

Supplemental Table

Supplementary Table 1: Brain recording translation performance of various model architectures. The column of ‘TF’ refers to whether to implement teacher forcing during inference.

Model	TF	Data		Performance(%)			
		Dataset	Type	BLUE-1	ROUGE-1	BERTScore	WER
Transformer+BART[1]	✓	ZuCo[2, 3]	EEG	40.1	30.1	-	-
EncodingModel+GPT-1[4]	✗	Self-collect	fMRI	24.1	-	81.0	93.3
BrainTranslator(BART)[5]	✓	ZuCo[2, 3]	EEG	35.9	39.1	-	68.5
DeWave(BART)[6]	✓	ZuCo[2, 3]	EEG	41.4	30.7	-	-
UniCoRN(BART)[7]	✓	Narratives[8]	fMRI	62.9	59.5	-	-
		ZuCo[2, 3]	EEG	57.7	64.4	-	-
PREDFT(Transformers)[9]	✗	Narratives[8]	fMRI	27.8	26.0	-	-
NeuSpeech(Whisper)[10]	✗	MEG-MASC,MOUS[11, 12]	MEG	57.7	60.2	-	58.9
MAD(Whisper)[13]	✗	MEG-MASC[11]	MEG	10.4	6.9	83.4	-
BP-GPT(GPT-2)[14]	✗	Podcasts[4, 15]	fMRI	26.0	-	84.3	-
BrainLLM (Llama-2)[16]	✗	Podcasts[15]	fMRI	19.0	17.8	-	89.2
		Wikipedia-style[17]		34.3	29.9	-	75.8
		Narratives[8]		13.8	13.0	-	92.4

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