Guided Interpretable Facial Expression Recognition via Spatial Action Unit Cues

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Poster: #29

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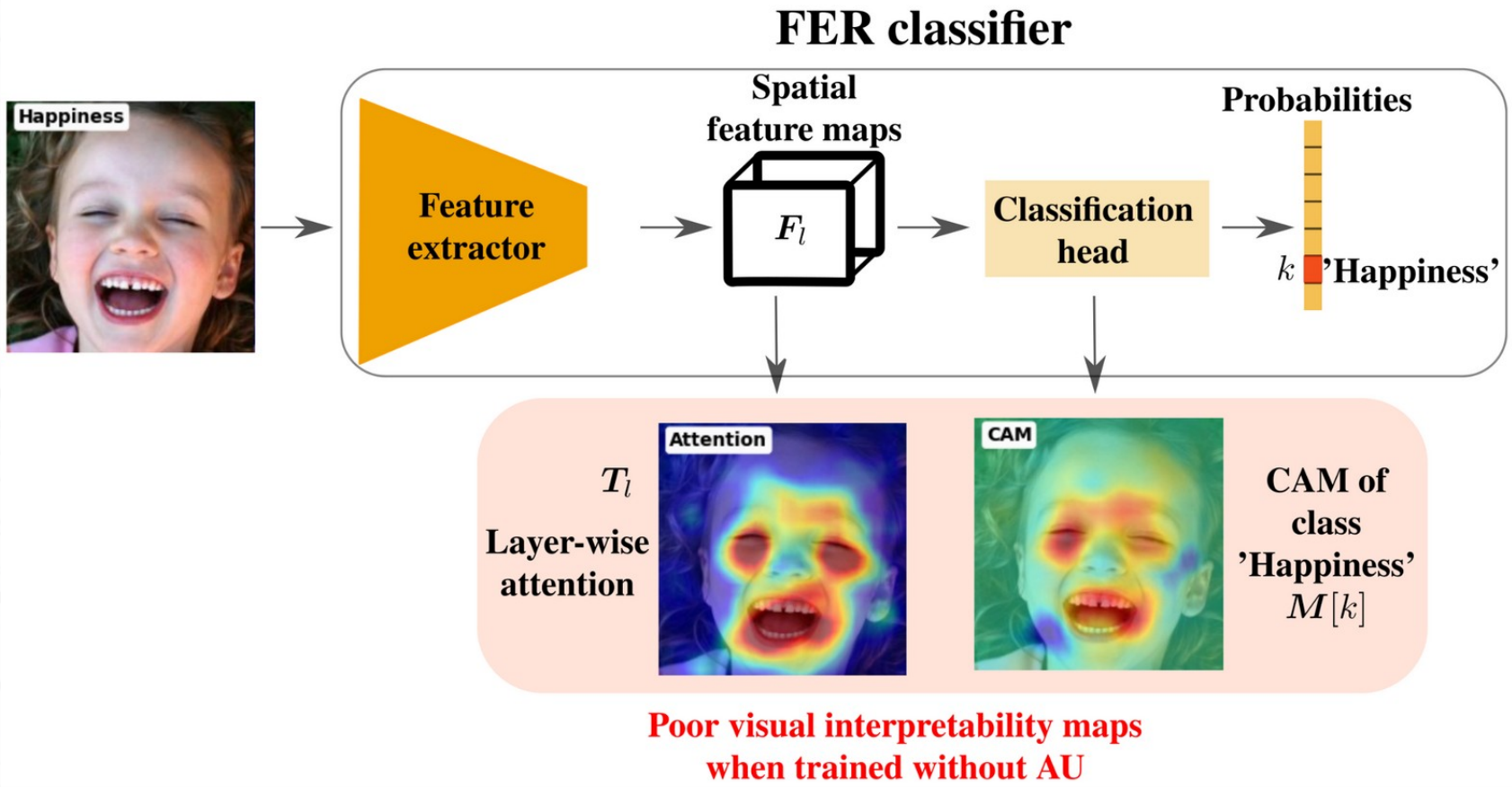
Context / Problem



- Facial expression recognition (FER) models lack interpretability
- Gaol: build **intrepretable FER deep classifier via Action Units**

Proposal

Happiness:
AU6 Cheek Raise
AU12 Lip Corner Puller
AU25 Lips Part

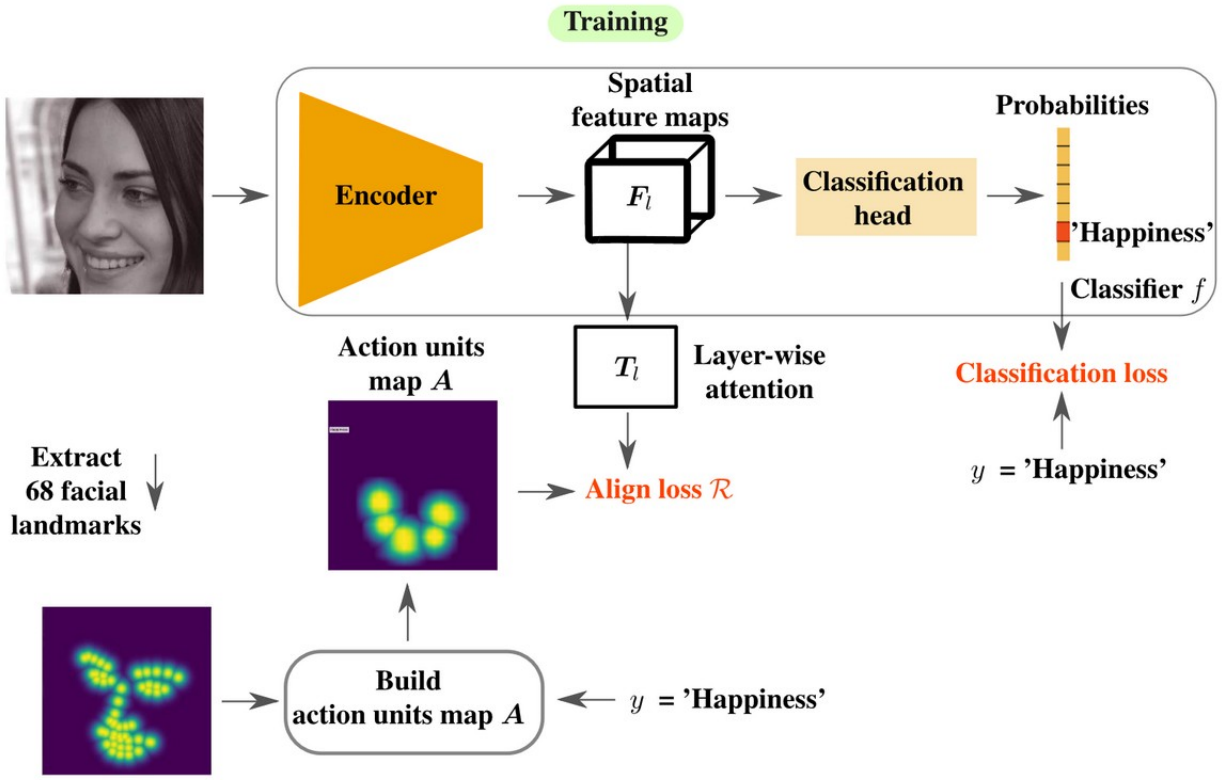
- **Use standard codebook: Basic facial expressions → Action units**
- **Training: Requires only image class to build AU maps.**

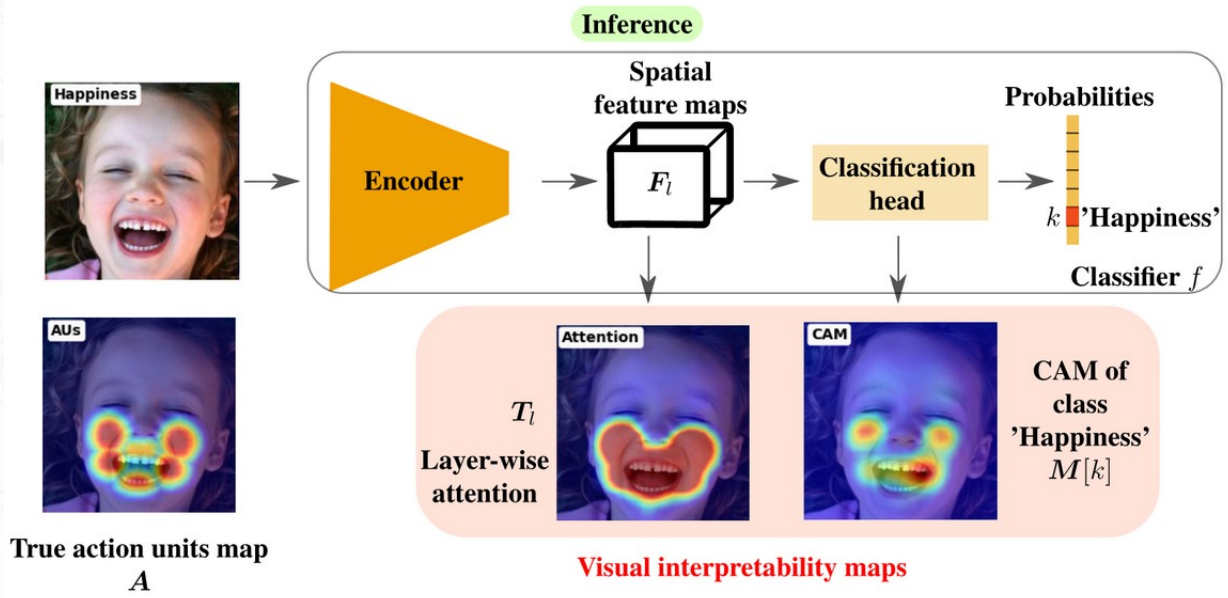
Proposal

$$\min_{\boldsymbol{\theta}} \; -\log(f(\boldsymbol{X};\boldsymbol{\theta})_y) + \lambda(1 - \mathcal{R}(\boldsymbol{T}_l, \boldsymbol{A}))$$

Classification

Align attention with AUs map





Results: **Better interpretability!**

'Happiness'

W/o AUs

W/ AUs

AU map CAM Attention

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Code w/ pretrained weights: https://github.com/sbelharbi/interpretable-fer-aus

For more discussions, please visit us at **Poster #29**