AI object detection in peripheral vision

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Generating images

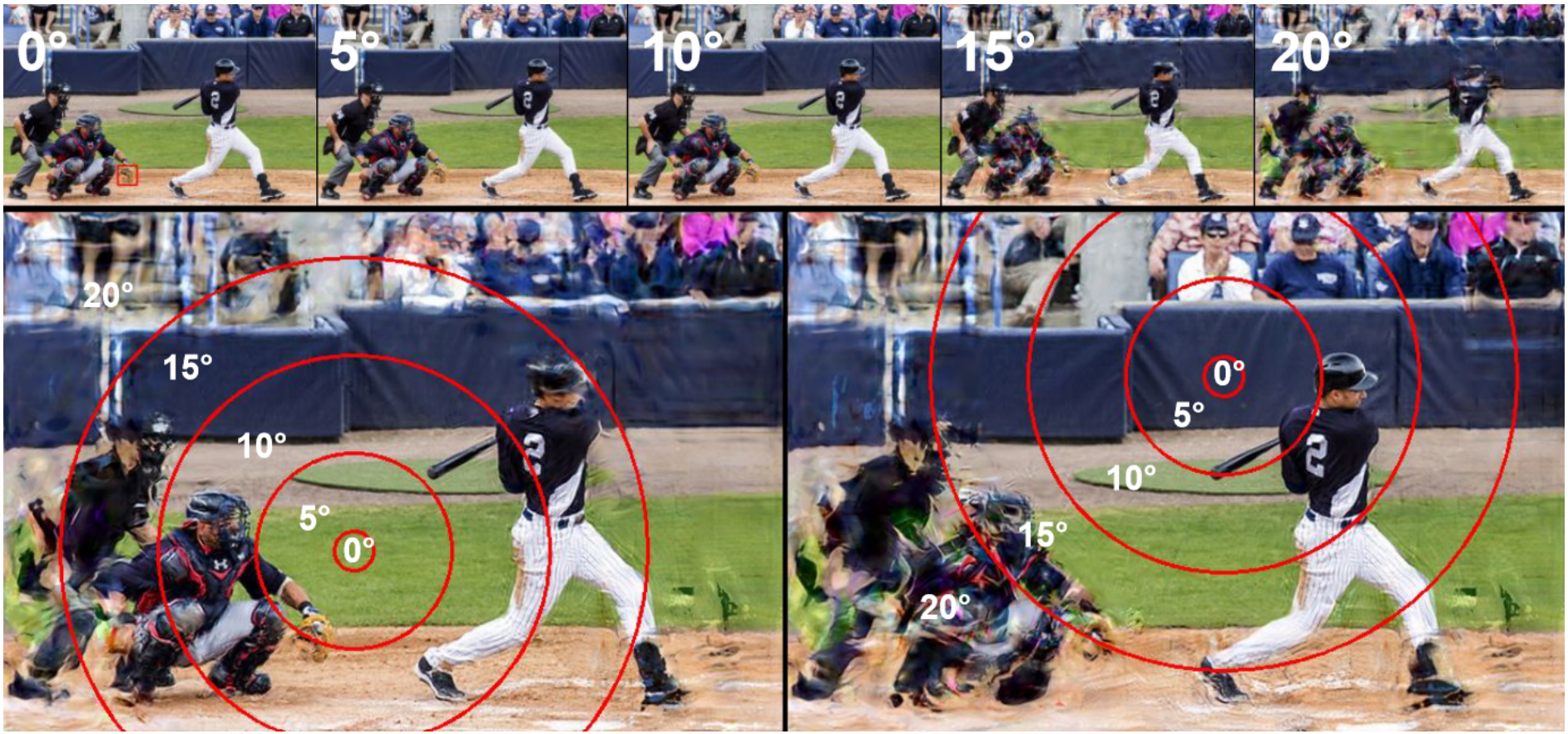

Figure 1: Image transformed for testing depending on eccentricity.

Source: COCO-Periph: Bridging the Gap Between Human and Machine Perception in the Periphery, Harrington, DuTell, Hamilton, et al.

Bounding box

Figure 2: Size of bounding box depanding on eccentricity.

Source: COCO-Periph: Bridging the Gap Between Human and Machine Perception in the Periphery, Harrington, DuTell, Hamilton, et al.

Performance of models against human recognition

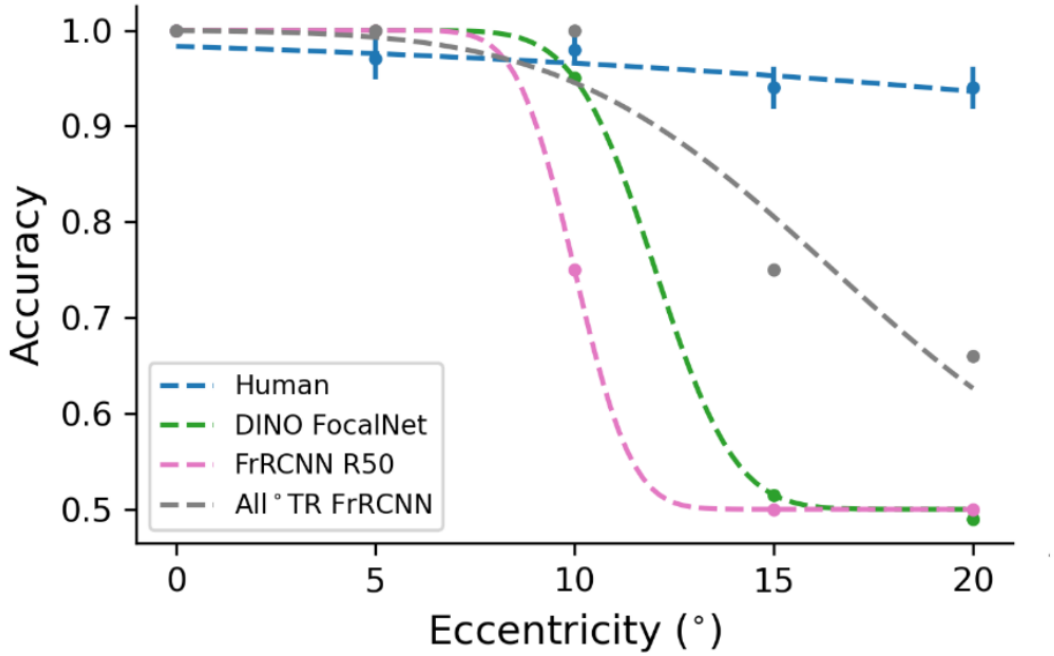

Figure 3: Accuracy of the tested model (or human subjects) with respect to eccentricity.

Source: COCO-Periph: Bridging the Gap Between Human and Machine Perception in the Periphery, Harrington, DuTell, Hamilton, et al.

Comparison and next steps

Table 1: Comparison of performance in a specified task between human subjects and AI models.

Criterion	**Human**	**AI**
Eccentricity	Graduate fall with increasing eccentricity	Visible fall after 5° eccentricity
Increase in objects size	Better performance	No visible relation
Clutter	Worse performance	No visible relation

Source

[1] A. Harrington, V. DuTell, M. Hamilton, A. Tewari, S. Stent, W. T. Freeman, and R. Rosenholtz, COCO-periph: Bridging the gap between human and machine perception in the periphery, in *The Twelfth International Conference on Learning Representations*, 2024.

Thank you for your attention!