Can neural networks model the human speed-accuracy tradeoff (SAT) in object recognition?

**HUMAN SAT DATASET ON IMAGENET**
We present a large (148 observers) dataset on timed ImageNet object recognition with 16 categories across color, grayscale, 3 noise and 3 blur conditions. Within each condition, we tested human performance for 5 reaction time (RT) blocks (500, 900, 1100, 1300, 1500 ms). Observers were asked to respond at a beep timed at each block’s RT value. [1]

**DYNAMIC NEURAL NETWORKS**
Dynamic NNs are NNs with the ability to vary computational resources (or FLOPs) at test-time. We evaluated 4 of these: MSDNet [2], SCAN [3] (both early-exit networks), CNet-serial (unrolled ResNet), CNet-parallel (parallel processing ResNet) [4] on their ability to model the human SAT.

**CONCLUSION**
We present a large (148 observers & 4 neural networks) dataset on the speed-accuracy tradeoff for object recognition in ImageNet across several degrees and kinds of image degradation. Dynamic cascaded networks are promising computational models of human speed-accuracy tradeoff.