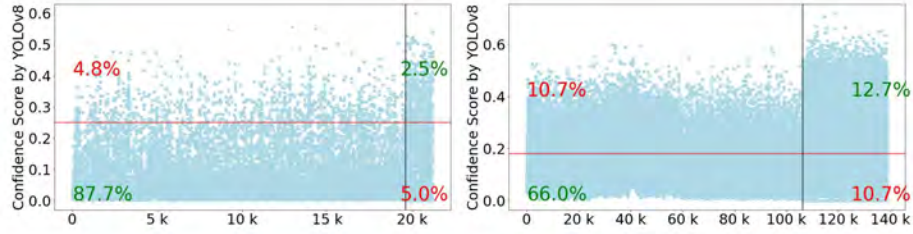


**Fig. 1.** Acne classification model with two inputs: images and region of interest (ROI) and three outputs. After each outputs goes through a Conv+Res block, we multiply them together to let the model focus on the center part. Then we use the Xception encoder and finally three Dense heads for the three outputs.

**Table 1.** Summary of all datasets used in this paper. Scoring data was cropped from a part of AcneAI seg. data. Number of lesions in segmentation data was computed using algorithm described in Section 2.2.

Dataset	AcneAI seg. data	Scoring data	Acne04	Acne04 v2	Clinical data
No. of images	901	12682	1457	1203	768
No. of lesions	37940	12682	18963	32376	1584
Use for	Train seg. model	Train scoring model	Test	Test	Test



**Fig. 2.** Graphs show the score distribution of YOLOv8 on the clinical dataset (left) and Acne04 v2 (right). The horizontal red line is an example of thresholds.

**Table 2.** Comparison between AcneAI and other approaches

	Wu, X., et al. [10]	Huynh, Q.T., et al. [14]	Shen, X., et al. [16]	Yang, Y., et al. [17]	Wang, J., et al. [20]	Wen H., et al. [21]	J. Wang et al. [22]	AcneAI
Acne counting	✓	✓			patch counting ( $\geq 1$ acne by patch)	✓		✓
Acne severity	✓	✓		✓	✓	✓	✓	✓
Acne area							total area for each type	✓
Classify into sub-types		4 types	7 types		5 types		4 types	8 types
Acne detection		✓					✓	✓
Works with smartphone images	✓	✓			✓	✓	✓	✓
Full flow from facial image to severity	✓	✓		✓			✓	✓
Handle missing annotation								✓
Severity assessment uses	number of acne	acne type, number of acne		whole image	acne type, patch counting	No. of acne	area of each acne type	No. of acne, acne type, acne area
Require work from doctors	all by doctors	all by doctors	all by doctors	all by doctors	all by doctors	all by doctors	all by doctors	only classification