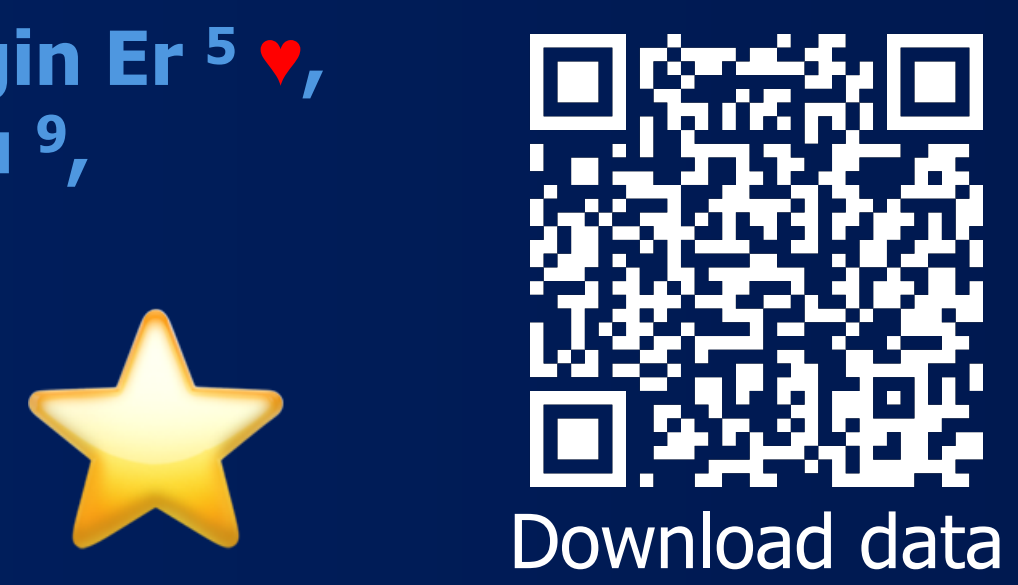


CancerVerse: A Fully Open Longitudinal and Multimodal Dataset for Multicancer Screening

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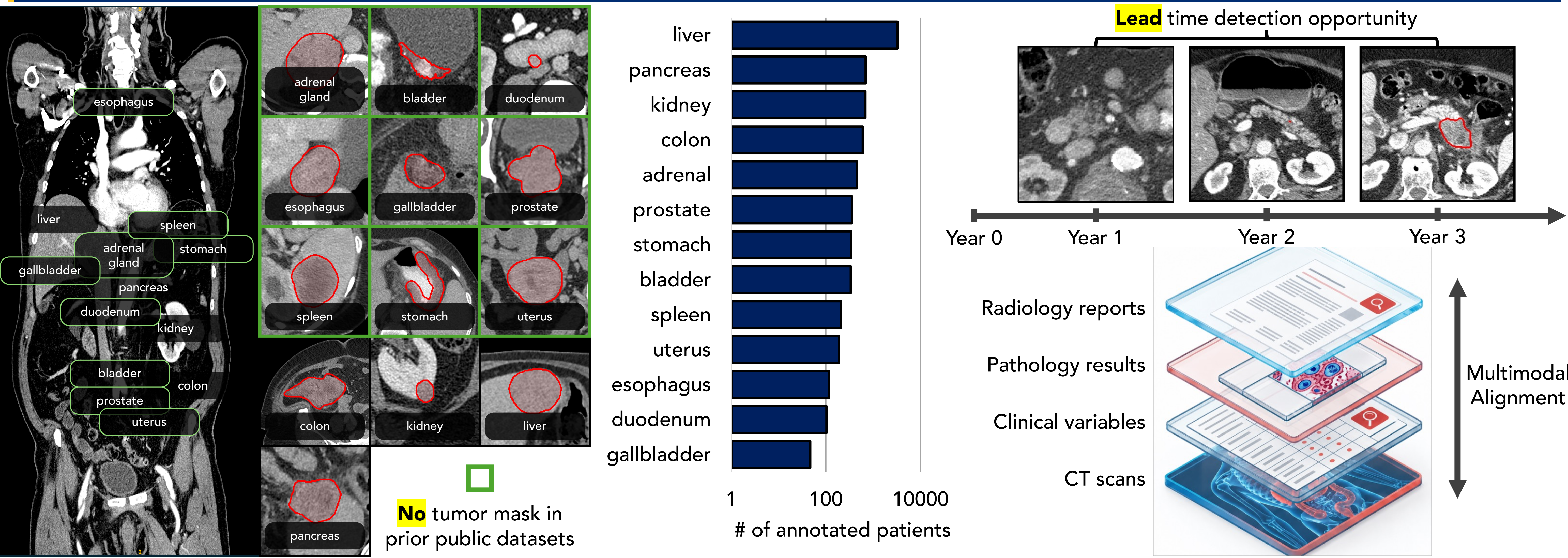


Shortlisted for Best Paper and Young Scientist Awards

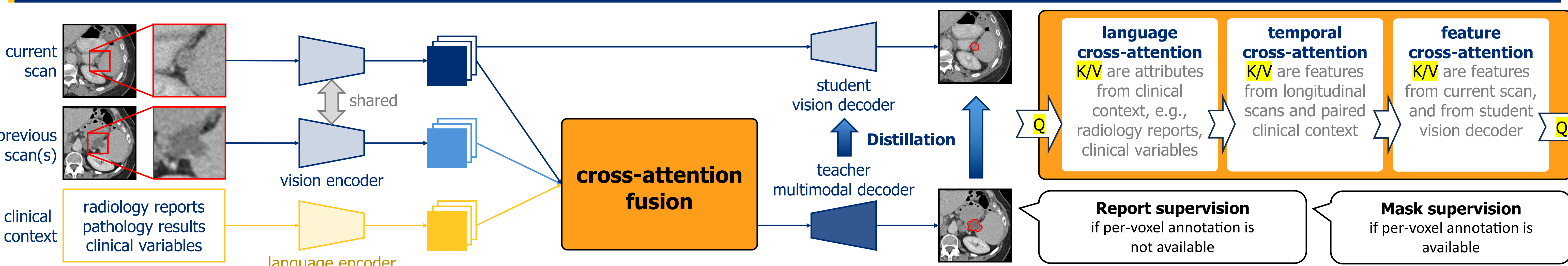
Longitudinal & multimodal training improves cancer screening sensitivity by 9.0% at 0.5 false positives per scan, compared with single-scan, image-only training.

24,168 CT scans 13,863 patients 13 cancer types 8,799 verified healthy patients

01 Dataset: longitudinal CT and multimodal clinical data



02 Algorithm: longitudinal and multimodal architecture



03 Internal and external results: longitudinal and multimodal screening

tumors w/ public masks	liver		kidney		pancreas		colon		average	
model & benchmark	sen.	spec.	sen.	spec.	sen.	spec.	sen.	spec.	sen.	spec.
<i>Widely-adopted segmentation backbones developed and validated on CancerVerse</i>										
SegResNet [28]	71.7	87.3	70.5	86.9	73.2	87.4	67.1	85.8	70.6	86.9
SwinUNETR [30]	72.1	83.4	70.8	84.9	73.5	85.6	65.2	82.3	70.4	84.1
Universal Model [25]	70.5	86.8	71.2	85.4	72.8	87.3	65.4	84.7	70.0	86.1
MedFormer [11]	72.6	87.3	73.8	88.7	74.1	89.2	67.9	83.4	72.1	87.2
nnU-Net [15]	73.2	88.5	72.4	87.1	75.9	88.9	67.5	86.0	72.3	87.6
longitudinal multimodal	77.5	90.2	76.1	90.6	78.9	91.5	71.8	86.3	76.1	89.7
tumors w/o public masks	adrenal		bladder		duodenum		esophagus		gallbladder	
SegResNet [28]	79.1	77.6	61.2	83.5	70.4	74.1	68.9	82.8	76.8	78.4
SwinUNETR [30]	71.4	81.2	63.7	74.6	62.9	83.4	69.8	75.1	70.6	78.3
Universal Model [25]	70.6	82.7	62.9	77.6	60.7	85.4	68.2	76.8	69.4	80.1
MedFormer [11]	76.5	79.4	62.4	80.1	66.7	77.2	71.3	79.8	74.1	80.3
nnU-Net [15]	72.9	83.8	65.7	78.6	63.8	84.9	70.4	77.5	71.9	81.2
longitudinal multimodal	75.8	84.4	68.9	82.3	66.7	85.6	73.6	80.9	74.2	83.1
tumors w/o public masks	spleen		stomach		prostate		uterus		average	
SegResNet [28]	82.7	86.2	62.5	76.9	75.9	81.7	76.6	81.3	72.6	80.3
SwinUNETR [30]	80.2	84.6	68.1	82.0	77.3	84.5	78.4	80.1	71.4	80.4
Universal Model [25]	78.5	86.9	67.1	81.2	76.0	84.5	77.8	75.6	70.1	81.2
MedFormer [11]	79.6	86.9	64.8	75.9	77.1	83.7	79.4	83.1	72.4	80.7
nnU-Net [15]	81.4	86.3	69.8	82.4	78.6	85.1	80.2	81.0	72.7	82.3
longitudinal multimodal	84.6	87.5	73.7	85.8	82.4	88.7	83.3	84.2	75.9	84.7

