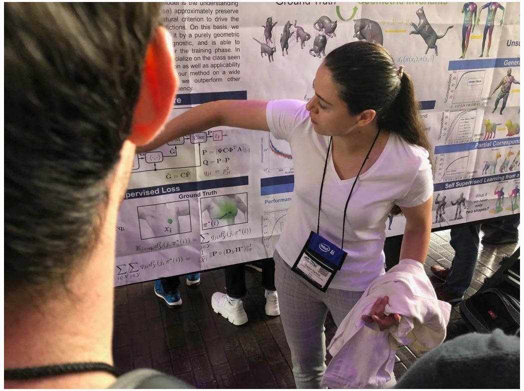


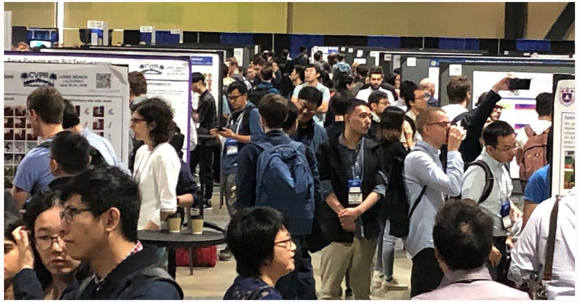
https://coronatodays.com/international-conference-on-computer-vision-iccv-2023-repair-project/



SAMPLE







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Question?