

# Results: 20-35 Crossings

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The same CNN and ViT used in our initial study were fine-tuned on a new dataset  $\mathcal{D}$ , where:

$$\mathcal{D} = \mathcal{D}_{\text{train}} \cup \mathcal{D}_{\text{val}} \cup \mathcal{D}_{\text{test}},$$

$$|\mathcal{D}| = 560,000 \text{ diagrams},$$

$$|\mathcal{D}_{\text{train}}| = 448,000 \text{ diagrams},$$

$$|\mathcal{D}_{\text{val}}| = |\mathcal{D}_{\text{test}}| = 56,000 \text{ diagrams}.$$

Each split included knots with  $n$  crossings, where  $n \in \{20, 21, \dots, 35\}$ . For every  $n$ , the number of diagrams per split was identical, with an equal number of unknots and non-trivial knots.

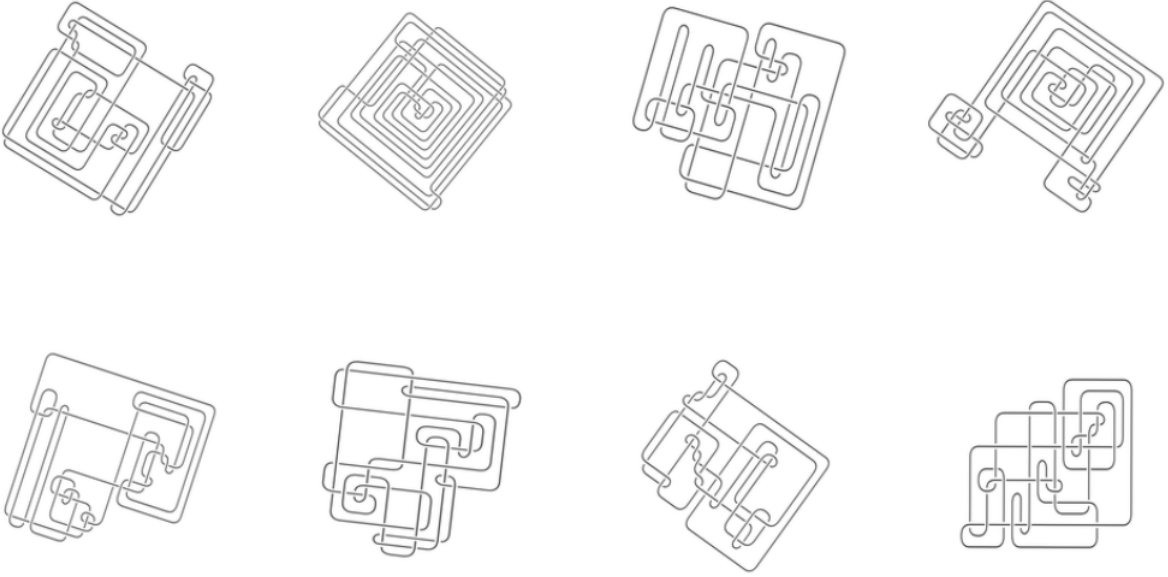


Figure 1: 35-crossing unknots (top row) and non-trivial knots (bottom row) in  $\mathcal{D}_{\text{test}}$ .

## **CNN Results**

**CNN TP: True Unknots Predicted as Unknots**

**CNN FN: True Unknots Predicted as Knots**

**CNN TN: True Knots Predicted as Knots**

**CNN FP: True Knots Predicted as Unknots**

## **ViT Results**

**ViT TP: True Unknots Predicted as Unknots**

**ViT FN: True Unknots Predicted as Knots**

**ViT TN: True Knots Predicted as Knots**

**ViT FP: True Knots Predicted as Unknots**