

## Appendix 1 Preprint articles

- [1] Chen J, Lu Y, Yu Q, Luo X, Adeli E, Wang Y, Lu L, Yuille AL, Zhou Y. Transunet: Transformers make strong encoders for medical image segmentation. arXiv preprint arXiv:210204306; 2021.
- [2] Gong Z, French AP, Qiu G, Chen X. Convtransseg: A multi-resolution convolution-transformer network for medical image segmentation. arXiv preprint arXiv:221007072; 2022.
- [3] Khan AR, Khan A. MaxViT-UNet: Multi-axis attention for medical image segmentation. arXiv preprint arXiv:230508396 2023.
- [4] Chen J, Mei J, Li X, Lu Y, Yu Q, Wei Q, Luo X, Xie Y, Adeli E, Wang Y. 3d transunet: Advancing medical image segmentation through vision transformers. arXiv preprint arXiv:231007781; 2023.
- [5] Nam J-H, Syazwany NS, Lee S-C. Transgunet: transformer meets graph-based skip connection for medical image segmentation. arXiv preprint arXiv:250209931; 2025.
- [6] Liao W, Zhu Y, Wang X, Pan C, Wang Y, Ma L. Lightm-unet: Mamba assists in lightweight unet for medical image segmentation. arXiv preprint arXiv:240305246; 2024.
- [7] Gao Y, Zhou M, Liu D, Yan Z, Zhang S, Metaxas DN. A data-scalable transformer for medical image segmentation: architecture, model efficiency, and benchmark. arXiv preprint arXiv:220300131; 2022.

**Table S1** List of abbreviations

Abbreviation	Full term
FCN	fully convolutional network
RNN	recurrent neural network
NLP	natural language processing
CNN	convolutional neural network
ViT	Visual Transformer
Q, K, V	query vector, key vector, value vector
FFN	feed-forward network
LSTM	long short-term memory
MHSA	multihead self-attention
HVT	Hybrid ViT
GLTB	global-local transformer block
FRH	feature refinement head
DSC	Dice similarity coefficient
IOU	intersection over union
SAM	Segment Anything Model
BraTS21	Brain Tumor Segmentation 2021
IST-3 CT Head Scans	Third International Stroke Trial Computed Tomography Head Scans
ISIC2020	International Skin Imaging Collaboration 2020
LiTS	Liver Tumor Segmentation Challenge
Synapse	Synapse Multi-Organ Segmentation Dataset
ACDC	Automated Cardiac Diagnosis Challenge
KiTS19	Kidney Tumor Segmentation 2019 Challenge
GLAS	Gland Segmentation Challenge
BreakHis	Breast Cancer Histopathological Image Dataset
BTCV	Beyond the Cranial Vault (CT Multi-Organ Segmentation Challenge)
SegTHOR	Segmentation of Thoracic Organs at Risk in CT
CheXpert	Chest X-Ray Expert-Labeled Dataset
MURA	Musculoskeletal Radiographs
OASIS	Open Access Series of Imaging Studies
Mindboggle	Mindboggle Brain Imaging Dataset
MoNuSeg	Multi-Organ Nuclei Segmentation Dataset
DDR	Diabetic Retinopathy Dataset
FUGC	Fundus Glaucoma Challenge Dataset
MSD	Medical Segmentation Decathlon
DSB18	Data Science Bowl 2018 (Nuclei Segmentation Challenge)

Table S1 (continued)

**Table S1** (*continued*)

Abbreviation	Full term
CVC-ClinicDB	Colonoscopy Video Challenge – Clinic Database
LIDC-IDRI	Lung Image Database Consortium and Image Database Resource Initiative
Colorectal-Liver-Metastases	Colorectal Liver Metastases Dataset
SZ-CXR	Shenzhen Chest X-ray Dataset
GFLOPS	Floating Point Operations Per Second
UNestFormer	Enhancing Decoders and Skip Connections With Nested Transformers
CIS-UNet	Context-Infused Swin-UNet
CSW-SA	Context-aware Shifted Window Self-Attention
ConvNet	Convolutional Neural Network