
Transformer brain encoders explain human high-level visual responses

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1 Broader impact

2 This research offers several broader societal impacts by advancing our understanding of how the brain
3 dynamically routes visual information. By modeling attention-based routing mechanisms inspired by
4 transformer architectures, this work contributes to the development of more biologically grounded and
5 interpretable artificial intelligence systems. These insights could lead to more adaptable and efficient
6 AI applications in areas such as healthcare, education, and autonomous systems. In neuroscience and
7 clinical research, the model may offer new perspectives on disorders involving disrupted visual or
8 attentional processing, potentially informing early diagnosis or therapeutic strategies. Additionally,
9 the model's ability to predict brain activity in naturalistic settings has implications for improving
10 brain-computer interfaces, enabling more intuitive assistive technologies for individuals with motor or
11 sensory impairments. The inherent interpretability of attention routing further supports transparency
12 and trust in neuro-AI systems used in socially sensitive applications.