Radiology report

As compared to the previous radiograph, the patient has been intubated. The tip of the endotracheal tube projects 3.5 cm above the carina. There is no evidence of complication, notably no pneumothorax.

Large Language Model

🔥 LoRA
❄️

Temporal Alignment Connector (TAC) 🔥

System prompt

The assistant specialised in comparing Chest X-ray images, identifying differences, and noting temporal changes.

Clinical prompt

Provide a detailed description of the findings in the radiology image. Following clinical context: {Indication: ...

History: ...

Comparision: ...

Technology: ...}

Image encoder ❄️

Transformer block

Transformer block

Transformer block

Transformer block

} n=12

Current image

Prior image (if available)

or

Dummy prior image

Z_{img}

Temporal Fusion Module

Multi-Layer Perceptron

Add & norm

Multi-Layer Perceptron

Add & norm

Multi-Head Cross-Attention

Add & norm

Multi-Head Self-Attention

Prior Image Prefix Bias

Multi-Head Self-Attention

Add & norm

(b)

Layerwise Feature Extractor

Conv2d

SE block

Conv2d

SE block

Conv2d

SE block

shared weights

Conv2d

SE block

Conv2d

SE block

Conv2d

SE block

(a)

E'^{curr}_{img}

E'^{prior}_{img}