ID 08

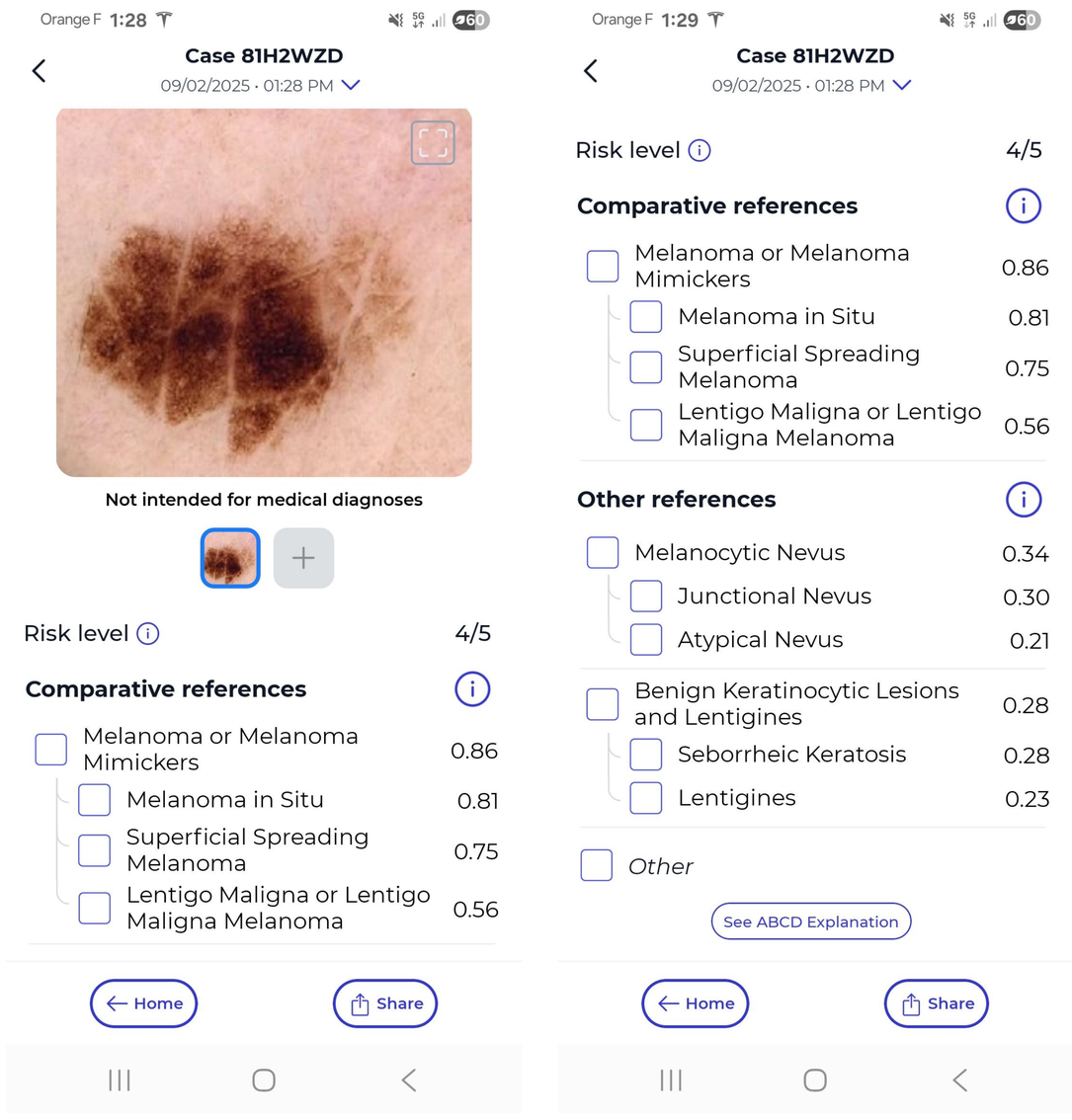
Towards Robust Skin Lesion Classification: Lesion Segmentation, Mole Collision Simulation and Hierarchical learning

Hang Nguyen, Paul Fricker, Marianne Defresne, Frederik Pahde, Serena Bonin, Jonathan Wolfe, Eros Azzalini, Iris Zalaudek, Skye Tanzmann, and Zung Nguyen

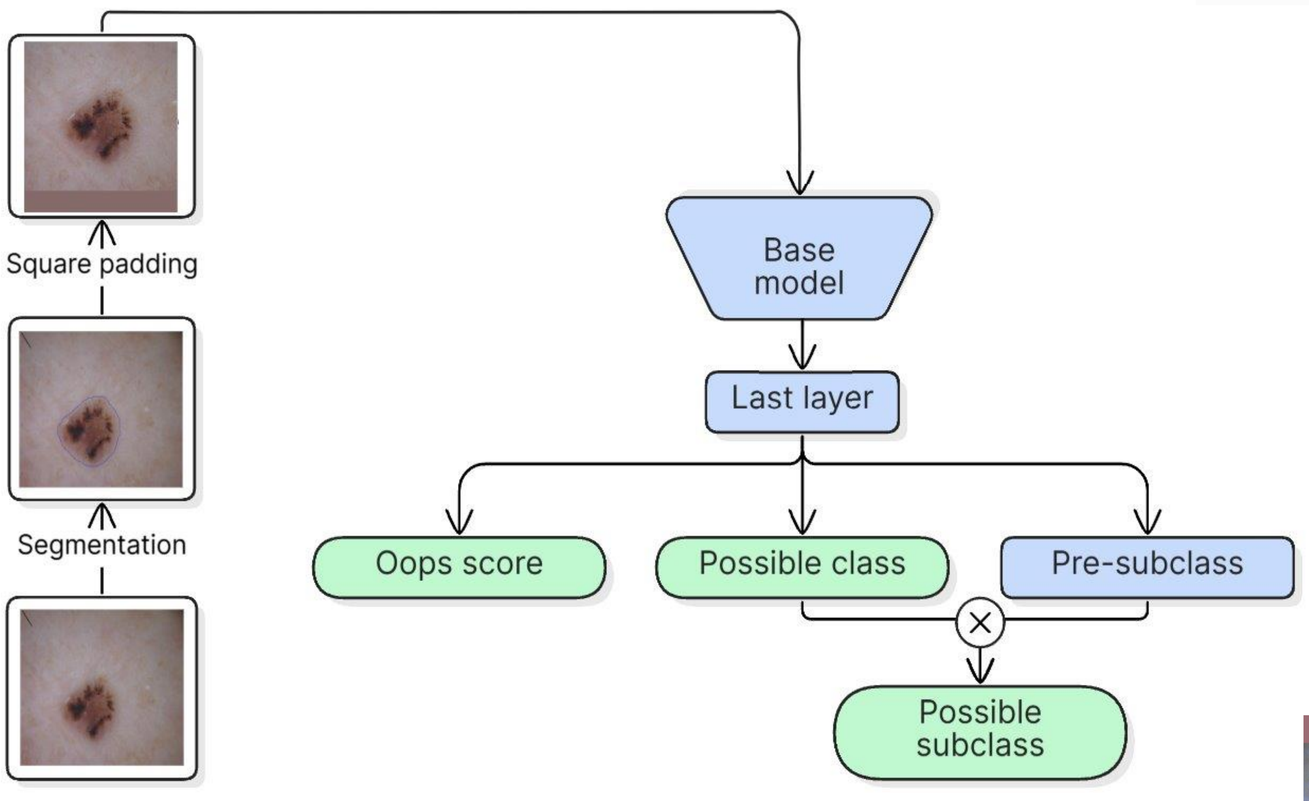
Available on the App Store

GET IT ON Google play

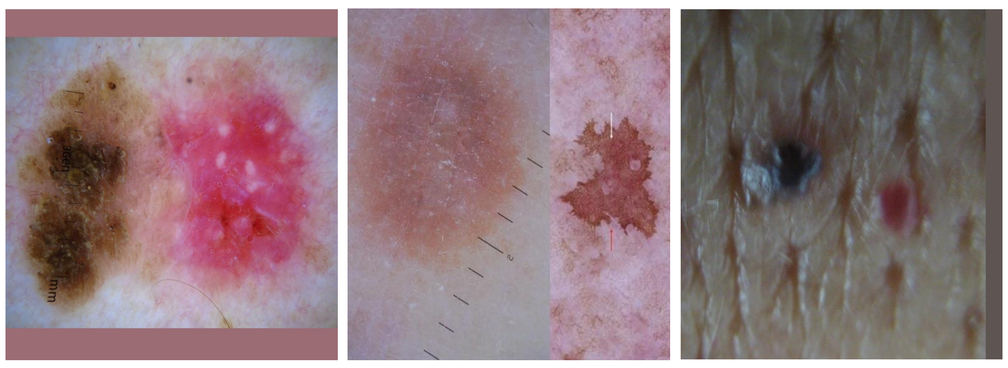
Dermoscopy AI



Dermoscopy AI Design



Subclass based on:
- Cell type
- Severity level or stage
- Pigmentation description
- Other geometric features, including the location of the lesion



Example of collision. (L) BCC and BKL. (C) BCC and VASC. (R) synthetic collision DF and BKL.

Evaluation on Itobos dermoscopic data

Class	MEL	MEL	BCC	SCC	AK	NV	BKL	DF	VASC	Others
AUROC - Kaggle		0.91	**0.97**	**0.96**	0.95	0.93	**0.95**	**0.98**	**0.98**	0.71
AUROC - Ours		**0.92**	0.96	**0.96**	**0.96**	**0.97**	**0.95**	0.96	0.96	**0.88**
Threshold	**0.3**	**0.5**	**0.5**	**0.3**	**0.3**	**0.7**	**0.50**	**0.2**	**0.2**	**0.2**
Sensitivity (%)	95	87	85	91	87	88	80	85	87	80
Specificity (%)	62	81	95	92	93	93	96	98	98	82
# Images	868	868	697	211	148	2422	283	46	85	134