

ReportX: The BraTS Clinical Report Dataset

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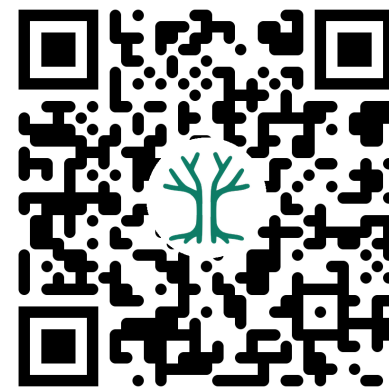
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AI Image Lab

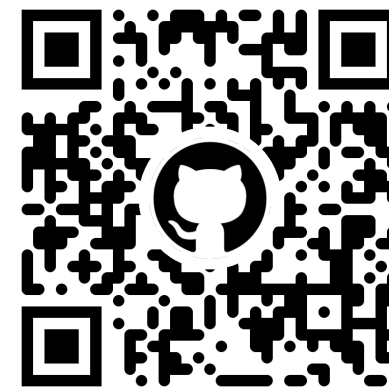
MICCAI 2026



Yggdrasil



Dataset



Code

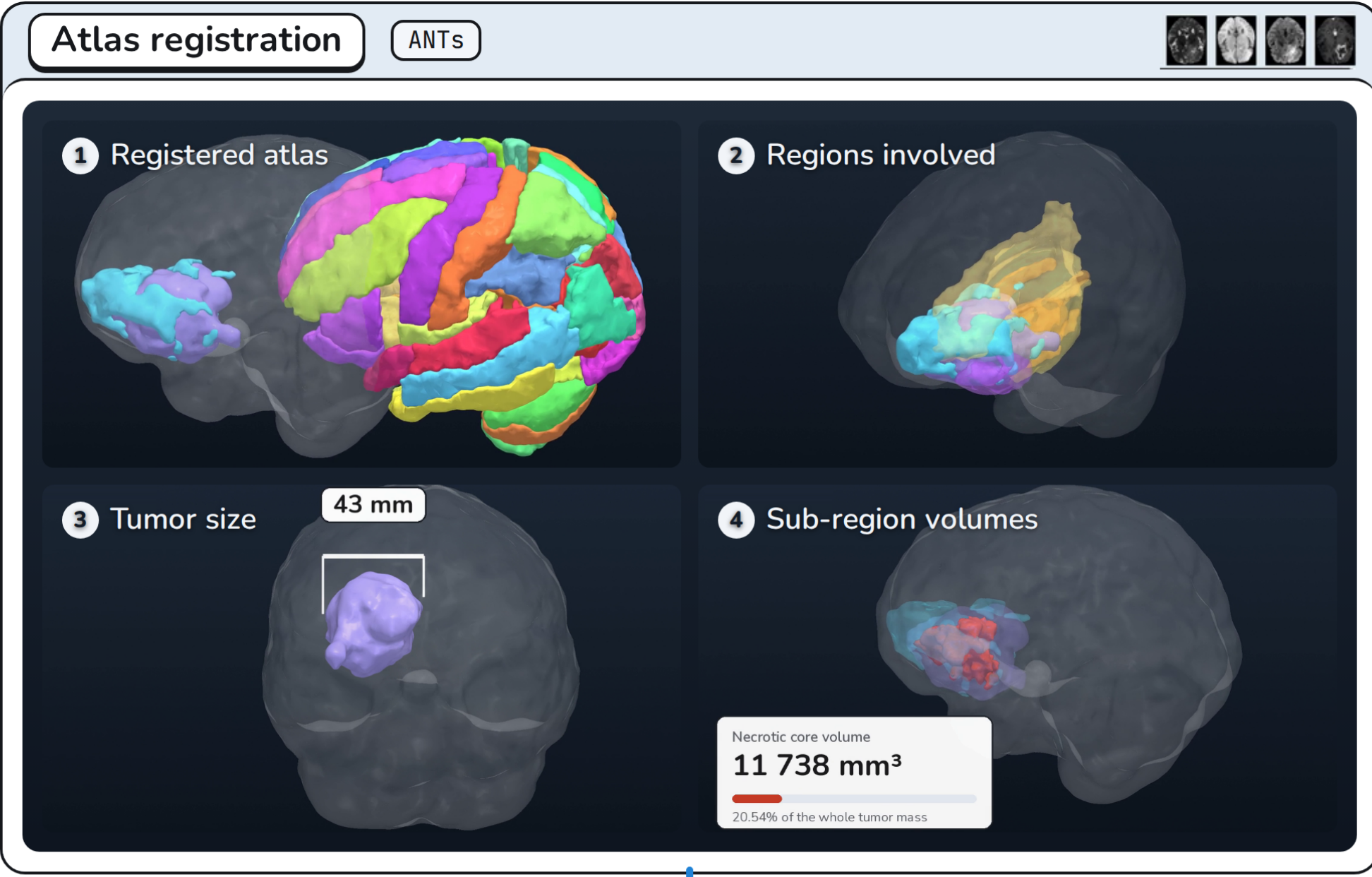
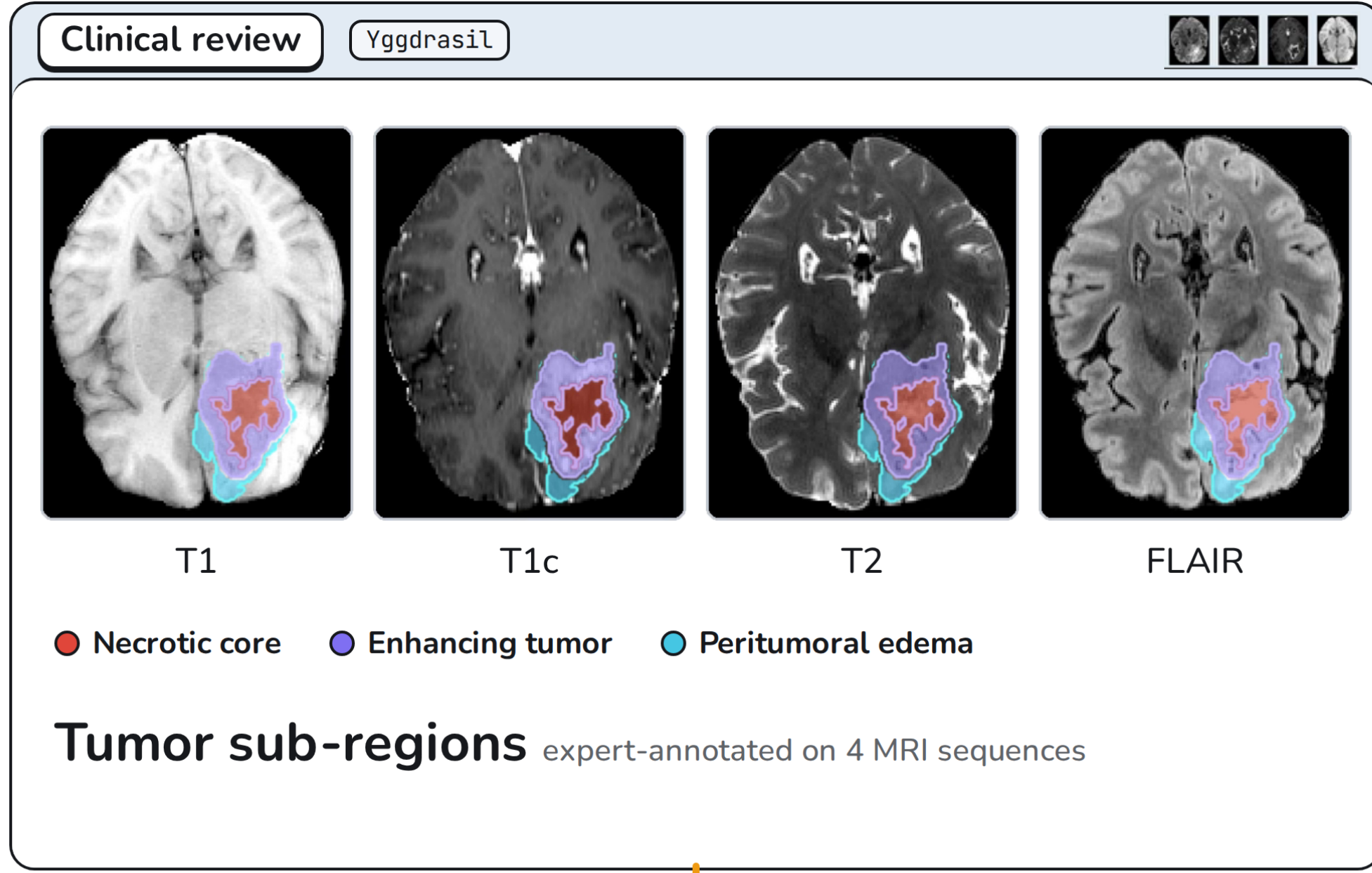
TWO SOURCES, ONE REPORT

Clinician-Annotated Reports

Free-text reports written by expert neuroradiologists.

Automatically-Derived Reports

Quantitative and spatial descriptors computed from masks and anatomical atlases



Clinical findings

Concatenated Clinical Report

Clinician-authored findings + automatically derived quantitative descriptors.

Automatic findings

Final report

The tumor core shows an irregular, roughly ovoid morphology and is heterogeneous, due to the presence of **central necrosis** and marked **peripheral enhancement with a ring-like pattern**, featuring an irregular and nodular peripheral component, particularly in the posterior portion. The tumor core is surrounded by **moderate perilesional edema**, extending mainly into the frontal subcortical white matter with a finger-like pattern. Edema and mass effect together result in compression of adjacent structures, with compression of the frontal horn of the ipsilateral lateral ventricle.

The brain shows **1 lesion**. The lesion originates from the **left caudate nucleus**, at coordinates: (139, 86, 69). The tumor core involves the following areas: left superior frontal gyrus [...] The tumor core involves the **speech motor eloquent area**. The tumor core has size **43 mm x 66 mm x 43 mm**. The average thickness of the **enhancing margin** is **3.57 mm**. The **necrotic core** represents **20.54%** of the whole tumor's mass, with volume **11738 mm³**. The **edema** has size **46 mm x 76 mm x 46 mm**.

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Paired reports +
BraTS MRI scans

5

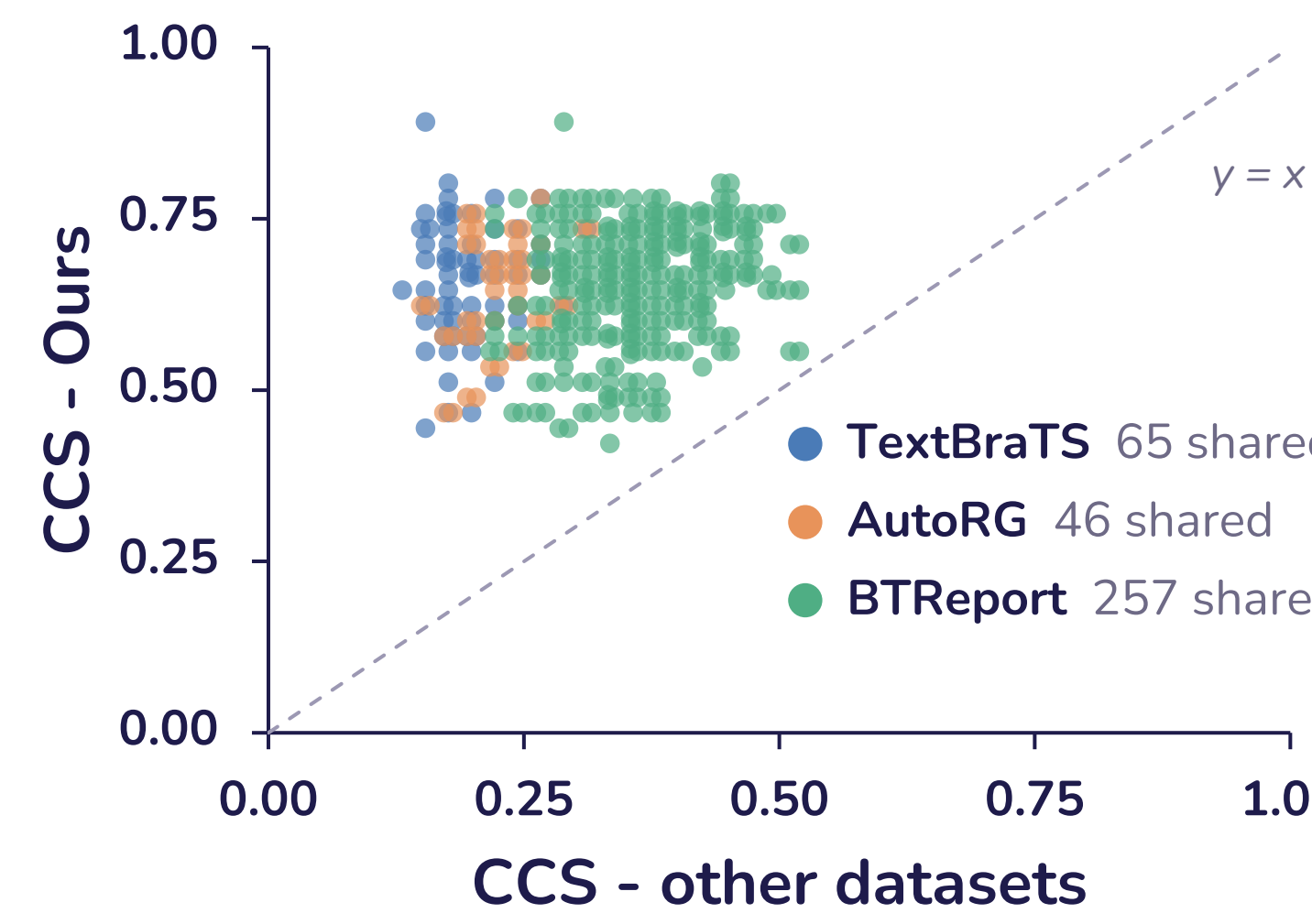
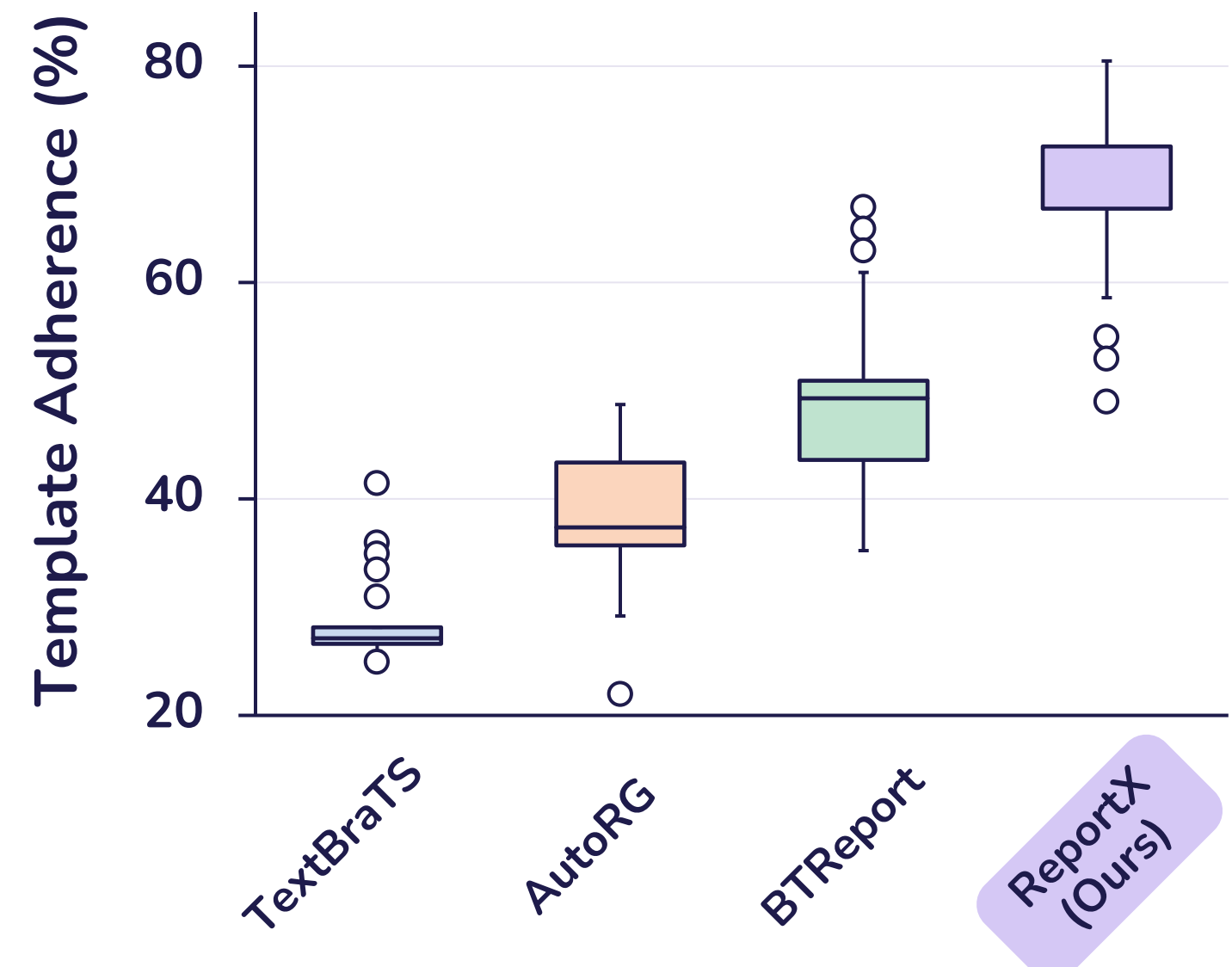
Atlases defined in
the SRI24 space

2

Expert neuroradiologists for
manual annotation

DATASET VALIDATION

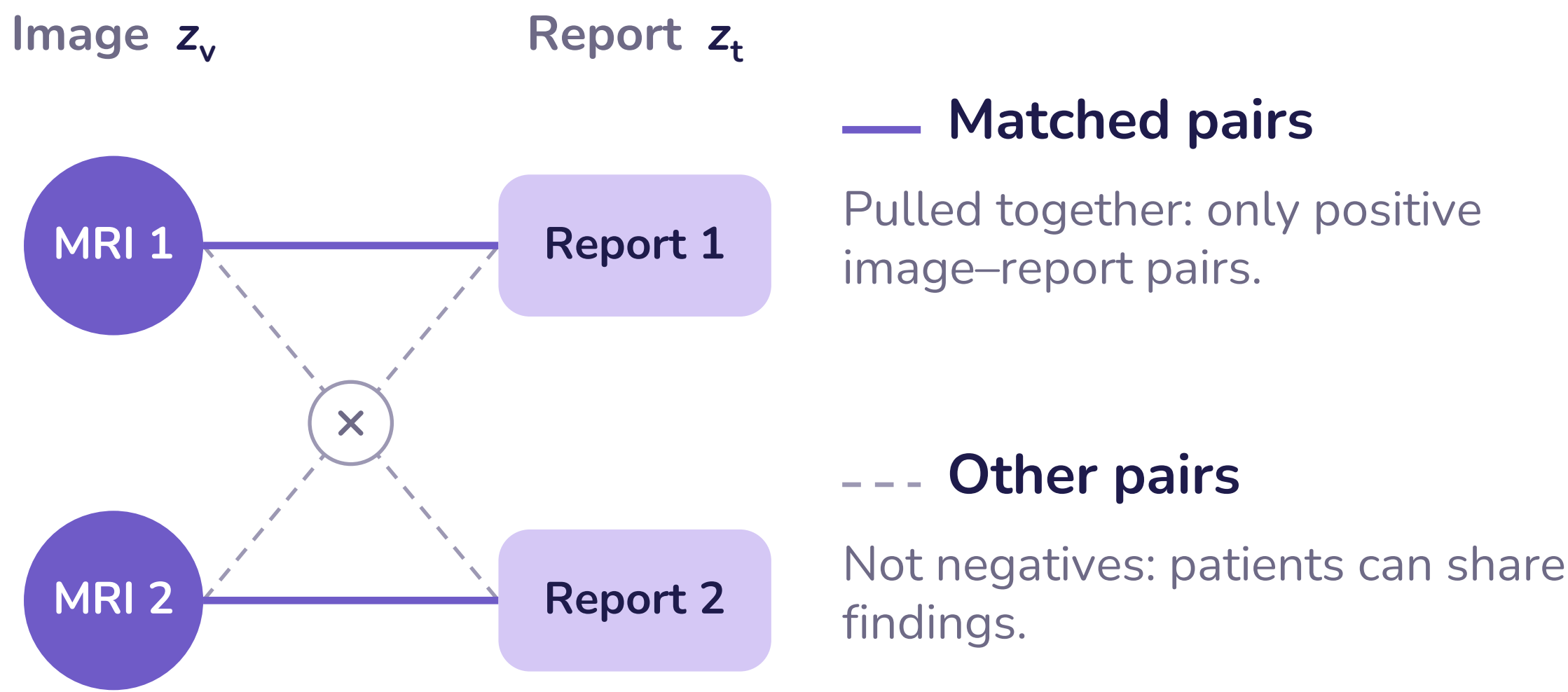
Dataset	Cases	Report written by
TextBraTS	365	GPT-4o pseudo-reports, expert-refined
AutoRG	230	Automatic: tumor + ventricular description
BTReport	1,251	Automatic features formatted by an LLM
ReportX (Ours)	257	Neuroradiologist + atlas-based algorithms



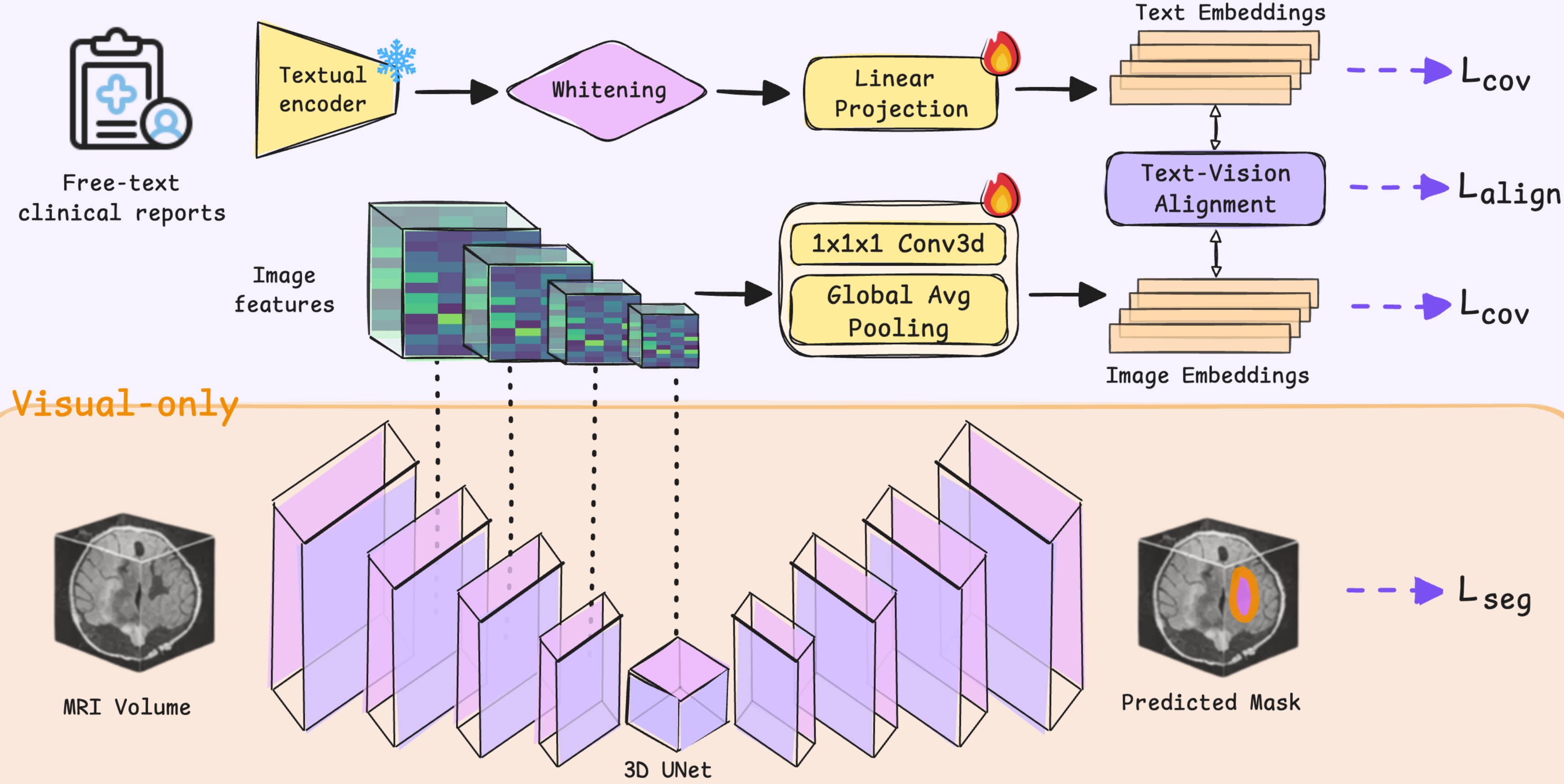
TRAINING PIPELINE

$$L_{\text{total}} = L_{\text{seg}} + \lambda L_{\text{align}} + \mu L_{\text{cov}}$$

L_{seg} : Dice Focal segmentation
 λL_{align} : SigLIP-style image $\leftrightarrow$ report
 μL_{cov} : VICReg anti-collapse



Visual-text



RESULTS

	Dice Score $\uparrow$			
	ET	TC	WT	Avg.
Baseline	75.8	82.8	93.5	84.0
TextBraTS	76.5 $\pm$ 0.2	83.2 $\pm$ 0.1	93.7 $\pm$ 0.1	84.5 $\pm$ 0.2
AutoRG	76.7 $\pm$ 0.1	84.0 $\pm$ 0.1	93.9$\pm$0.1	84.8 $\pm$ 0.1
BTReport	76.7 $\pm$ 0.2	84.4$\pm$0.1	93.9$\pm$0.2	85.0 $\pm$ 0.2
Ours $\spadesuit$	78.1$\pm$0.0	84.4$\pm$0.2	93.7 $\pm$ 0.2	85.4$\pm$0.2
TextBraTS	76.5 $\pm$ 0.4	83.3 $\pm$ 0.2	93.5 $\pm$ 0.2	84.4 $\pm$ 0.2
AutoRG	76.9 $\pm$ 0.1	84.1 $\pm$ 0.0	93.8 $\pm$ 0.2	84.9 $\pm$ 0.1
BTReport	78.4 $\pm$ 0.2	84.5 $\pm$ 0.0	94.3$\pm$0.0	85.7 $\pm$ 0.1
Ours $\spadesuit$	79.1$\pm$0.3	84.9$\pm$0.1	94.2 $\pm$ 0.2	86.1$\pm$0.2

Ranking by Avg. Dice

#	Source	Avg. Δ base
1	Ours $\spadesuit$	86.1 +2.1
2	BTReport	85.7 +1.7
3	AutoRG	84.9 +0.9
4	TextBraTS	84.4 +0.4
5	Baseline	84.0 —

Whitened setting. Ours $\spadesuit$ also leads ET (+3.3) and TC (+2.1); WT is saturated across every source.

Annotation agreement

Field	Score
Areas (TC)	F1 83.83
Eloq. areas (TC)	F1 88.89
Areas (ED)	F1 91.21
Number of lesions	Acc. 98.00
Origin location	Acc. 94.23
Origin side	Acc. 98.36
Inter-clinician	F1 98.42

TAKEAWAYS

01 Clinician-curated reports

Written by neuroradiologists, not a model. Two readers agree at F1 98.42.

98.42

inter-clinician F1

02 Reports train, images infer

Text is used only in training, so new cases need only the MRI.

0

reports at inference

03 Better tumor segmentation

86.1 avg. Dice vs. 84.0 for the image-only baseline; largest gain on ET.

+2.1

avg. Dice gain

04 Clinical + anatomical detail

Free-text findings paired with atlas-based lesion descriptors.

257

paired cases