

# SciPostLayout: A Dataset for Layout Analysis and Layout Generation of Scientific Posters

Shohei Tanaka<sup>1</sup>, Hao Wang<sup>2,1</sup>, Yoshitaka Ushiku<sup>1</sup>

OMRON SINIC X Corporation<sup>1</sup>, Waseda University<sup>2</sup>

The dataset is publicly available at

[https://huggingface.co/datasets/omron-sinicx/scipostlayout\\_v2](https://huggingface.co/datasets/omron-sinicx/scipostlayout_v2)

## Dataset

- We built the SciPostLayout dataset, which contains **7,855 scientific posters and manual layout annotations** for layout analysis and generation.
- The dataset also includes **100 papers** paired with the posters.
- All posters and papers are under the **CC-BY license and publicly available**.
- Professional data annotators manually annotated the layout of the posters.
- We used nine categories to acquire fine-grained annotations: *Title, Author Info, Section, Text, List, Table, Figure, Caption, Unknown*.
- The train, dev, and test sets contain 6,855, 500, and 500 posters.
- The dev and test set contain 50 papers.

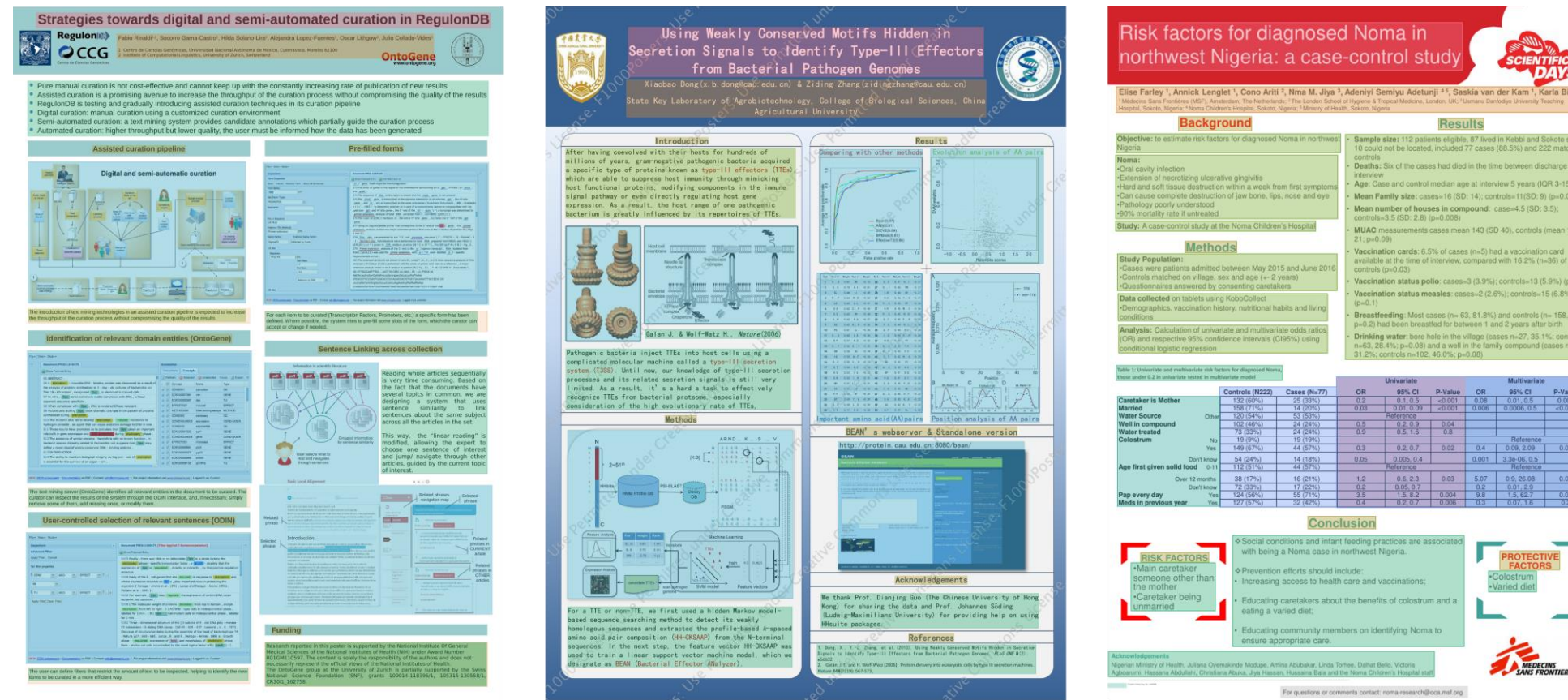


Figure 1. Example posters and annotation

## Experiments

### Layout Analysis

Model	Title	Section	Text	Figure	Overall
LayoutLMv3	88.32	71.98	71.33	67.60	66.93
DiT	85.23	70.64	67.66	67.12	63.77

Table 1. Layout analysis results (mAP@IoU[0.50:0.95])

- Models showed a performance drop compared to the results on PubLayNet, in which mAP@IoU is over 90.

### Layout Generation

- mIoU was less than half that in PubLayNet.
- LayoutPrompter can generate layouts similar to real layouts from noisy layouts.

Task	Model	mIoU↑	Align ment↓	Over lap↓	FID↓
Gen-T	LayoutDM	0.073	0.002	0.524	<b>1.524</b>
	LayoutFormer++	0.079	0.002	0.242	26.999
	LayoutPrompter	<b>0.084</b>	<b>0.000</b>	<b>0.231</b>	9.470
Refinement	LayoutDM	0.119	0.002	0.531	1.196
	LayoutFormer++	0.301	0.002	0.289	10.955
	LayoutPrompter	<b>0.552</b>	<b>0.001</b>	<b>0.112</b>	<b>0.152</b>

Table 2. Layout generation performance.

Gen-T: Generate layout from the number of categories.

Refinement: generate layout from noisy layout.

### Paper-to-Layout

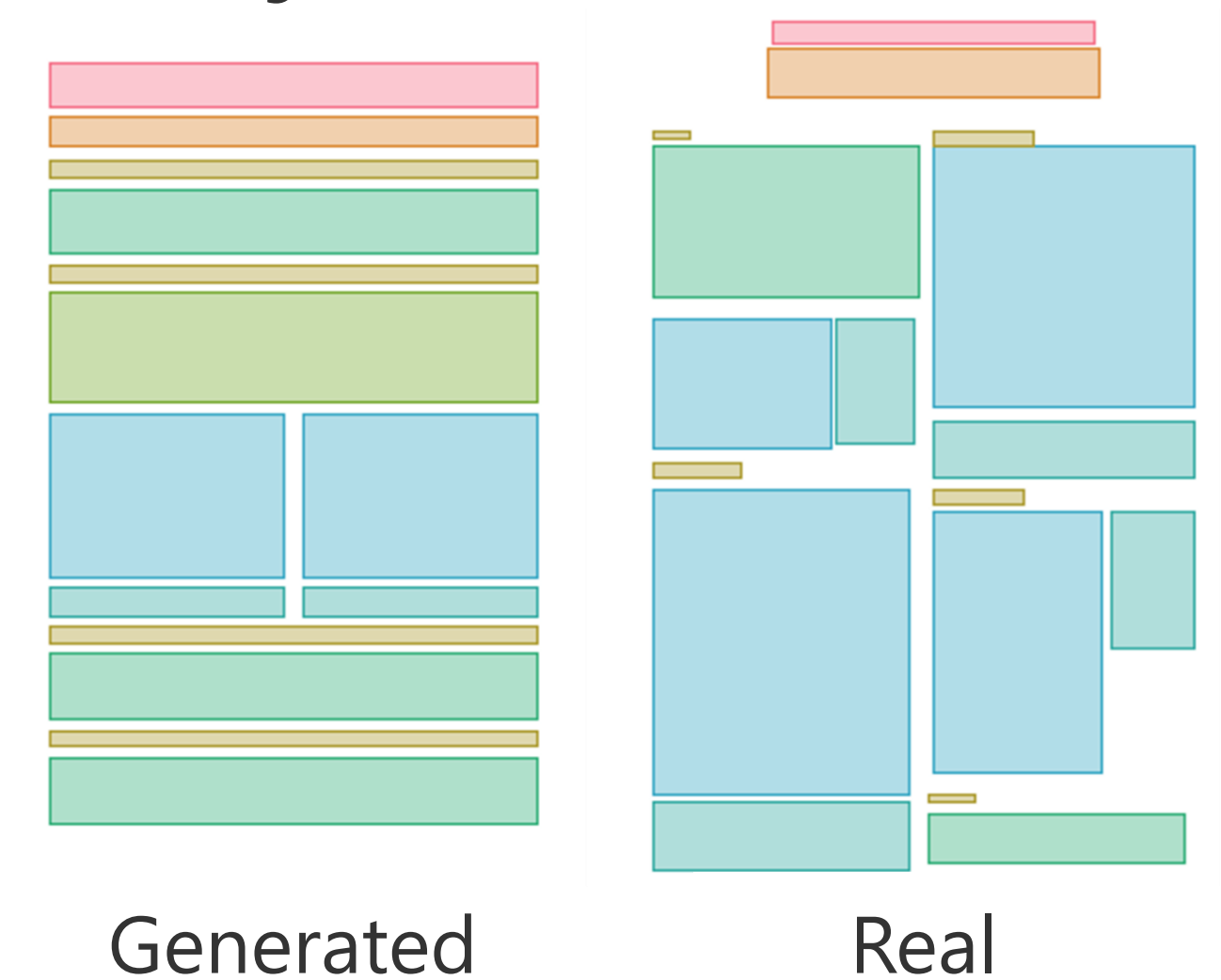


Figure 2. Example of generated layout

- We confirmed that LLM can generate high-quality layouts, indicating that LLM has potential as a poster generation system from scientific papers.