

Detecting Manual Alterations in Biological Image Data Using Contrastive Learning and Pairwise Image Comparison

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Identification of Fabricated Images

The problem

Instances of fraud in biological science articles.

The method

Developing a robust self-supervised pairwise image comparison model resistant to alterations.

The solution

Building on ideas from Barlow Twins, the plan is as follows:

- 1) setup Barlow Twins model with pre-trained ResNet50 encoder,
- 2) train model's projector on biological scans,
- 3) train model's probability head.

Graphical highlights and experiment results

Trained on 256 blood cells images

	F1-score	Precision	Recall	AUC
Model	0.80	0.88	0.73	0.92

