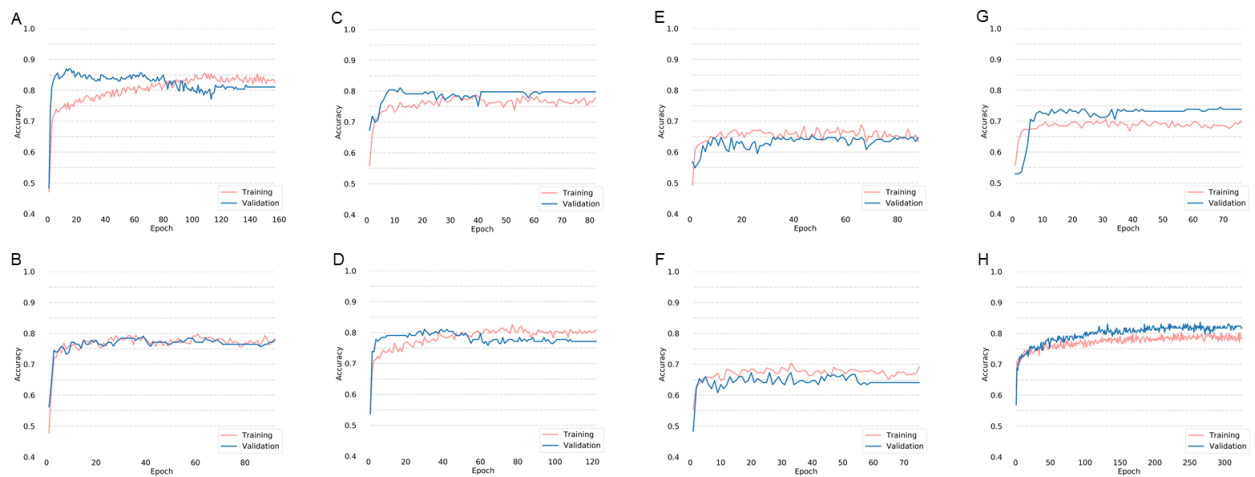
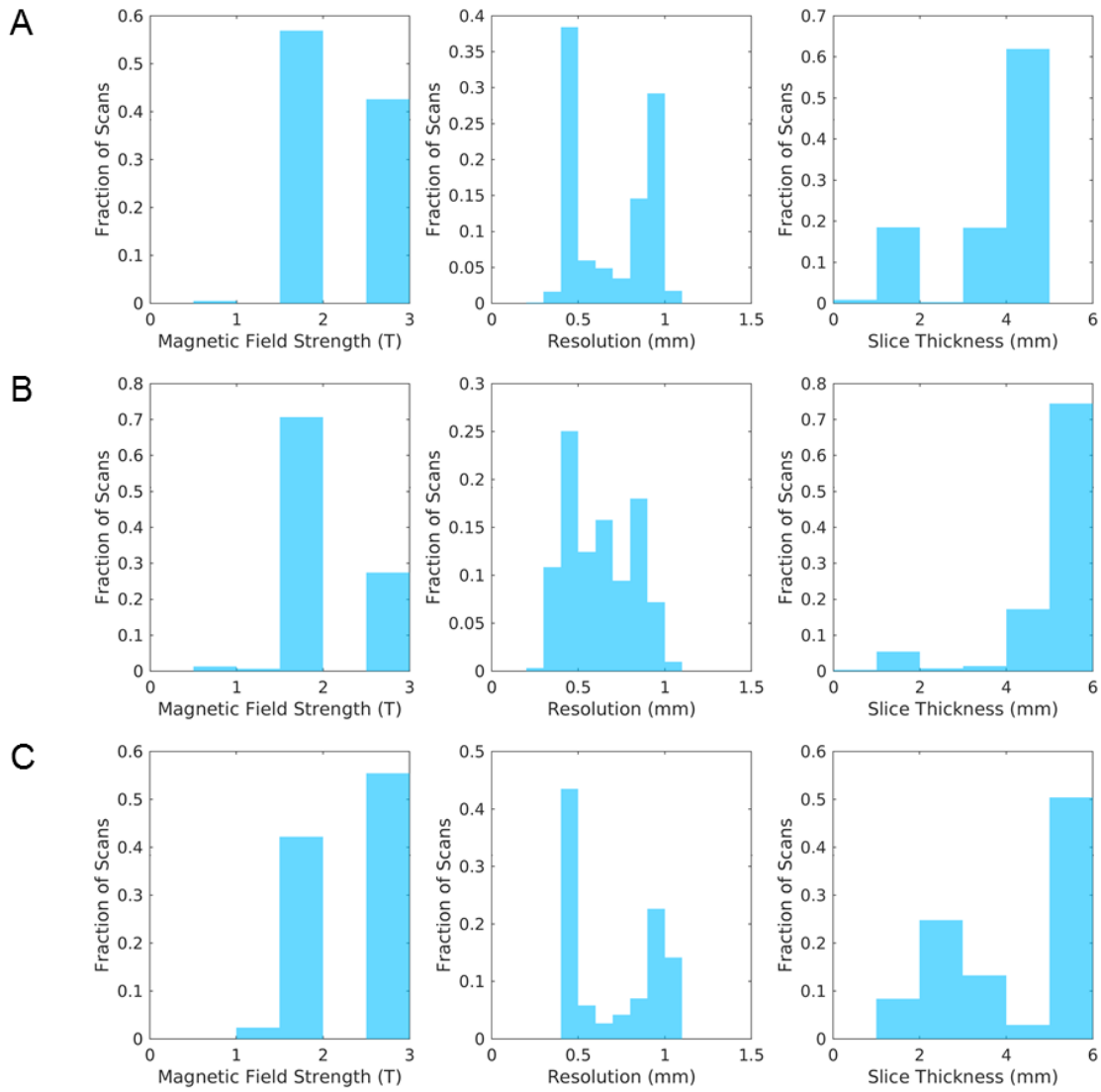


	Training Set		Validation Set		Testing Set		Independent Testing Set	
	HUP + TCIA, n = 813		HUP + TCIA, n = 102		HUP + TCIA, n = 102		BWH, n = 471	
Age	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>
FLAIR network	83.0%	.89	73.5%	.83	82.4%	.86	77.7%	.86
T2 network	68.3%	.74	63.7%	.68	70.6%	.75	58.2%	.70
T1 pre-contrast network	62.4%	.64	64.7%	.73	69.6%	.64	62.0%	.72
T1 post-contrast network	72.8%	.81	76.5%	.76	77.5%	.88	58.8%	.76
Combining modality networks	83.5%	.90	83.3%	.93	87.3%	.96	65.0%	.82
Combining modality networks + age	83.8%	.91	80.4%	.92	90.2%	.97	67.1%	.86
Combining modality networks + age	89.4%	.95	79.4%	.92	91.2%	.97	77.5%	.90
	HUP + BWH, n = 858		HUP + BWH, n = 111		HUP + BWH, n = 105		TCIA, n = 414	
Age	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>
FLAIR network	83.6%	.88	83.8%	.91	82.9%	.92	78.3%	.85
T2 network	69.1%	.77	60.4%	.72	71.4%	.75	67.6%	.73
T1 pre-contrast network	71.2%	.77	65.8%	.78	66.7%	.74	55.8%	.56
T1 post-contrast network	68.8%	.78	76.6%	.73	72.4%	.88	65.5%	.74
Combining modality networks	76.5%	.85	74.8%	.83	81.0%	.89	79.5%	.85
Combining modality networks	81.4%	.90	78.4%	.89	83.8%	.91	79.0%	.87
Combining modality networks + age	86.7%	.94	85.6%	.96	89.5%	.94	84.5%	.91
	TCIA + BWH, n = 705		TCIA + BWH, n = 93		TCIA + BWH, n = 87		HUP, n = 603	
Age	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>
FLAIR network	81.3%	.86	83.9%	.89	82.8%	.88	84.1%	.90
T2 network	67.2%	.75	66.7%	.69	63.2%	.64	63.5%	.65
T1 pre-contrast network	69.2%	.78	68.8%	.71	69.0%	.75	65.3%	.73
T1 post-contrast network	69.4%	.79	68.8%	.73	63.2%	.83	72.5%	.75
Combining modality networks	75.0%	.82	77.4%	.85	81.6%	.89	68.5%	.85
Combining modality networks	80.4%	.89	77.4%	.87	77.0%	.89	74.8%	.83
Combining modality networks + age	85.4%	.92	87.1%	.96	89.7%	.94	84.1%	.91
	Average		Average		Average		Average	
Age	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>	<u>Accuracy</u>	<u>AUC</u>
FLAIR network	82.7%	.88	80.4%	.88	82.7%	.89	80.5%	.87
T2 network	68.3%	.75	63.4%	.70	68.7%	.72	63.0%	.69
T1 pre-contrast network	67.6%	.73	66.3%	.74	68.4%	.71	61.6%	.68
T1 post-contrast network	70.3%	.79	74.2%	.74	71.4%	.87	66.2%	.75
Combining modality networks	78.5%	.86	78.4%	.87	83.4%	.91	70.4%	.84
Combining modality networks	81.9%	.90	78.8%	.89	84.0%	.92	73.5%	.85
Combining modality networks + age	87.2%	.94	84.0%	.95	90.1%	.95	82.1%	.91

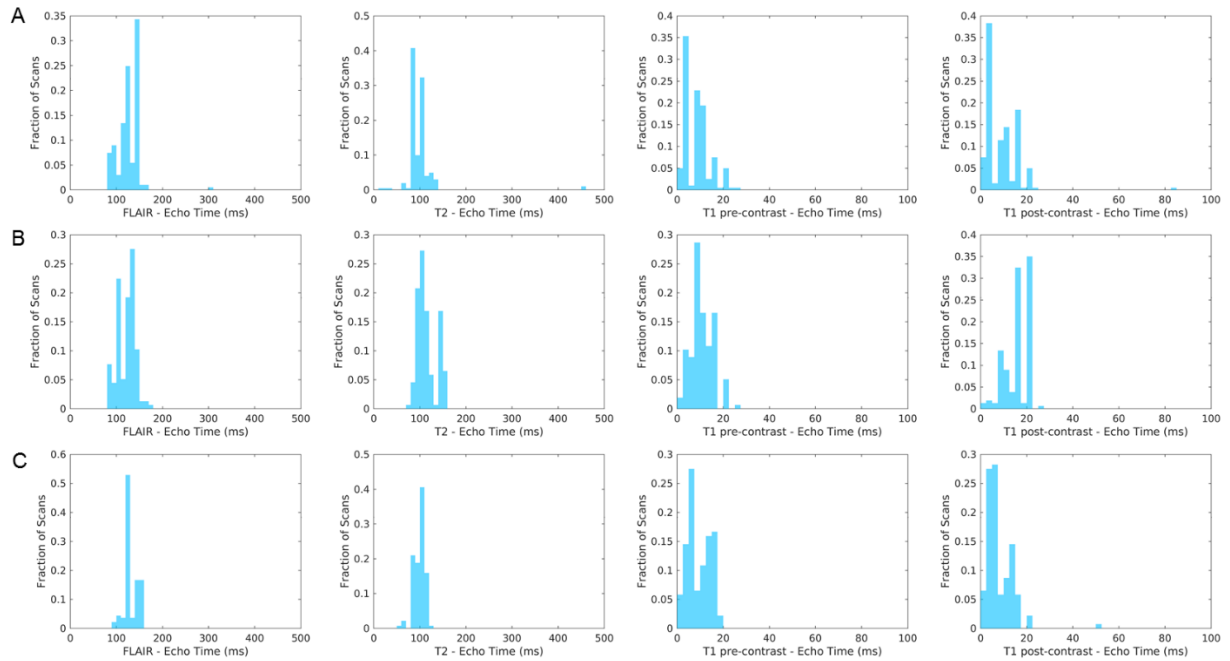
Supplemental Table 1. Training, validation, testing, and independent testing set performance from training on two patient cohorts using the sequence networks training heuristic.



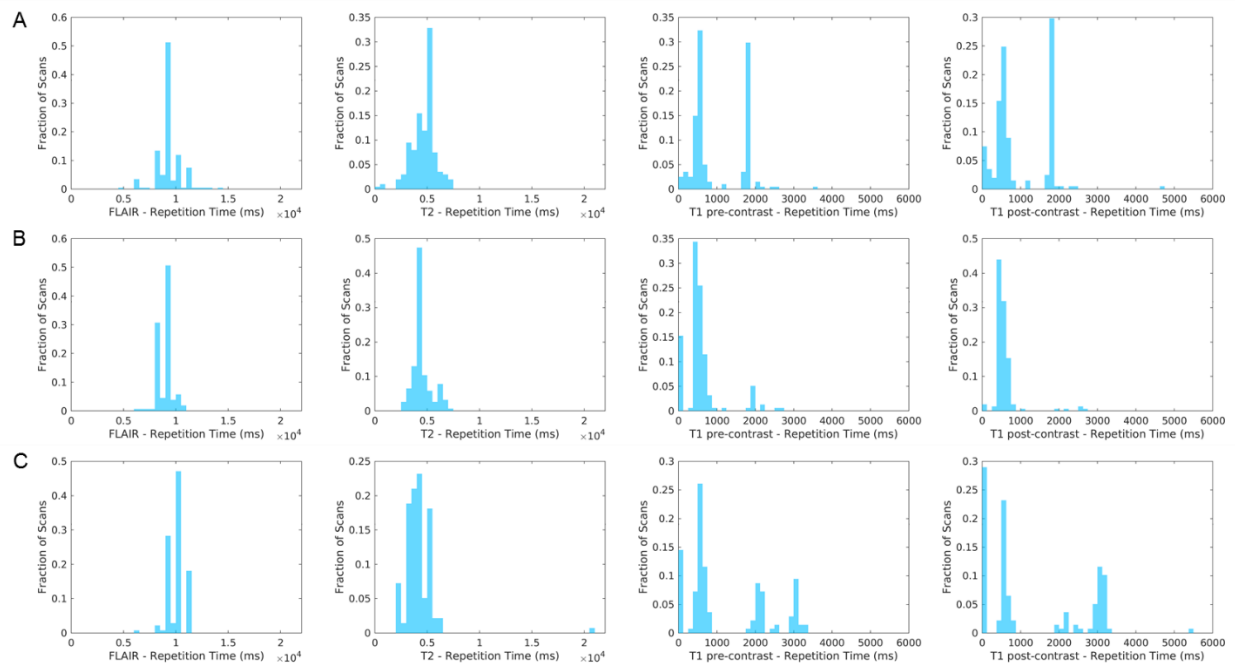
Supplemental Fig 1. Training and validation accuracy for three patient cohort training for (A) single combined network, (B) coronal network, (C) sagittal network, (D) axial network, (E) FLAIR network, (F) T2 network, (G) T1 pre-contrast network, and (H) T1 post-contrast network. Training accuracy shown is for augmented training data.



Supplemental Fig 2. Magnetic field strength, resolution, and slice thickness of (a) HUP, (b) BWH, and (c) TCIA cohorts for FLAIR, T2, T1 pre-contrast, and T1 post-contrast MR images.



Supplemental Fig 3. Echo time for FLAIR, T2, T1 pre-contrast, and T1 post-contrast MRI images of (a) HUP, (b) BWH, and (c) TCIA cohorts.



Supplemental Fig 4. Repetition time for FLAIR, T2, T1 pre-contrast, and T1 post-contrast MRI images of (a) HUP, (b) BWH, and (c) TCIA cohorts.