TABLE I: Parametric comparison of MAA-DN with other standard and state-of-the-art methods for **ISLES 15-SISS** data. (Best scores are shown in **bold** font).

SISS	FLAIR			DWI			T1-WI			T2-WI			Combined		
	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.
U-Net [25]	0.788 ±0.15	0.831 ±0.15	**0.995 ±0**	0.578 ±0.22	0.639 ±0.23	**0.992 ±0**	0.462 ±0.24	0.548 ±0.3	0.98 ±0	0.636 ±0.23	0.709 ±0.24	**0.99 ±0**	0.759 ±0.17	0.819 ±0.16	**0.994 ±0**
Attention gated network [39]	0.694 ±0.19	0.766 ±0.16	0.993 ±0	0.547 ±0.2	0.663 ±0.18	0.986 ±0.01	0.572 ±0.2	0.733 ±0.18	0.978 ±0.01	0.555 ±0.22	0.706 ±0.2	0.977 ±0.01	0.699 ±0.23	0.77 ±0.18	0.99 ±0.01
Proposed	**0.807 ±0.15**	**0.912 ±0.09**	0.993 ±0	**0.668 ±0.17**	**0.84 ±0.14**	0.985 ±0	**0.732 ±0.19**	**0.776 ±0.18**	**0.994 ±0**	**0.715 ±0.19**	**0.837 ±0.14**	0.988 ±0	**0.794 ±0.16**	**0.907 ±0.1**	0.993 ±0

TABLE II: Parametric comparison of MAA-DN with other standard and state-of-the-art methods for **ISLES 15-SPES** data. (Best scores are shown in **bold** font).

SPES	PWI-CBF			PWI-CBV			PWI-TTP			PWI-Tmax			Combined		
	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.
U-Net [25]	0.747 ±0.13	0.874 ±0.1	0.975 ±0.01	0.724 ±0.13	0.888 ±0.09	0.97 ±0.01	0.786 ±0.11	0.888 ±0.09	0.98 ±0.01	0.772 ±0.12	0.895 ±0.1	0.977 ±0.01	0.811 ±0.1	0.904 ±0.08	0.982 ±0
Attention gated network [39]	0.711 ±0.17	**0.913 ±0.08**	0.966 ±0.02	**0.763 ±0.13**	**0.912 ±0.06**	**0.976 ±0.01**	0.708 ±0.17	**0.918 ±0.08**	0.964 ±0.02	0.679 ±0.18	0.907 ±0.11	0.96 ±0.02	0.721 ±0.16	**0.923 ±0.06**	0.966 ±0.02
Proposed	**0.759 ±0.12**	0.872 ±0.09	**0.977 ±0.01**	0.707 ±0.13	0.908 ±0.07	0.963 ±0.01	**0.813 ±0.09**	0.902 ±0.06	**0.983 ±0**	**0.82 ±0.09**	**0.914 ±0.06**	**0.983 ±0**	**0.85 ±0.07**	0.917 ±0.05	**0.987 ±0**

TABLE III: Parametric performance of MAA-DN with other standard and state-of-the-art methods for **ISLES 17** data. (Best scores are shown in **bold** font)

ISLES-17	ADC			PWI-CBF			PWI-CBV			PWI-TTP		
	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.
U-Net [25]	**0.407 ±0.26**	0.731 ±0.26	**0.976 ±0.02**	**0.33 ±0.27**	0.73 ±0.3	0.963 ±0.03	**0.383 ±0.31**	0.67 ±0.33	**0.976 ±0.02**	**0.402 ±0.31**	0.676 ±0.32	**0.975 ±0.03**
Attention gated network [39]	0.158 ±0.18	**0.815 ±0.29**	0.855 ±0.07	0.204 ±0.2	**0.759 ±0.32**	0.91 ±0.05	0.219 ±0.24	**0.771 ±0.29**	0.896 ±0.08	0.211 ±0.23	**0.776 ±0.28**	0.894 ±0.07
Proposed	0.383 ±0.27	0.675 ±0.27	0.97 ±0.02	0.287 ±0.27	0.49 ±0.34	**0.975 ±0.02**	0.271 ±0.25	0.353 ±0.34	0.97 ±0.03	0.227 ±0.23	0.265 ±0.32	0.972 ±0.03
				PWI-Tmax			PWI-MTT			Combined		
				DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.
U-Net [25]				**0.42 ±0.31**	0.679 ±0.32	**0.977 ±0.03**	**0.43 ±0.31**	0.681 ±0.31	**0.979 ±0.03**	0.218 ±0.18	0.441 ±0.26	0.955 ±0.03
Attention gated network [39]				0.232 ±0.24	**0.769 ±0.29**	0.908 ±0.07	0.229 ±0.24	**0.764 ±0.3**	0.909 ±0.07	0.265 ±0.25	0.494 ±0.35	0.94 ±0.05
Proposed				0.291 ±0.23	0.26 ±0.32	0.976 ±0.03	0.275 ±0.23	0.316 ±0.34	0.973 ±0.03	**0.47 ±0.22**	**0.867 ±0.17**	**0.972 ±0.01**

TABLE IV: Parametric performance of MAA-DN with other standard and state-of-the-art methods for **core** injury estimation of **LLU** data. (Best scores are shown in **bold** font; For values which had a tie the maximum was decided by rounding to more than 3 digits)

LLU -Core	DWIp			DWIr			DWIs			ADC			Combined		
	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.
U-Net [25]	0.759 ±0.16	0.715 ±0.21	0.998 ±0	0.757 ±0.19	0.778 ±0.16	0.986 ±0.01	0.653 ±0.22	0.651 ±0.23	0.995 ±0	0.597 ±0.26	**0.637 ±0.27**	0.958 ±0	0.744 ±0.11	0.832 ±0.13	0.998 ±0
Attention gated network [39]	0.669 ±0.24	0.677 ±0.25	0.996 ±0	0.735 ±0.2	0.751 ±0.2	0.996 ±0	**0.727 ±0.23**	0.712 ±0.23	**0.997 ±0**	0.552 ±0.32	0.584 ±0.3	0.992 ±0.01	0.617 ±0.29	0.633 ±0.27	0.993 ±0.01
Proposed	**0.786 ±0.17**	**0.755 ±0.19**	**0.998 ±0**	**0.79 ±0.17**	**0.786 ±0.17**	**0.997 ±0**	0.719 ±0.24	**0.655 ±0.23**	0.994 ±0	**0.615 ±0.27**	0.618 ±0.27	**0.995 ±0**	**0.845 ±0.12**	**0.832 ±0.13**	**0.998 ±0**

TABLE V: Parametric comparison of MAA-DN with other standard and state-of-the-art methods for **penumbra** injury estimation of **LLU** data. (Best scores are shown in **bold** font)

LLU -Penumbra	PWI-CBF			PWI-CBV			PWI-TTP			PWI-MTT			Combined		
	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.	DSC	Sen.	Spec.
U-Net [25]	0.666 ±0.2	0.785 ±0.17	0.949 ±0.03	0.609 ±0.24	0.755 ±0.23	0.946 ±0.04	0.514 ±0.25	0.689 ±0.25	0.952 ±0.04	0.466 ±0.27	0.757 ±0.23	0.926 ±0.03	0.719 ±0.22	0.821 ±0.15	0.971 ±0.03
Attention gated network [39]	0.624 ±0.2	0.757 ±0.26	0.948 ±0.04	0.61 ±0.24	**0.778 ±0.22**	0.974 ±0.01	**0.564 ±0.25**	0.689 ±0.25	0.952 ±0.03	**0.475 ±0.27**	0.723 ±0.22	0.916 ±0.03	0.717 ±0.22	0.791 ±0.14	0.971 ±0.1
Proposed	**0.705 ±0.2**	**0.82 ±0.18**	**0.978 ±0.01**	**0.641 ±0.24**	0.777 ±0.22	**0.974 ±0.01**	0.554 ±0.26	**0.731 ±0.26**	**0.961 ±0.02**	0.47 ±0.24	**0.762 ±0.23**	**0.926 ±0.03**	**0.773 ±0.18**	**0.828 ±0.16**	**0.988 ±0.01**

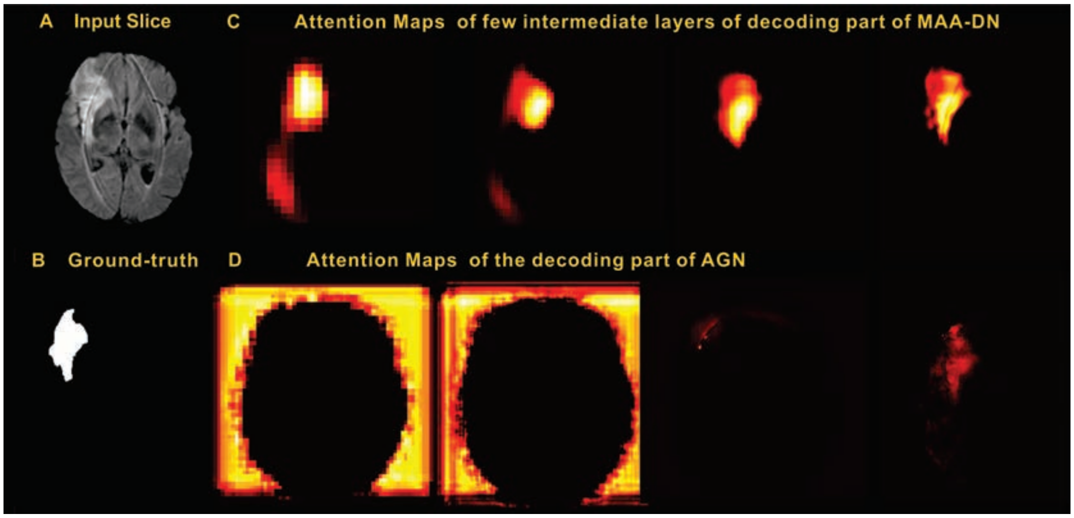

Fig. 1: A-B) Example input and groundtruth; C-D) Comparison of attention maps of decoding part in few intermediate layers of the MAA-DN with those of the decoding part in AGN.

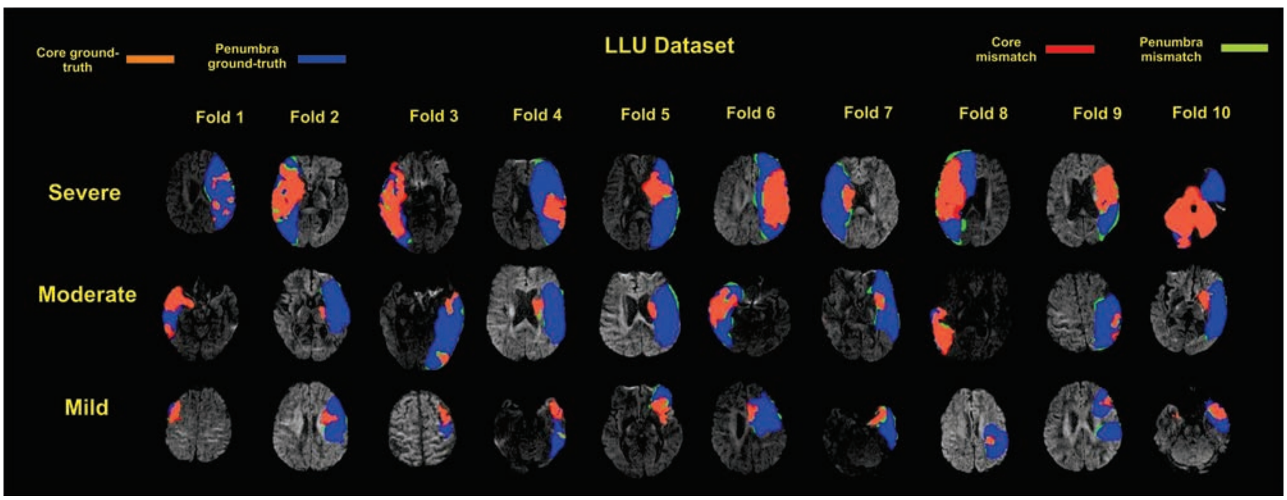

Fig. 2: MAA-DN based ischemic core-penumbra delineation in LLU dataset are compared across injury severity (mild, moderate, severe) with MAA-DN detected core in (orange + red) and MAA-DN detected penumbra in (blue + green).

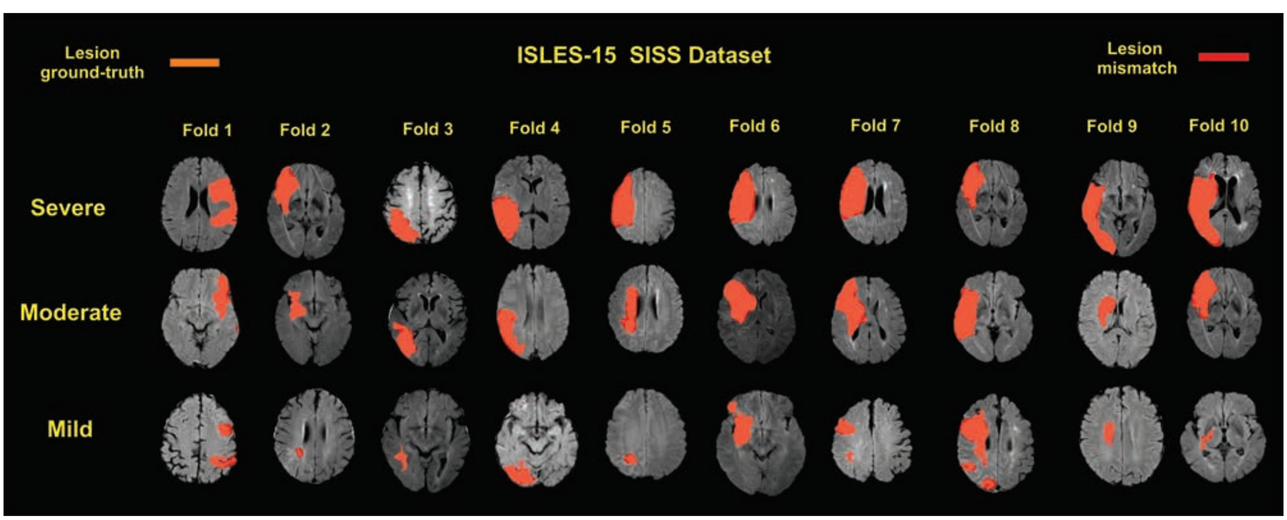

Fig. 3: MAA-DN based acute ischemic lesion delineation in SISS ISLES-15 dataset are compared across injury severity (mild, moderate, severe) with MAA-DN detected lesion in (orange + red).

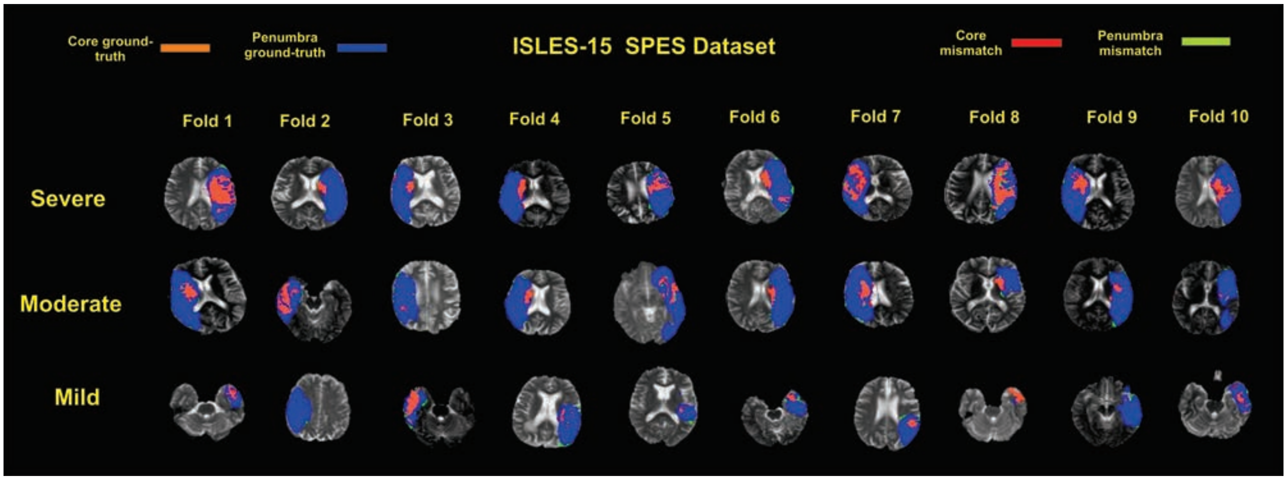

Fig. 4: MAA-DN based ischemic core-penumbra delineation in SPES ISLES-15 dataset are compared across injury severity (mild, moderate, severe) with MAA-DN detected core in (orange + red) and MAA-DN detected penumbra in (blue + green).

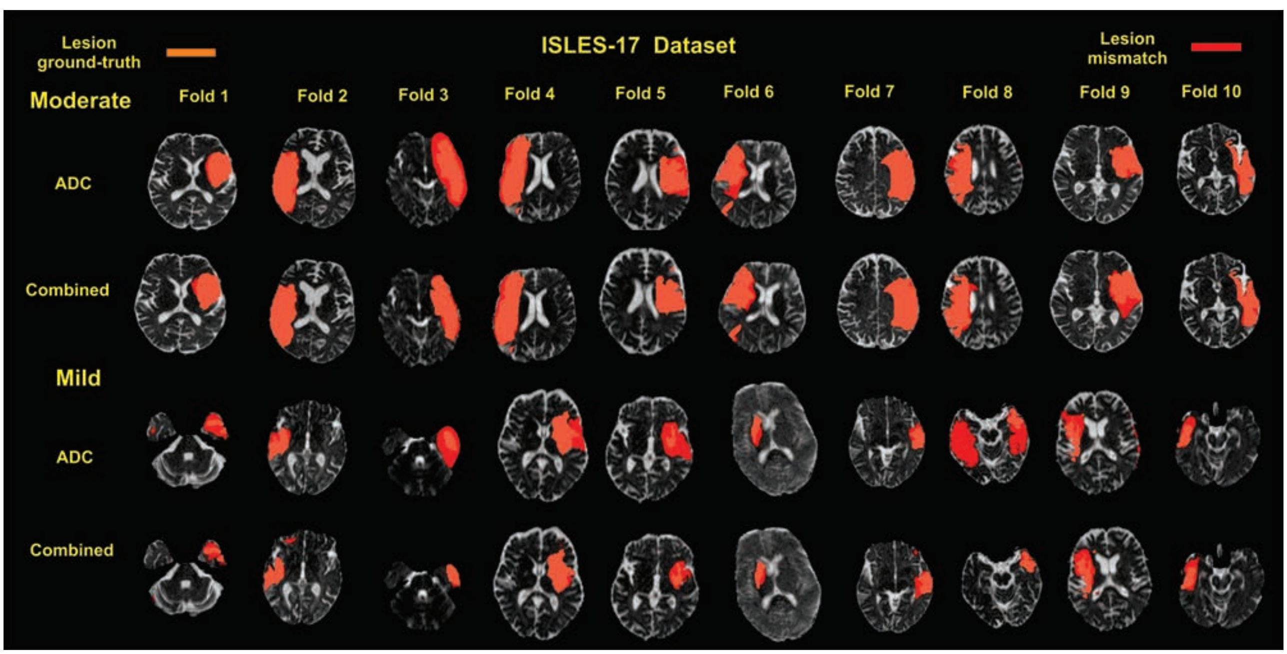

Fig. 5: MAA-DN based acute ischemic lesion delineation in ISLES-17 dataset are compared across injury severity (mild, moderate, severe) with MAA-DN detected lesion in (orange + red).

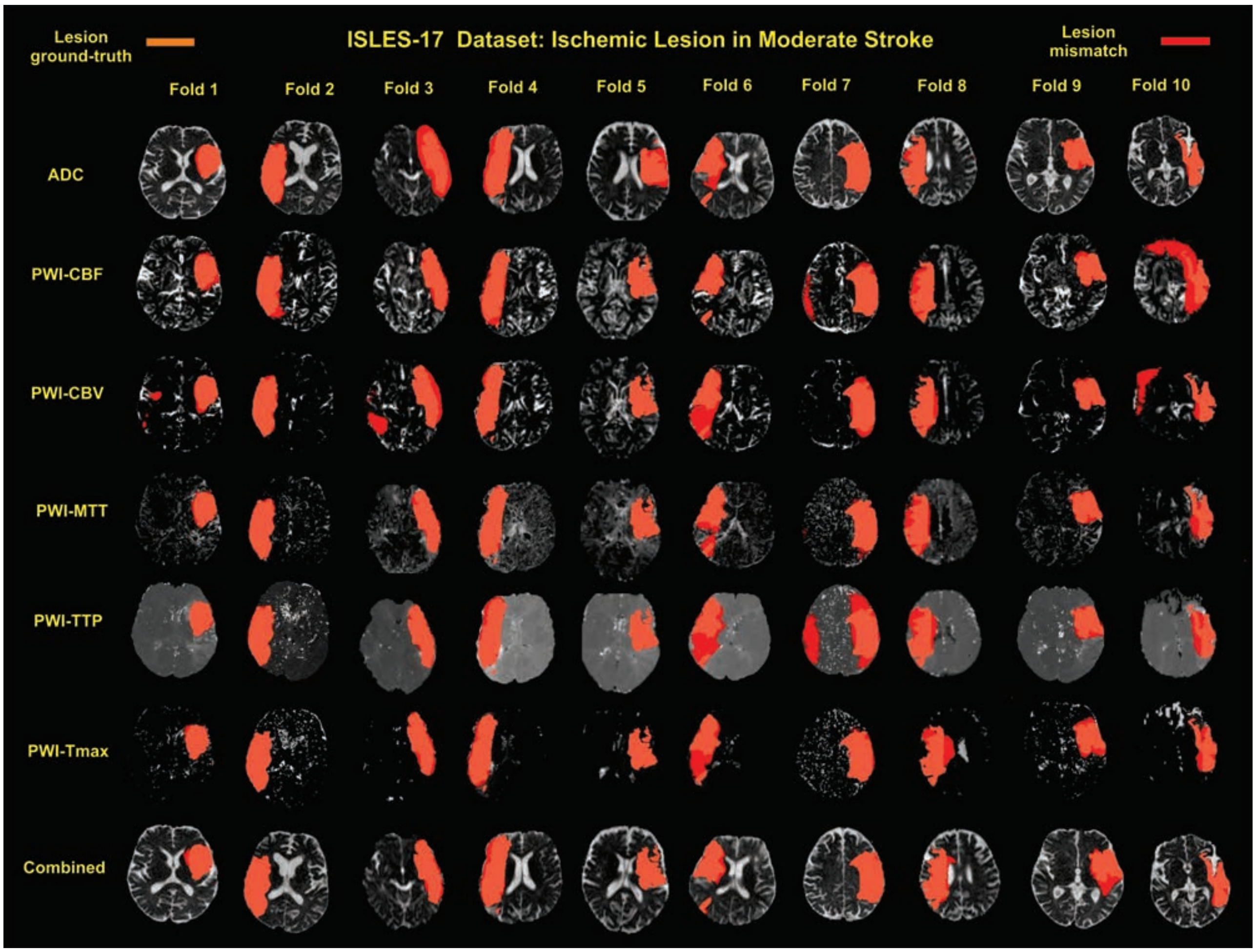

Fig. 6: Ischemic lesion delineation from **ISLES'17** dataset are shown and performance is compared across injury classes for each fold for **moderate** injury with MAA-DN detected lesion in (orange + red).

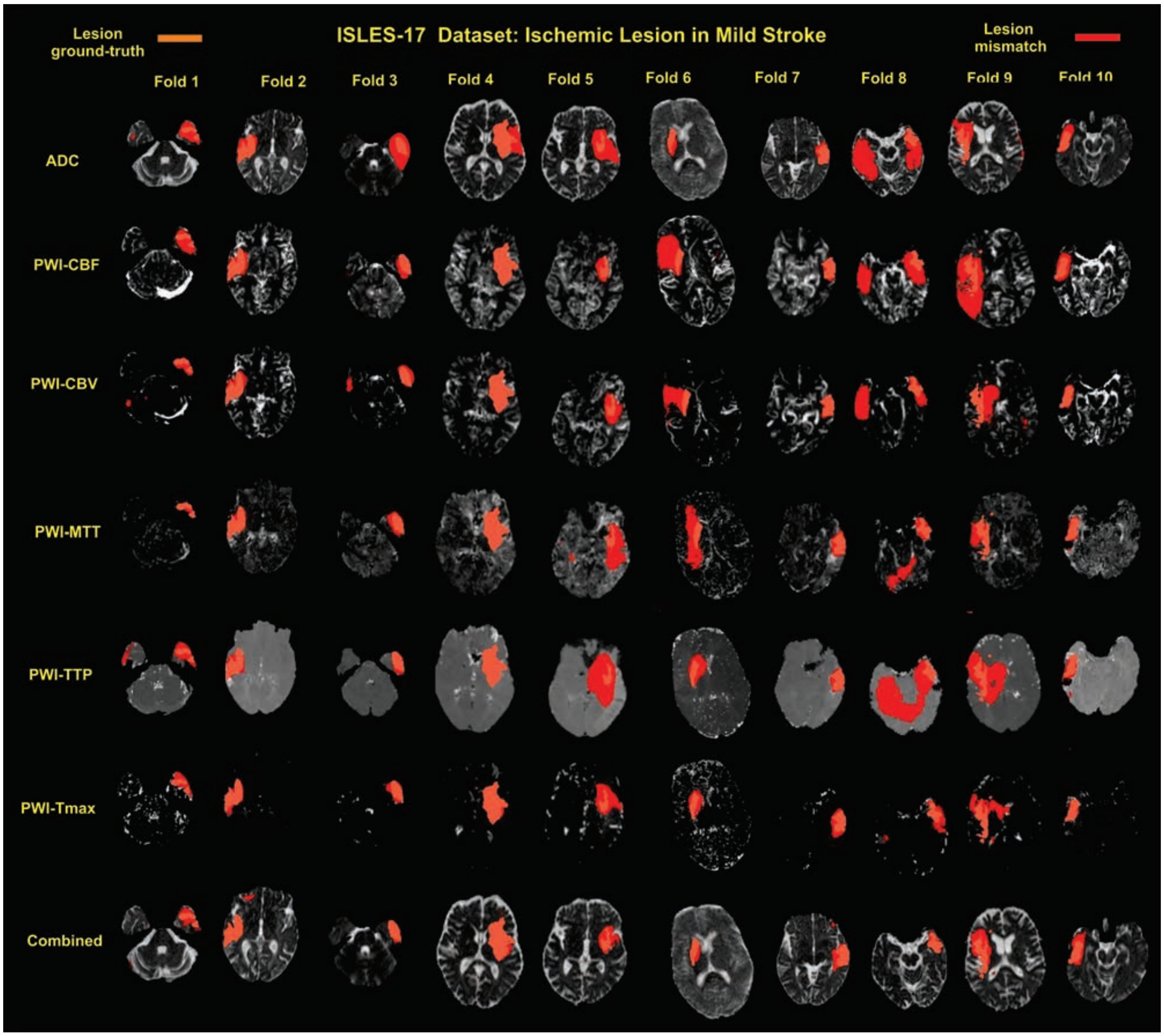

Fig. 7: Ischemic lesion delineation from **ISLES'17** dataset are shown and performance is compared across injury classes for each fold for **mild** injury with MAA-DN detected lesion in (orange + red).

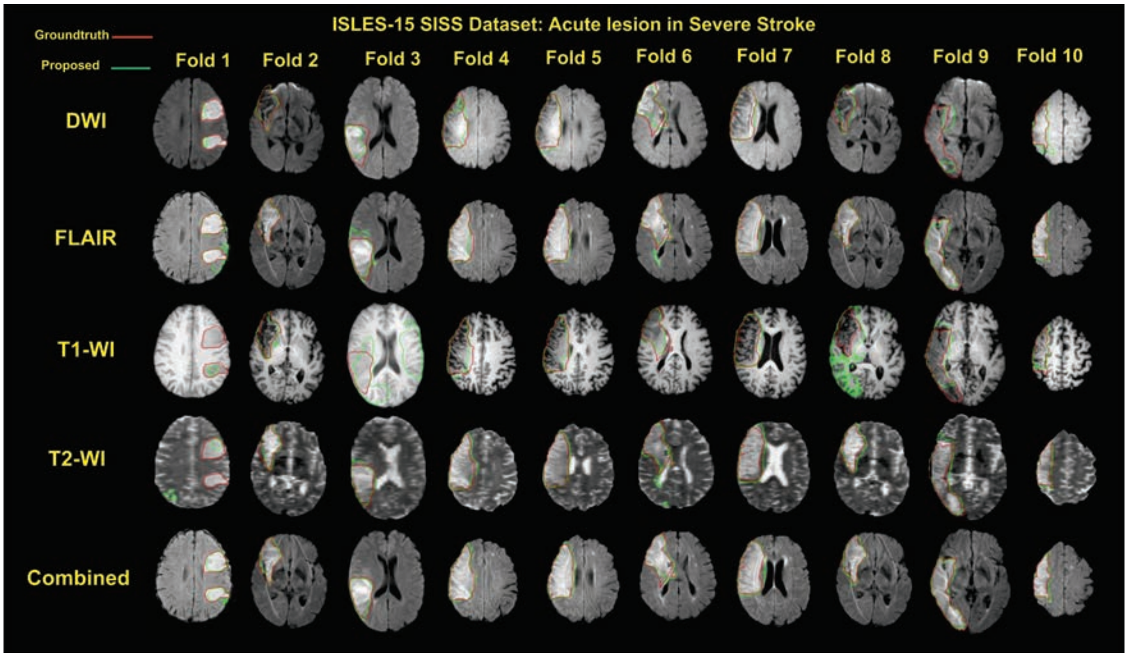

Fig. 8: Acute lesion delineation from **SISS- ISLES'15** dataset are shown and performance is compared across injury classes for each fold for **severe** injury.

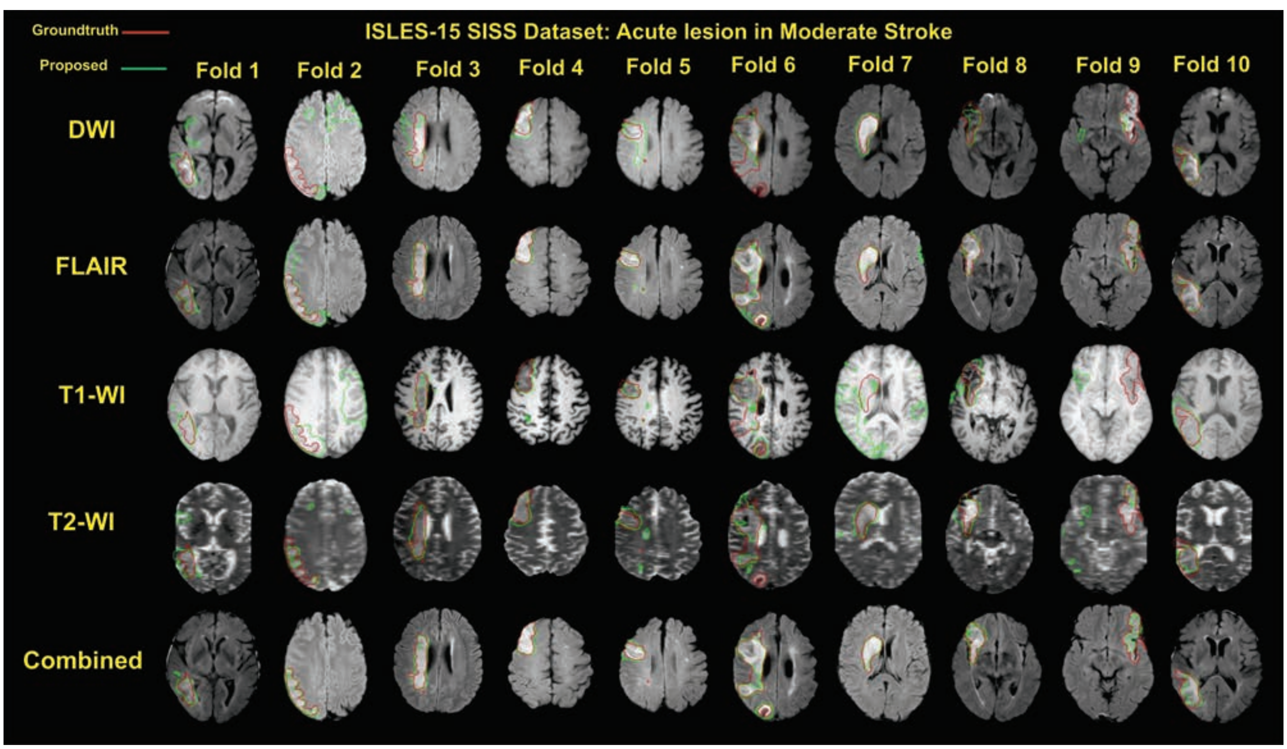

Fig. 9: Acute lesion delineation from **SISS- ISLES'15** dataset are shown and performance is compared across injury classes for each fold for **moderate** injury.

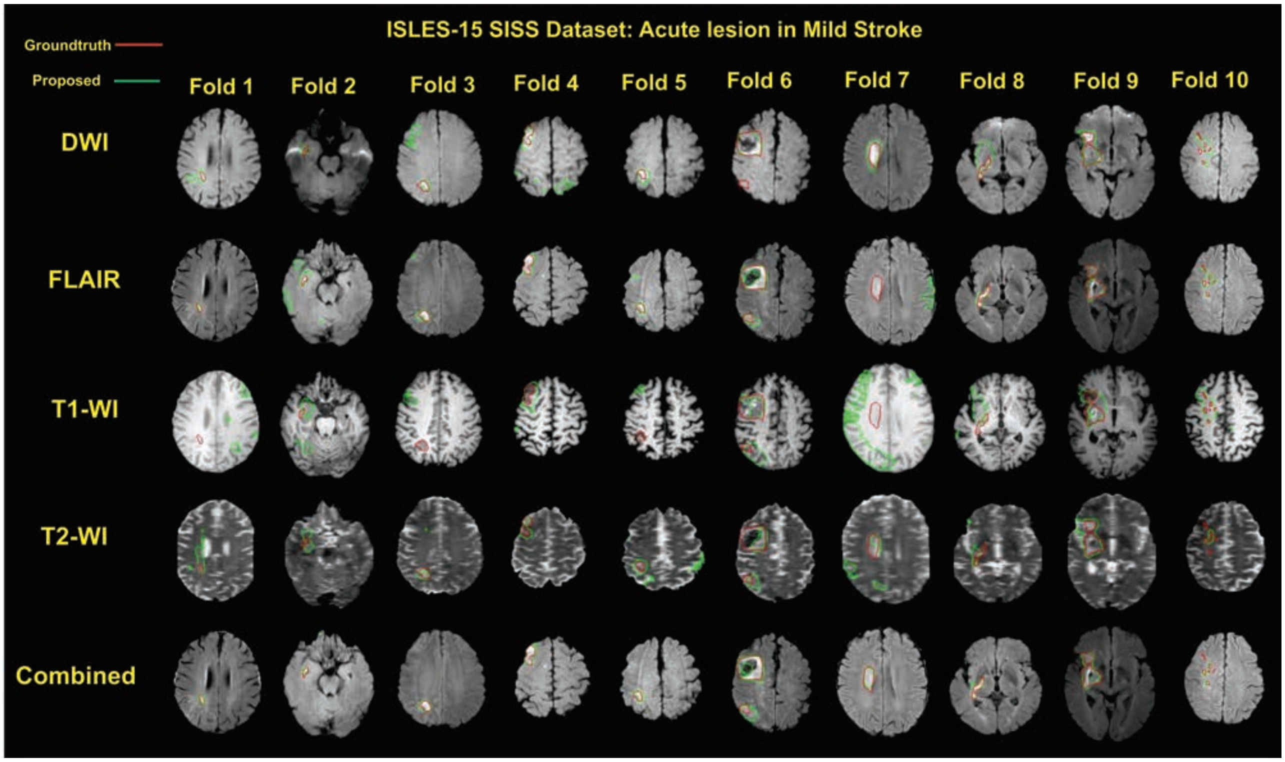

Fig. 10: Acute lesion delineation from **SISS- ISLES'15** dataset are shown and performance is compared across injury classes for each fold for **mild** injury.

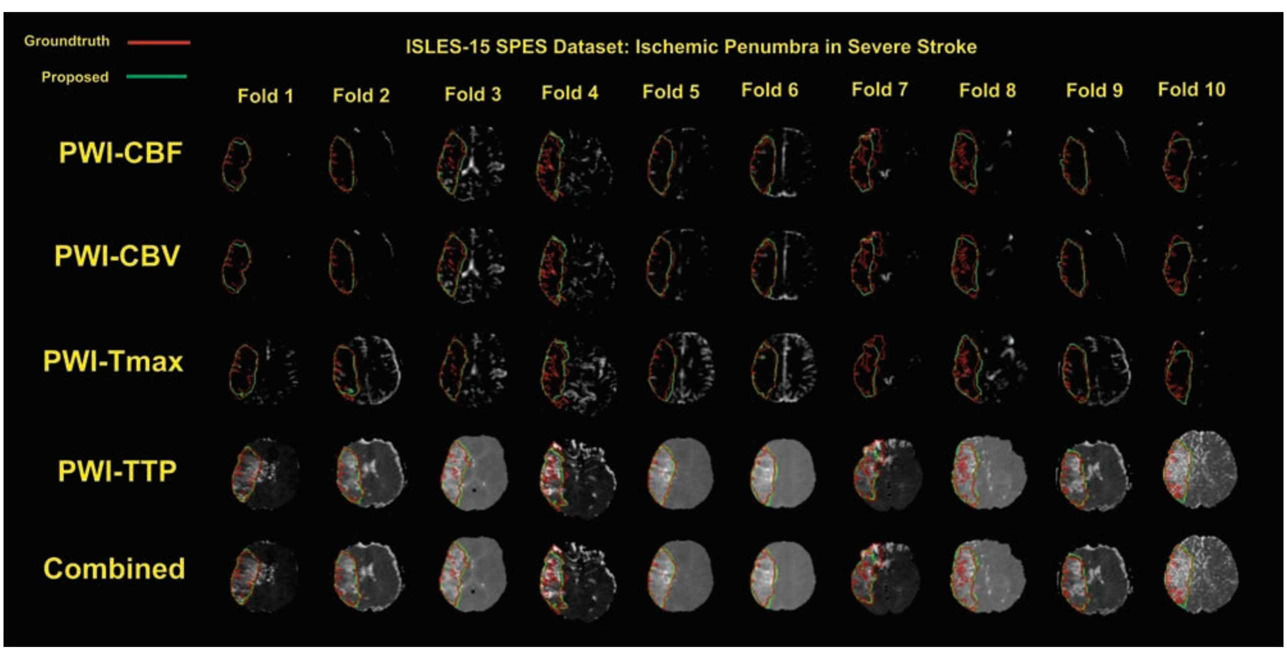

Fig. 11: Ischemic penumbra delineation from **SPES- ISLES'15** dataset are shown and performance is compared across injury classes for each fold for **severe** injury.

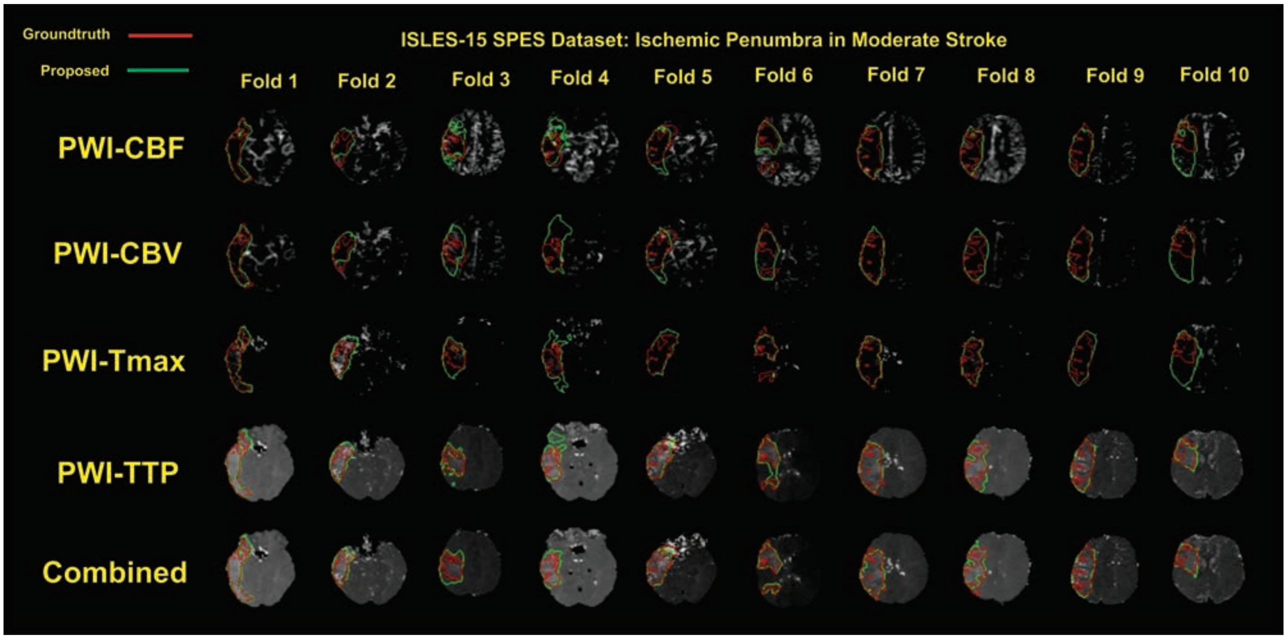

Fig. 12: Ischemic penumbra delineation from **SPES- ISLES'15** dataset are shown and performance is compared across injury classes for each fold for **moderate** injury.

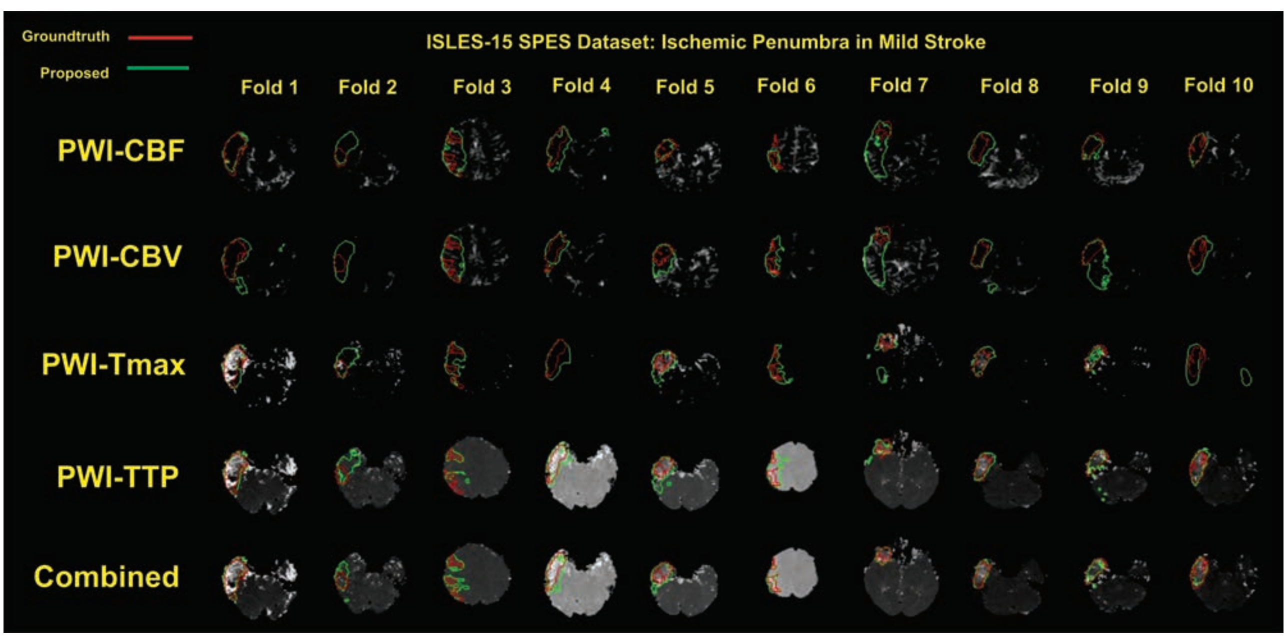

Fig. 13: Ischemic penumbra delineation from **SPES- ISLES'15** dataset are shown and performance is compared across injury classes for each fold for **mild** injury.

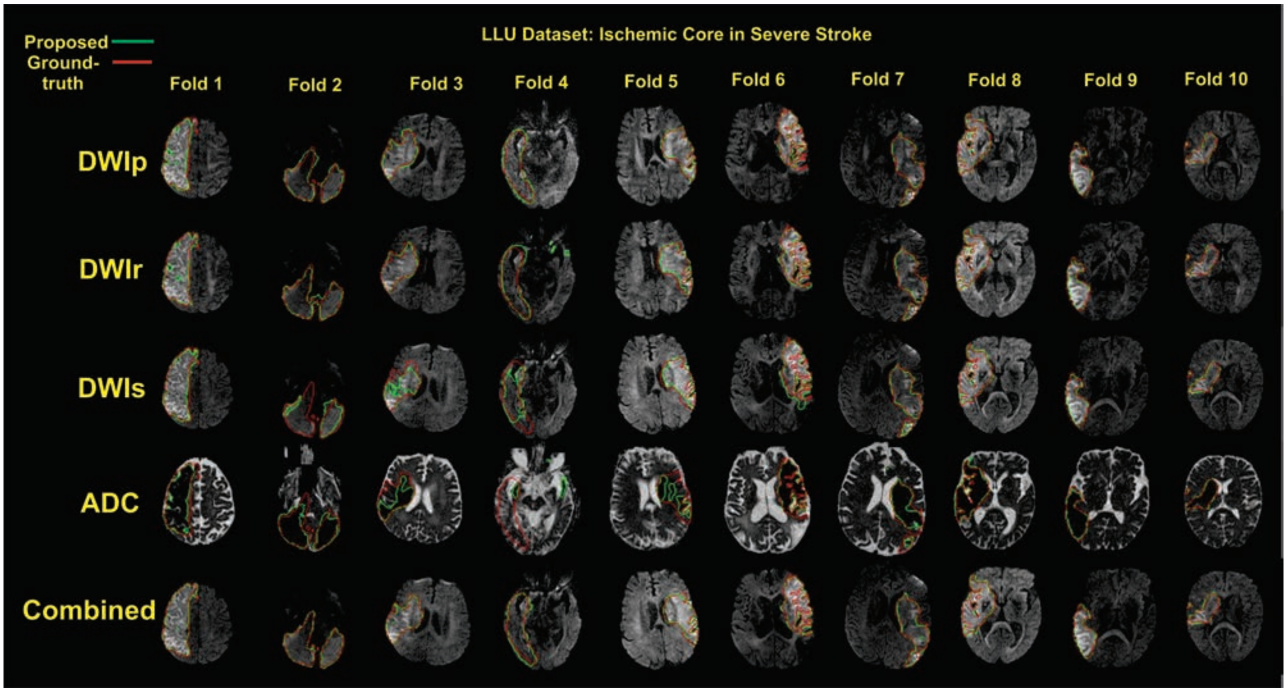

Fig. 14: Ischemic lesion delineation from **LLU** dataset are shown and performance is compared across injury classes for each fold for **severe** injury.

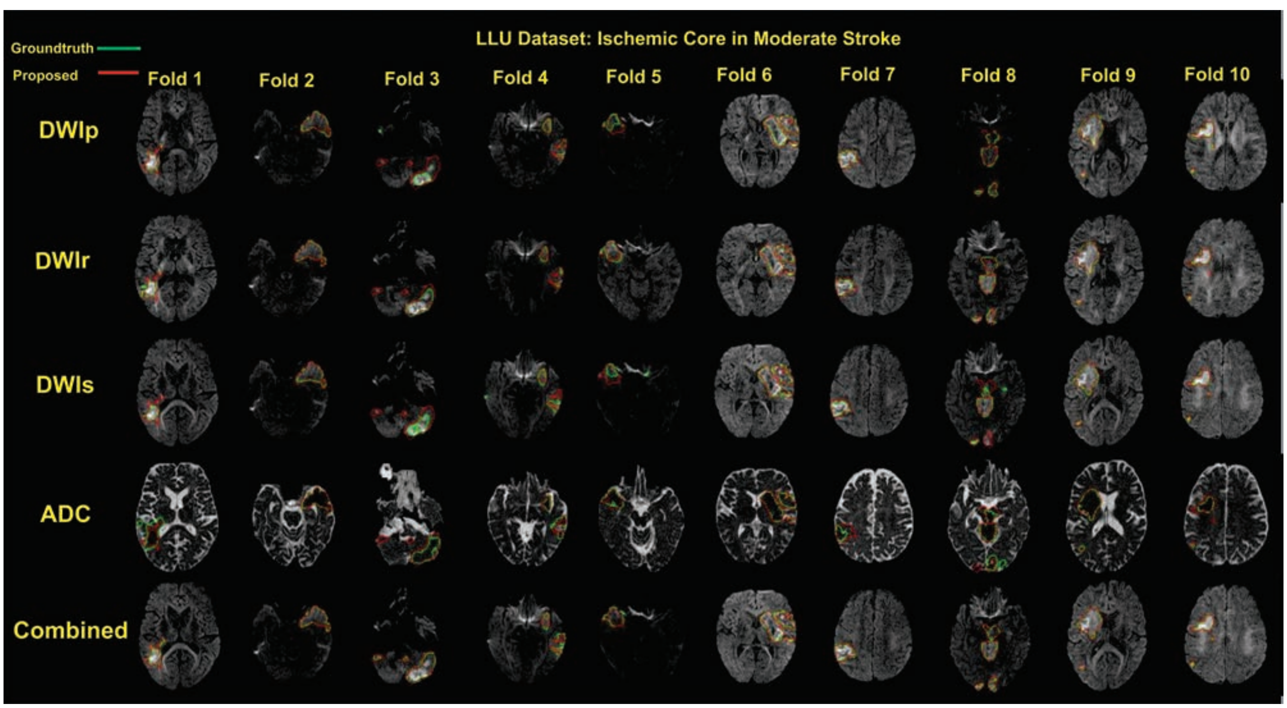

Fig. 15: Ischemic lesion delineation from **LLU** dataset are shown and performance is compared across injury classes for each fold for **moderate** injury.

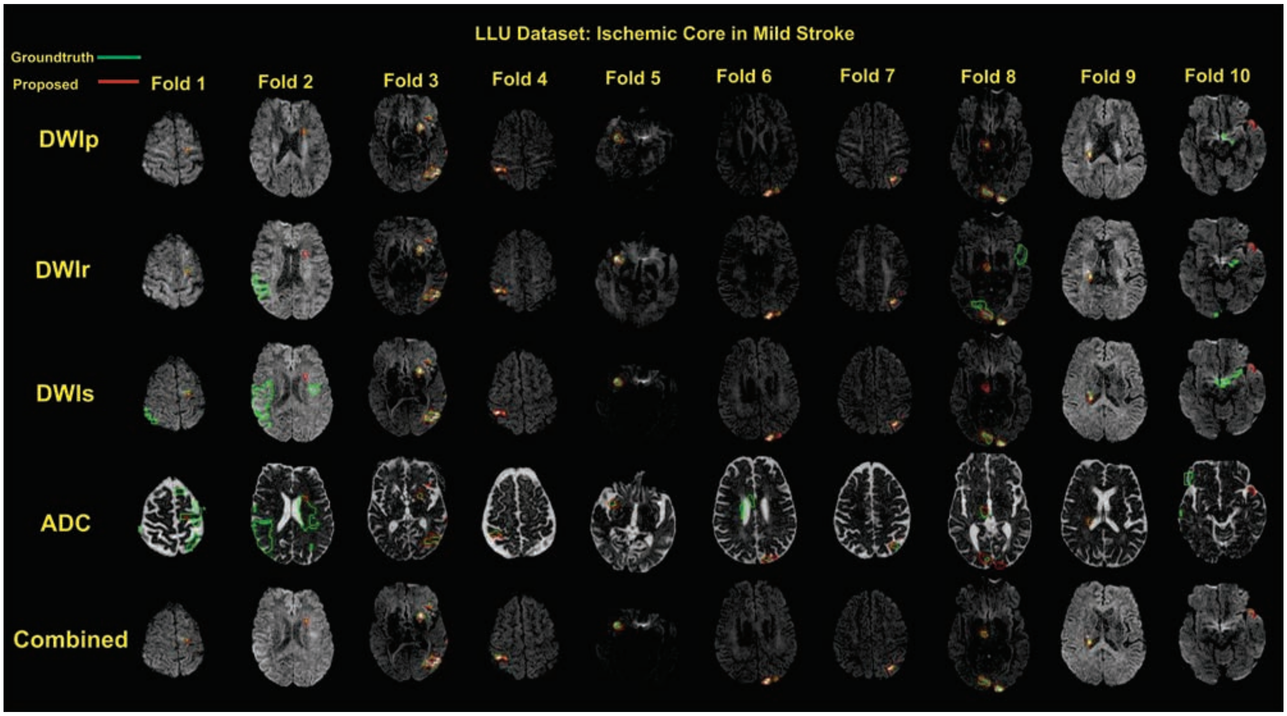

Fig. 16: Ischemic lesion from **LLU** dataset are shown and performance is compared across injury classes for each fold for **mild** injury.

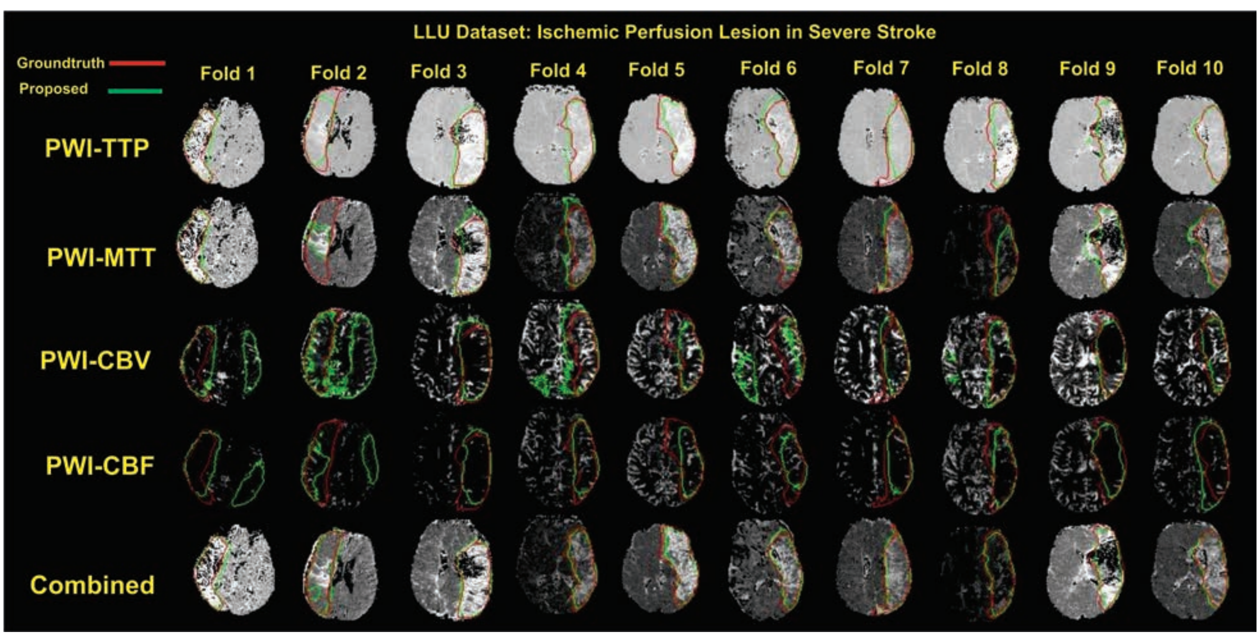

Fig. 17: Ischemic penumbra delineation from **LLU** dataset are shown and performance is compared across injury classes for each fold for **severe** injury.

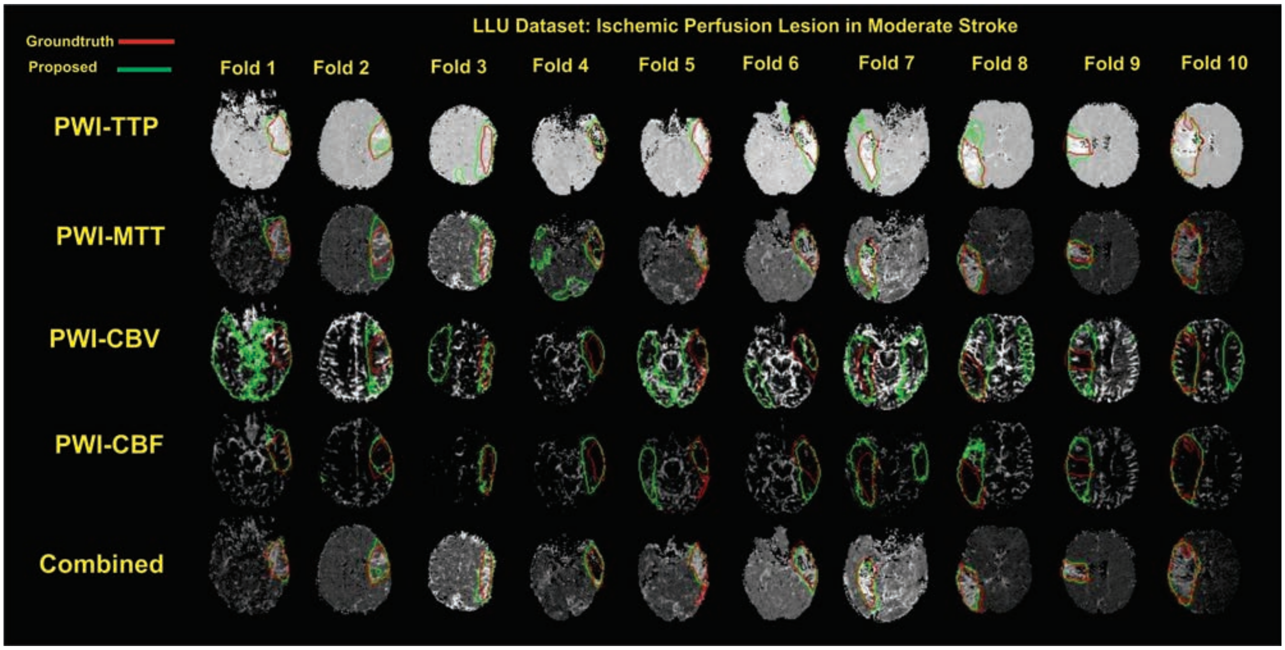

Fig. 18: Ischemic penumbra delineation from **LLU** dataset are shown and performance is compared across injury classes for each fold for **moderate** injury.

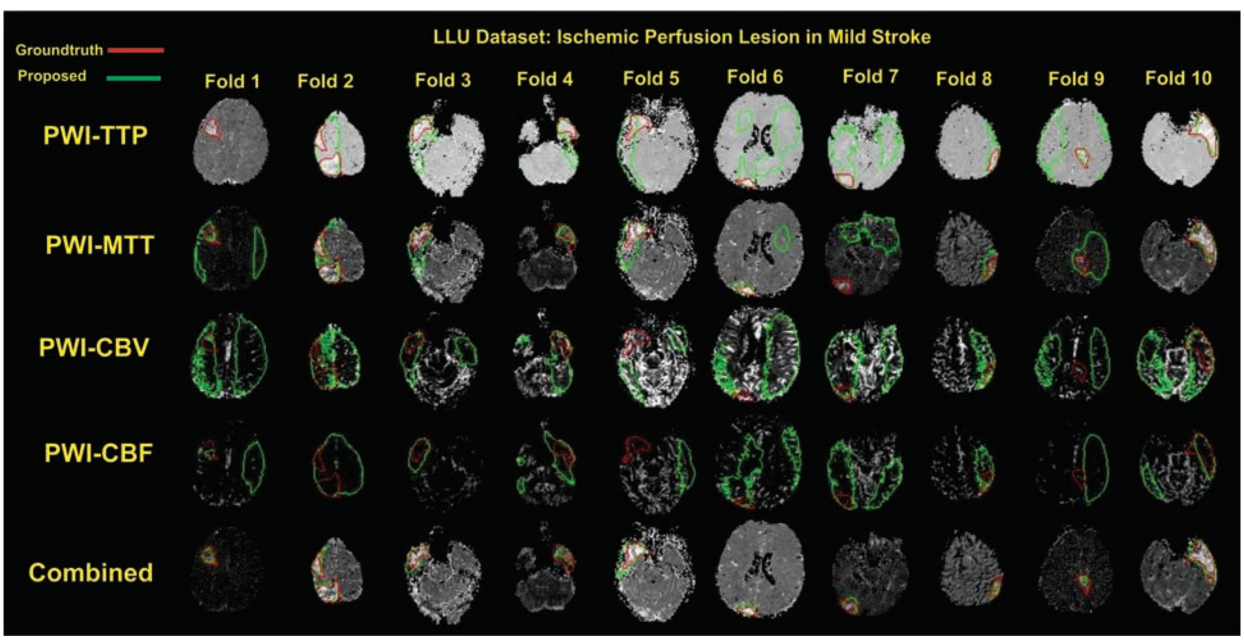

Fig. 19: Ischemic penumbra delineation from **LLU** dataset are shown and performance is compared across injury classes for each fold for **mild** injury.