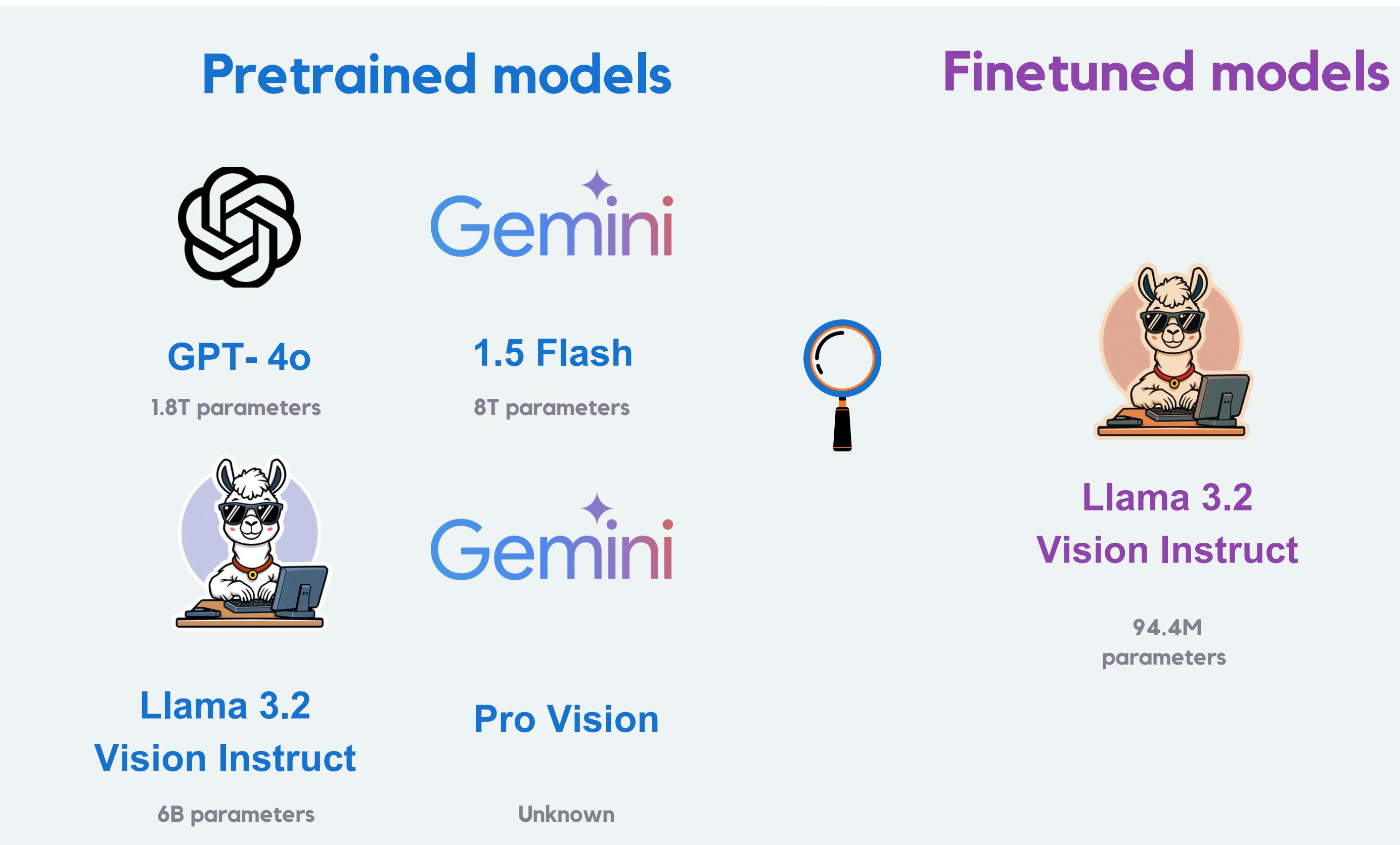


# Can MLLMs model human graphical perception?

Our study builds on the graphical perception work by Cleveland and McGill (1984) and extends "Evaluating 'Graphical Perception' with CNNs" by Haehn et al. (2018)



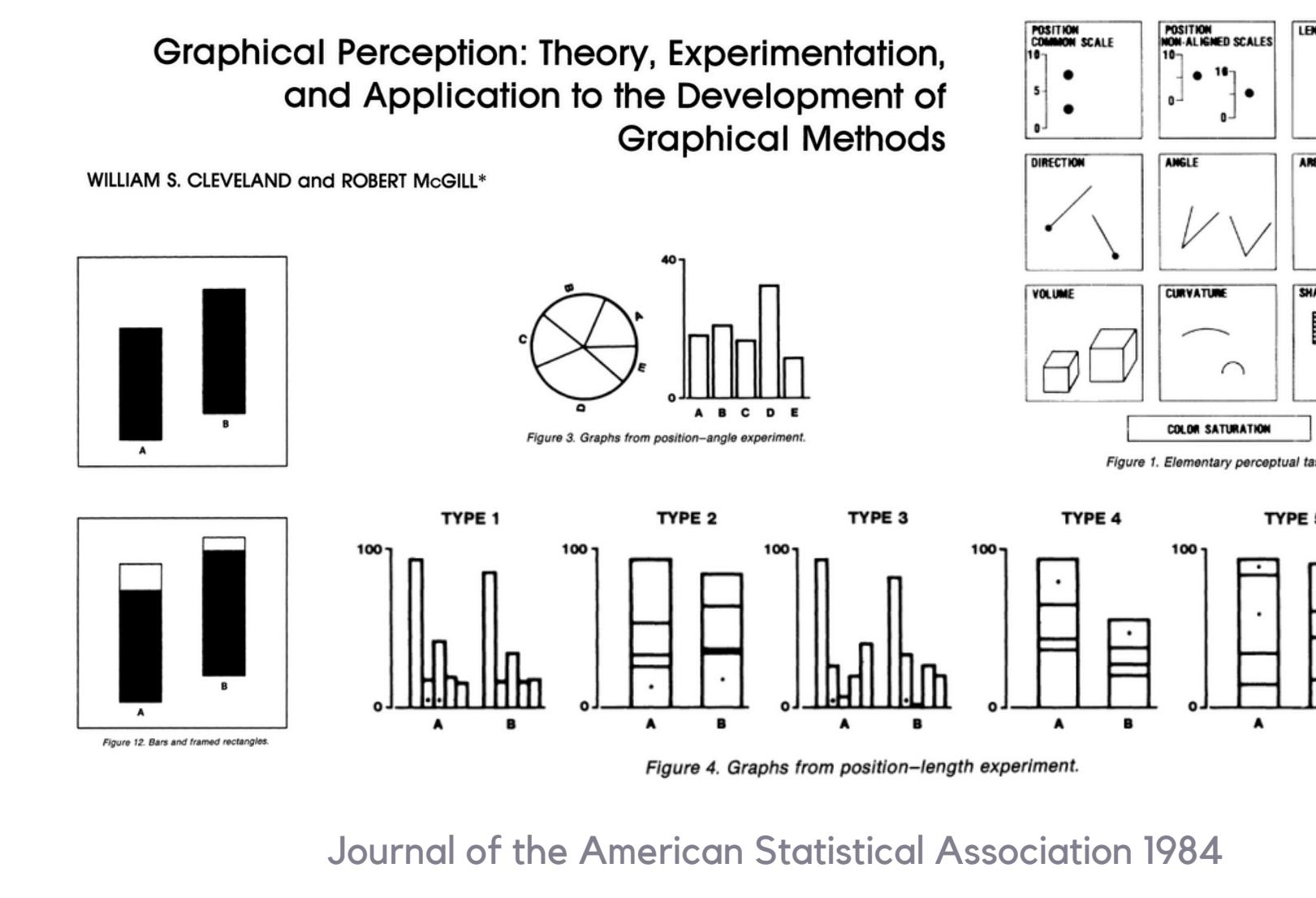
Our research uses a zero-shot prompt for each experiment, for example: "Estimate the angle (0–90 degrees). Number only. No explanation." Our fine-tuned models were trained on 5,000 images, validated on 1,000 images, for 5 epochs and tested on 55 images per task across 3 runs. Each dataset has a unique label. Results are compared to human baselines from Heer and Bostock (2010) and Haehn et al. (2018).

More experiments and results in our paper:



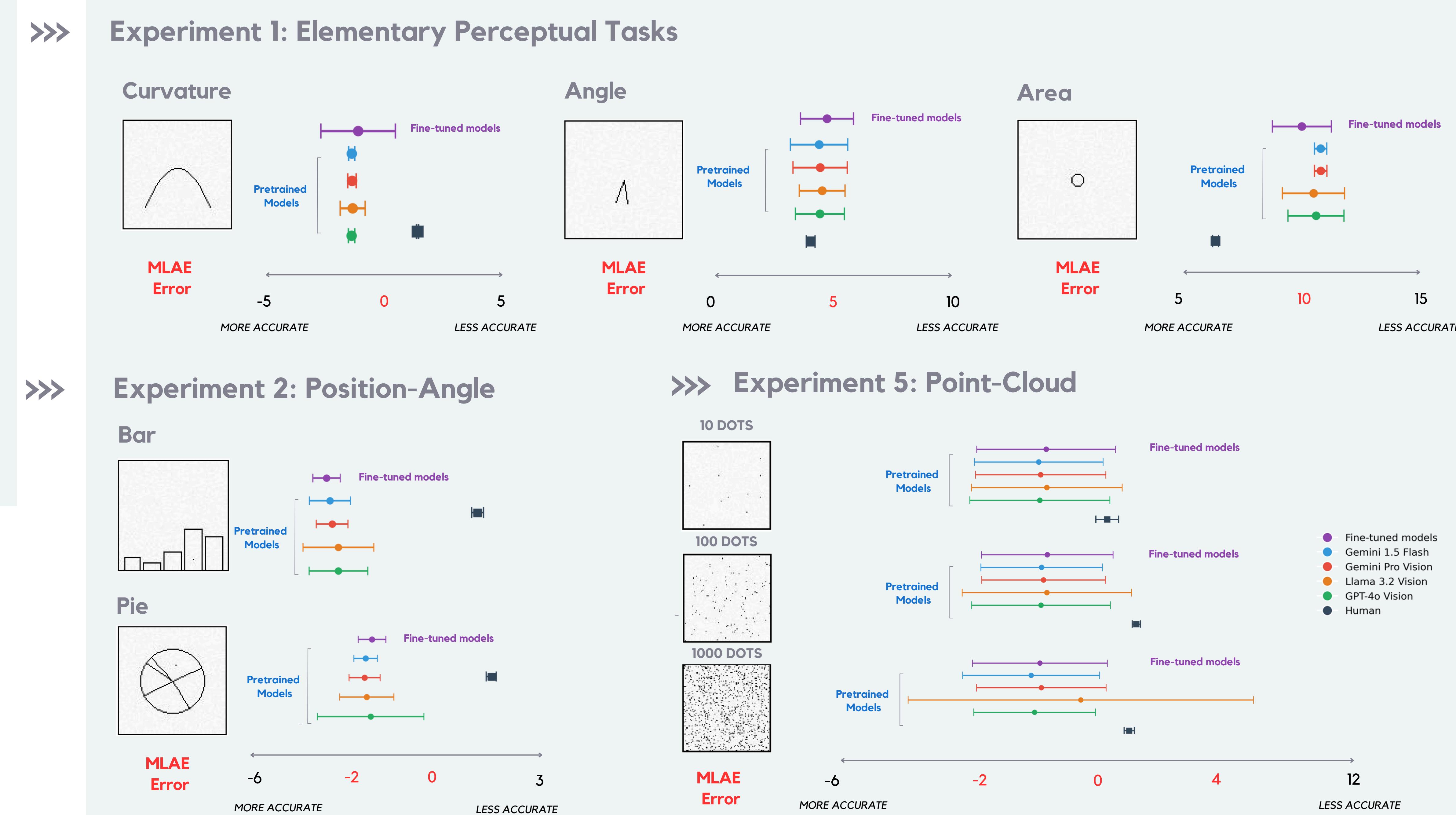
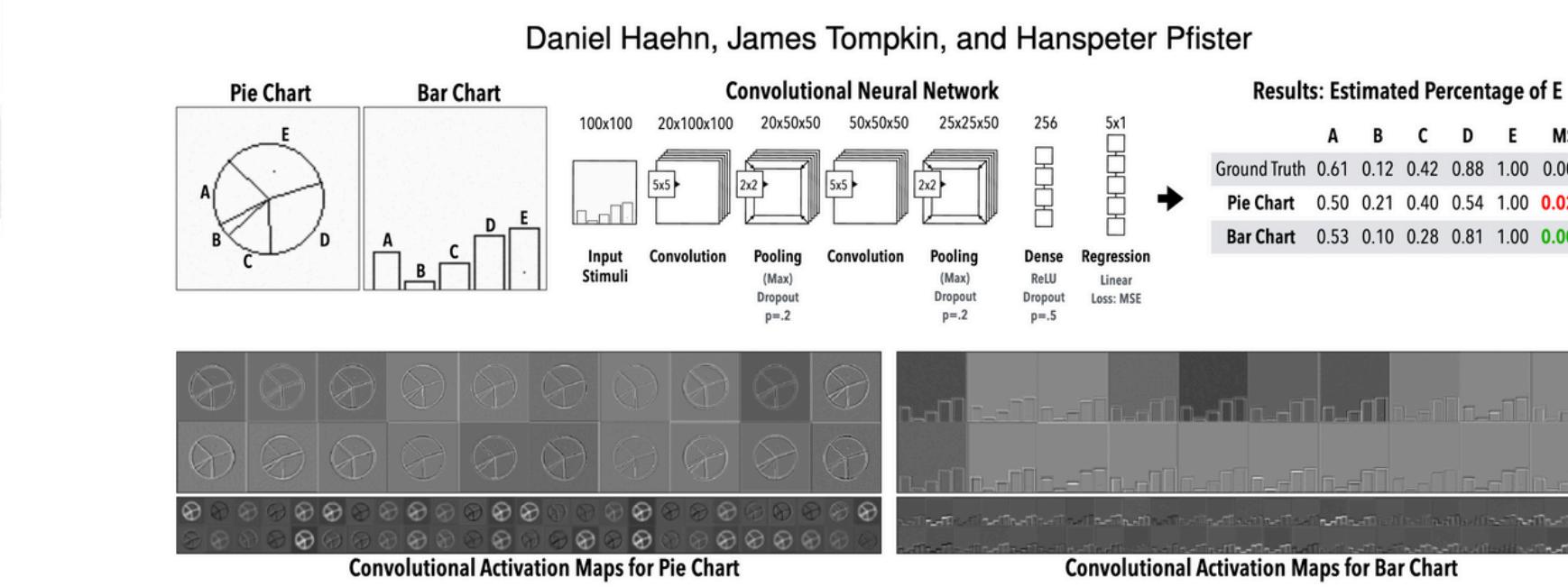
Evaluating "Graphical Perception" with Multimodal Large Language Models  
in IEEE Pacific Visualization Conference, 2025.

[View our Code/Data/Results](#)



To appear in IEEE Transactions on Visualization and Computer Graphics

## Evaluating 'Graphical Perception' with CNNs



**>>> While humans still excel at certain tasks, MLLMs outperformed them in the majority of experiments. MLLMs have promising potential for graphical perception.**

Connect with us!  
We are open to collaboration.

