

Supplementary material: DRIM

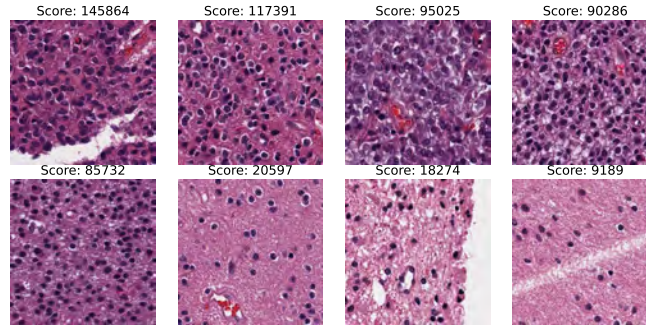


Fig S1: Random patches with scores based on the number of pixels meeting these conditions: saturation > 150 and value < 150 in HSV space.

Table S1: Comparison of trainable parameters across fusion functions.

Fusion	N modalities	Representation size	Parameters (in millions)
MAFusion	4	32	0.14
		128	0.56
	5	32	0.14
		128	0.56
Tensor	4	32	38.10
		128	~ 34500.00
	5	32	1252.51
		128	~ 4390000.00

Table S2: Experiments from this study were run on a desktop machine (AMD EPYC 7502P 32-Core Processor, 64 GB RAM) with NVIDIA GeForce 2080 Ti.

Task	Mode	Time by experiment	N GPUs	GPU Memory (GiB)
Pretraining	WSI	~ 16 hours	4	22.28
	MRI	~ 30 min	4	18.86
Survival	All but Tensor	~ 9 min	1	0.80
	Tensor	~ 12 min	1	1.83
	DRIM-Surv	~ 10 min	1	1.04
	DRIM-U	~ 13 min	1	1.22

Table S3: Sensitivity analysis over the γ coefficient. Performance metrics for models using solely shared encoders and for the DRIM-Surv model without the \mathcal{L}_{sh} term (indicated as 0 in the table) is also displayed.

Sensitivity (\mathcal{L}_{sh}, γ)	C-index (\uparrow)	Integrated BS (\downarrow)	INBLL (\downarrow)			
(1, -)	0.750 ± 0.016	0.090 ± 0.006	0.324 ± 0.022			
(0., 0.)	0.741 ± 0.007	0.090 ± 0.006	0.324 ± 0.027			
(1., 0.)	0.733 ± 0.013	0.091 ± 0.006	0.339 ± 0.040			
(1., 0.1)	0.754 ± 0.013	0.089 ± 0.009	0.307 ± 0.053			
(1., 0.2)	0.759 ± 0.014	0.094 ± 0.006	0.312 ± 0.034			
(1., 0.3)	0.752 ± 0.017	0.094 ± 0.009	0.329 ± 0.055			
(1., 0.4)	0.762 ± 0.009	0.093 ± 0.005	0.311 ± 0.015			
(1., 0.5)	0.761 ± 0.011	0.091 ± 0.003	0.302 ± 0.016			
(1., 0.6)	0.767 ± 0.009	0.092 ± 0.004	0.307 ± 0.025			
(1., 0.7)	0.768 ± 0.005	0.090 ± 0.005	0.299 ± 0.023			
(1., 0.8)	0.774 ± 0.006	0.086 ± 0.004	0.285 ± 0.016			
(1., 0.9)	0.774 ± 0.013	0.090 ± 0.005 </tr <tr> <td>(1., 1.)</td> <td>0.758 ± 0.008</td> <td>0.091 ± 0.004</td> <td>0.300 ± 0.020</td> </tr>	(1., 1.)	0.758 ± 0.008	0.091 ± 0.004	0.300 ± 0.020
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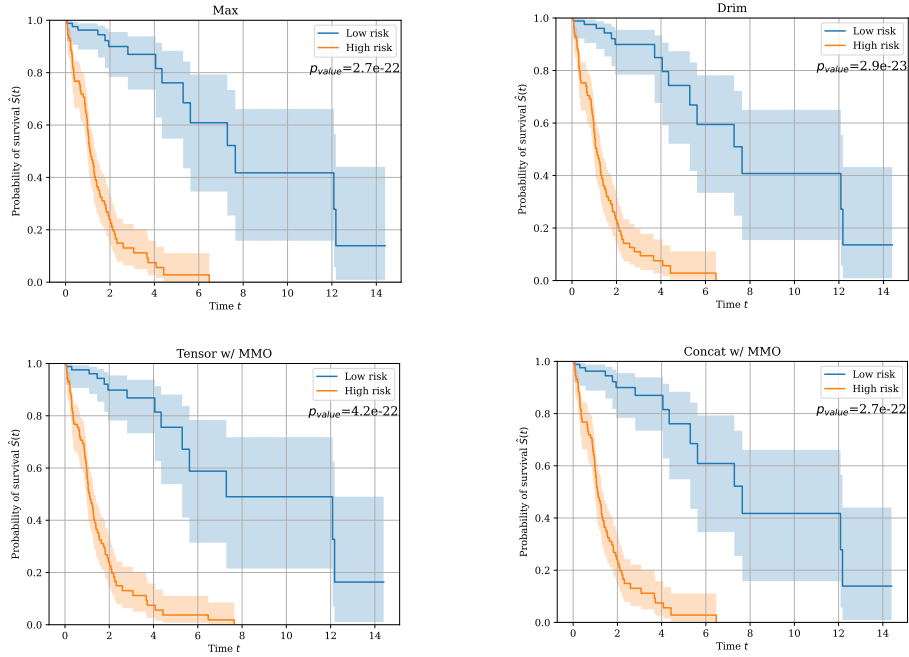


Fig. S2: Patient stratification into high-risk and low-risk categories with different survival models.