LIVS: Local Visual Intersectional Spaces

A Pluralistic Alignment Dataset for Inclusive Public Spaces

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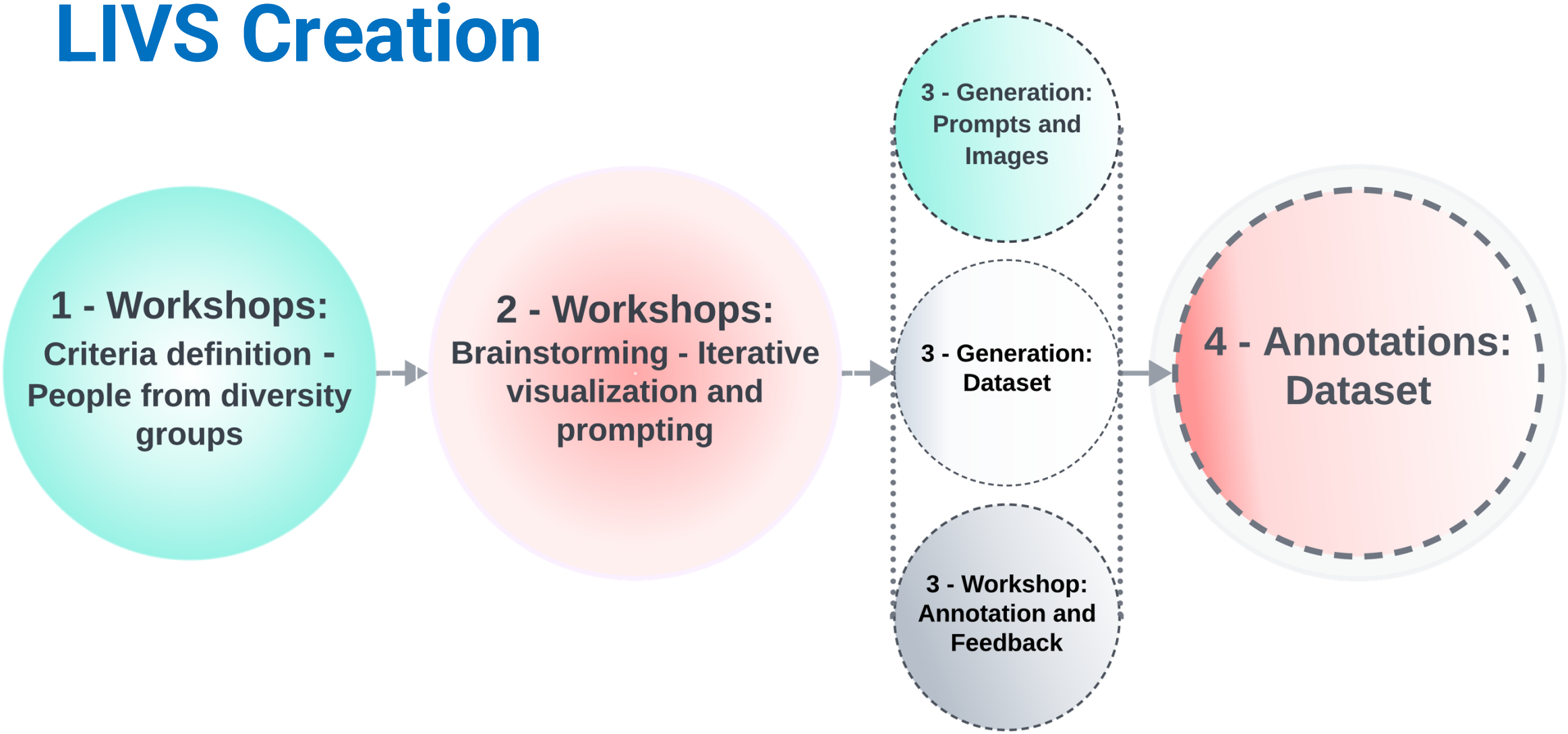
Problem and Motivation

Inequity in Design Influence:
Marginalized communities often lack input in public space design.

Democratizing Visualization:
Goal to empower community members with visualization tools.
Facilitate consultations with community members.

Challenge:
Align AI-generated images with diverse, localized values and preferences.

LIVS Creation



Participatory Approach

Introductory Workshop – AIAI project | Group 3 | Scenario C | Number of prompts: **48** | Status: Completed | Prompting Guide

Visualize this public space and generate images using the chat:
Public space typology: street space
Amenities: all ages-, all genders-, all abilities-, all identities-friendly environments
Location: residential neighbourhood in Montreal

Mont Royal street in the plateau

Montreal summertime residential street

Montreal summertime residential street with tram, bikes, pedestrians, active transportation

Prompting Workshop

Aipithet

Inclusion / Inclusive

Safe / Secure

Comfortable

Submit

Add comment

Previous

11 / 750

Annotating: Pairwise Comparison

LIVS:
Prompts, Images, & Preferences

3,350 Prompts

6 Criteria

16,694 Images

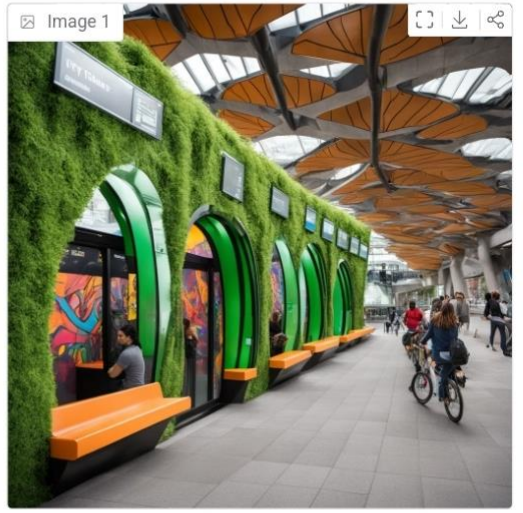
Over 42,000 Annotations

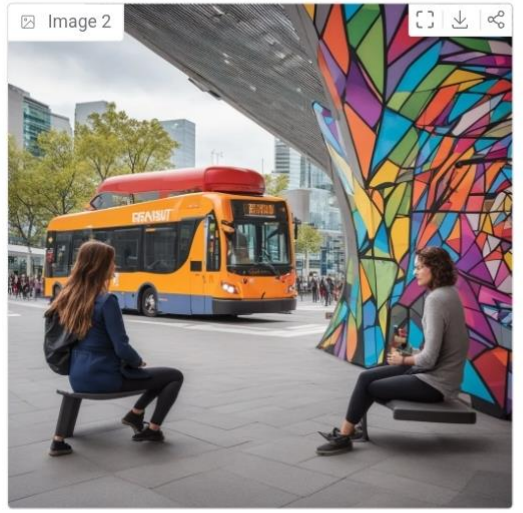
MID-Space Dataset Viewer

Select Pair ID

zk6oE9qvFJ173d4RZSmr0

Show Image Pair





Label 1

Comfortable

Label 1 Score

-0.66 (Preference for the image on the left)

Label 2

Safe

Label 2 Score

0.33 (Preference for the image on the right)

Label 3

Inviting

Label 3 Score

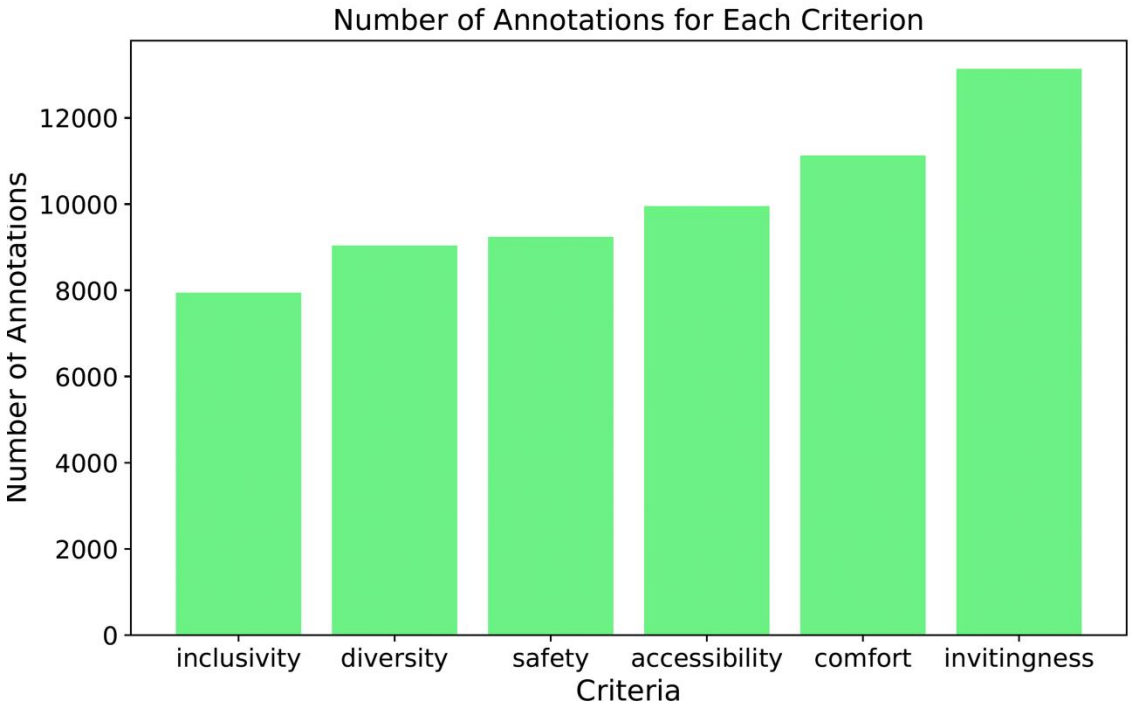
0 (Equal preferences)

Prompt

Key transit hub in Montreal, adjacent to a metro station, vibrant street art, lush greenery, cozy sheltered seating, interactive transit information displays, bike-share stations, bustling with commuters and cyclists.

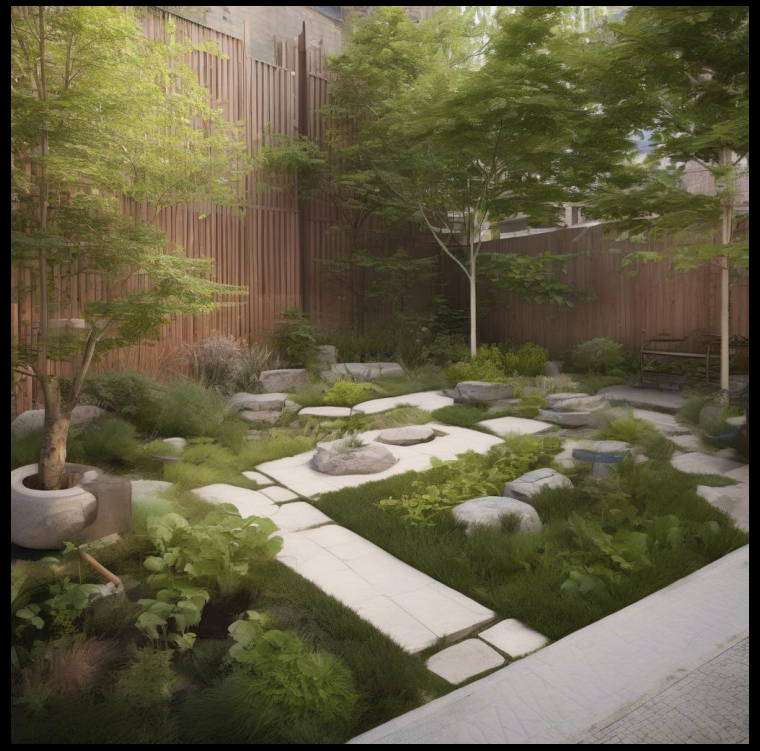
Data Analysis - Prompts

Over 37,000 annotations. Total of 3,350 prompts. Average prompt length: 37 words.

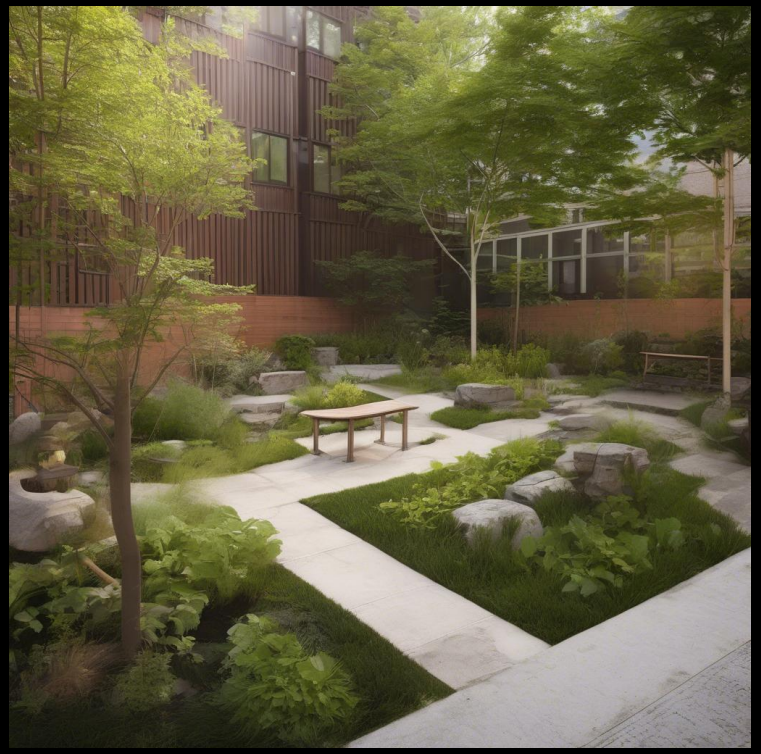


Results - DPO

SDXL - Original



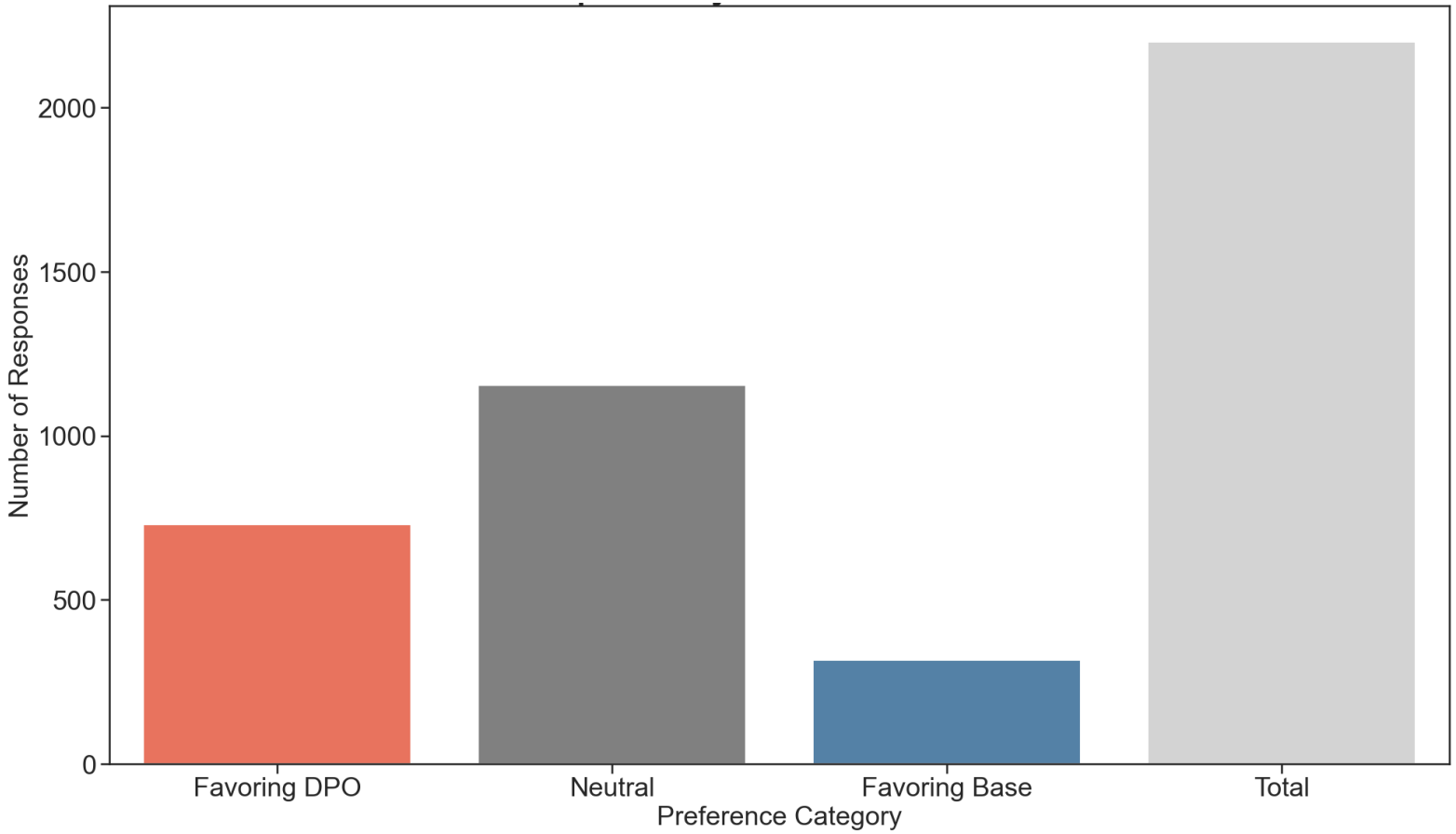
SDXL- DPO: Inclusivity



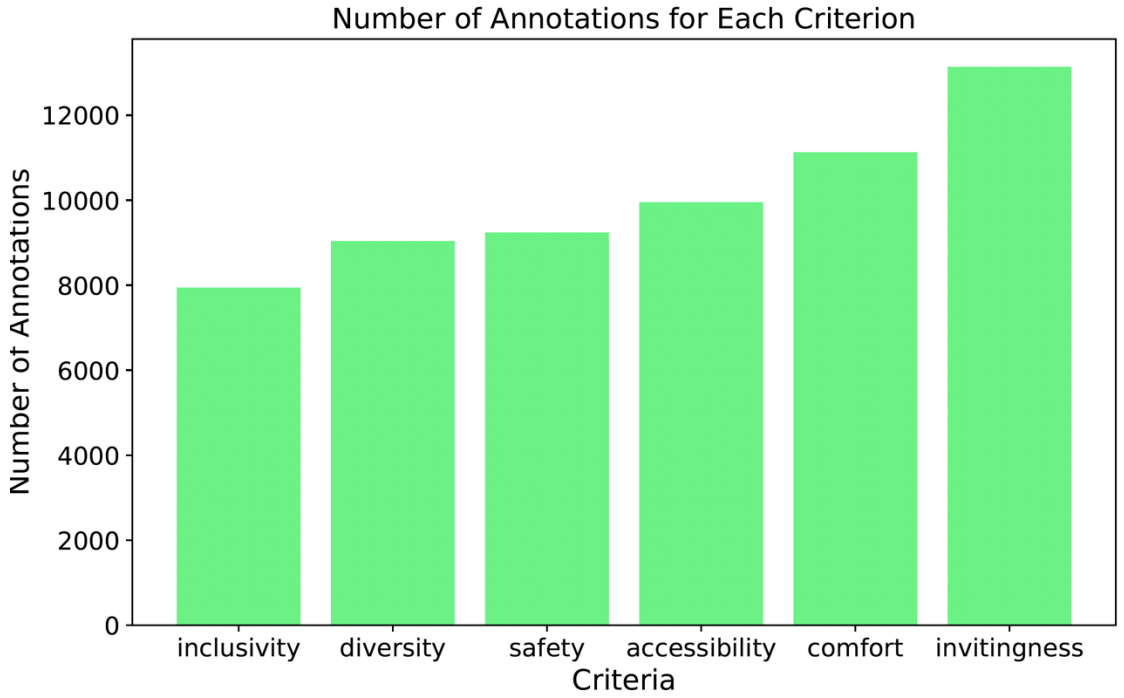
SDXL- DPO: All Criteria

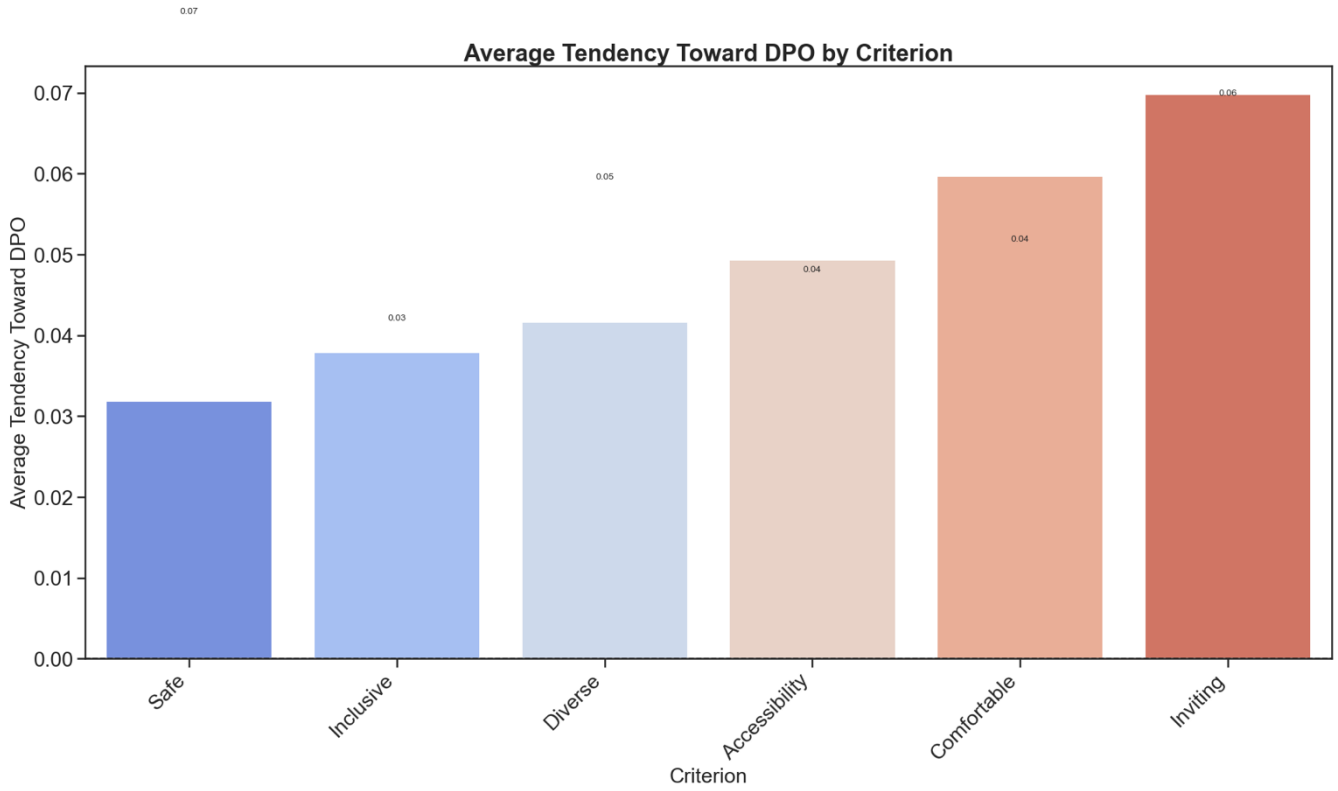
"A quiet, inclusive meditation garden in a busy urban area."

Results - Participants Evals

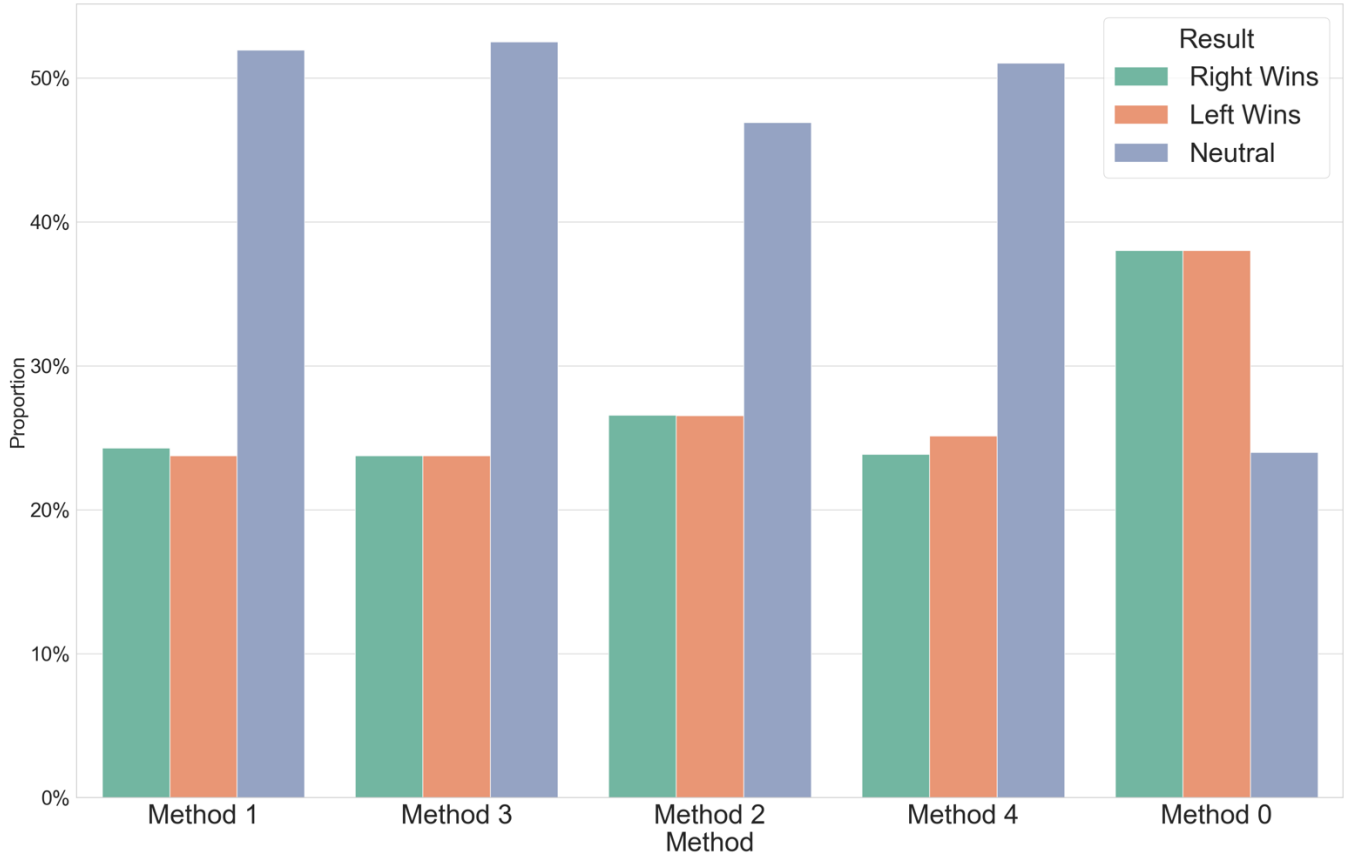


Results - Participants Evals





Prompting methods



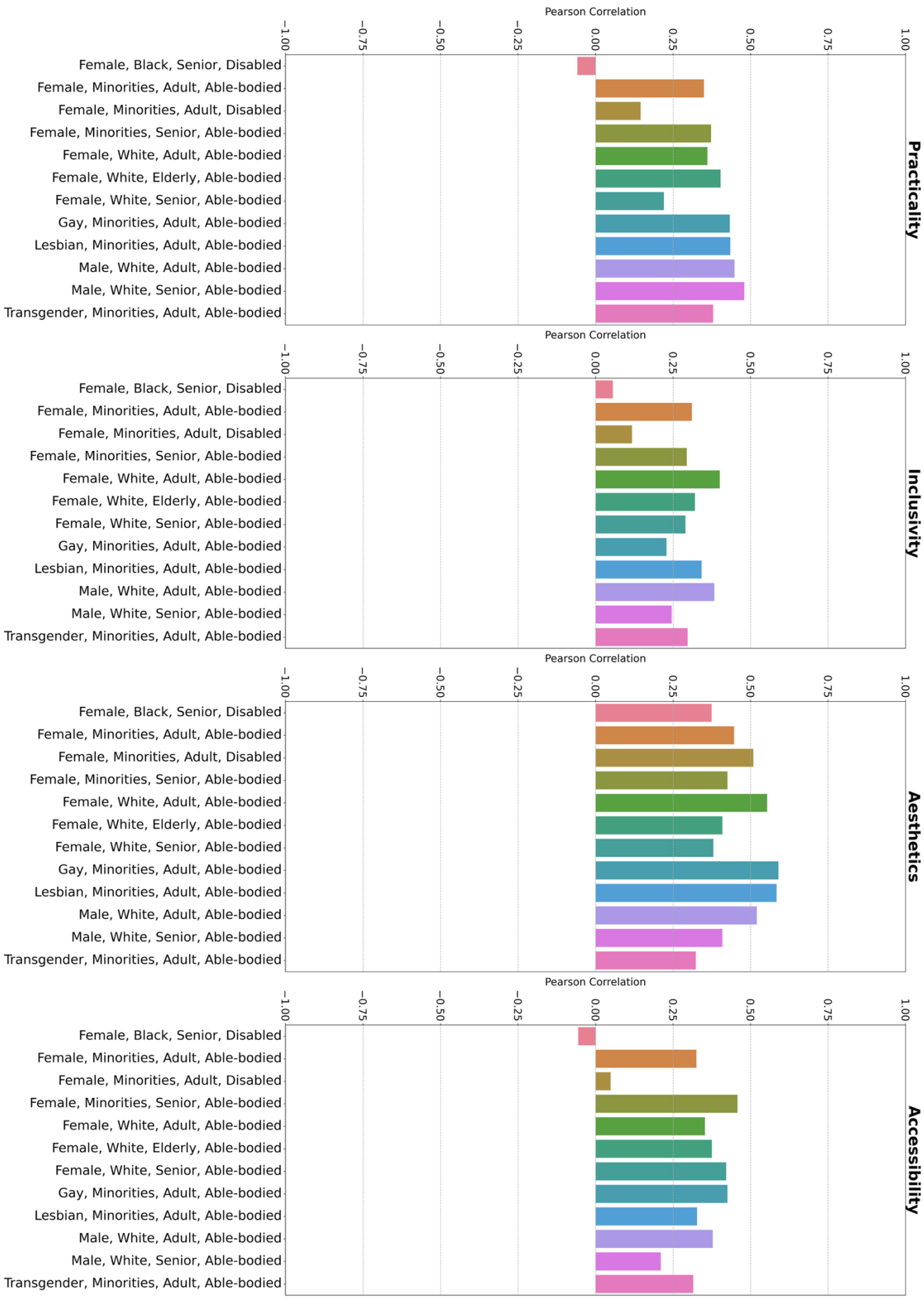
Limitations

Sample Size:
Small number of annotators.

Generalization Challenges:
Difficulty in scaling annotations to broader demographics

Model Limitations:
Struggles with certain features (e.g., accessibility elements).
De-noising techniques reduced nuance.

Challenges:
Marginalized Users



Future Work

Engage More Participants: Broaden representation by involving more community members.

Develop Advanced Training Techniques: Capture nuances and address conflicting preferences. Enhance models to handle pluralistic values effectively. Use equal ratings.

Acknowledgement

Community Organizations

Altergo
La Maisonnée
Cummings
Community Center for Seniors
Marguerite-Bourgeoys Hub
RÉZO
Afrique au Féminin
L'Agence On est là!
Montreal Women's Groups Table
LGBTQ+ Community Center of Montreal
Women's Center of Plateau Mont-Royal
Congolese Community Center of Montreal
...

NPOs - Private

Enclume

Dark Matter Labs

Sid Lee Architecture

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Thank you!

https://mid-space.one/