

PuzLM: Solving Jigsaw Puzzles with Sequence-to-Sequence Language Models

Gur Elkin, Ben Gurion University of the Negev

Square jigsaw puzzles are typically solved by visually matching piece images to recover the original layout. This work introduces PuzLM, an alternative perspective that recasts jigsaw reassembly as a discrete sequence-to-sequence (Seq2Seq) problem, inspired by natural language representations. We design an efficient puzzle quantization procedure that transforms each piece into a short sequence of discrete tokens, enabling the direct application of standard Seq2Seq language models as powerful jigsaw solvers. Our approach demonstrates that accurate puzzle reconstruction can be achieved through purely symbolic reasoning over discrete representations, improving state-of-the-art performance even on puzzles with eroded boundaries or missing pieces.