Beyond the Mean: Modelling Annotation Distributions in Continuous Affect Prediction

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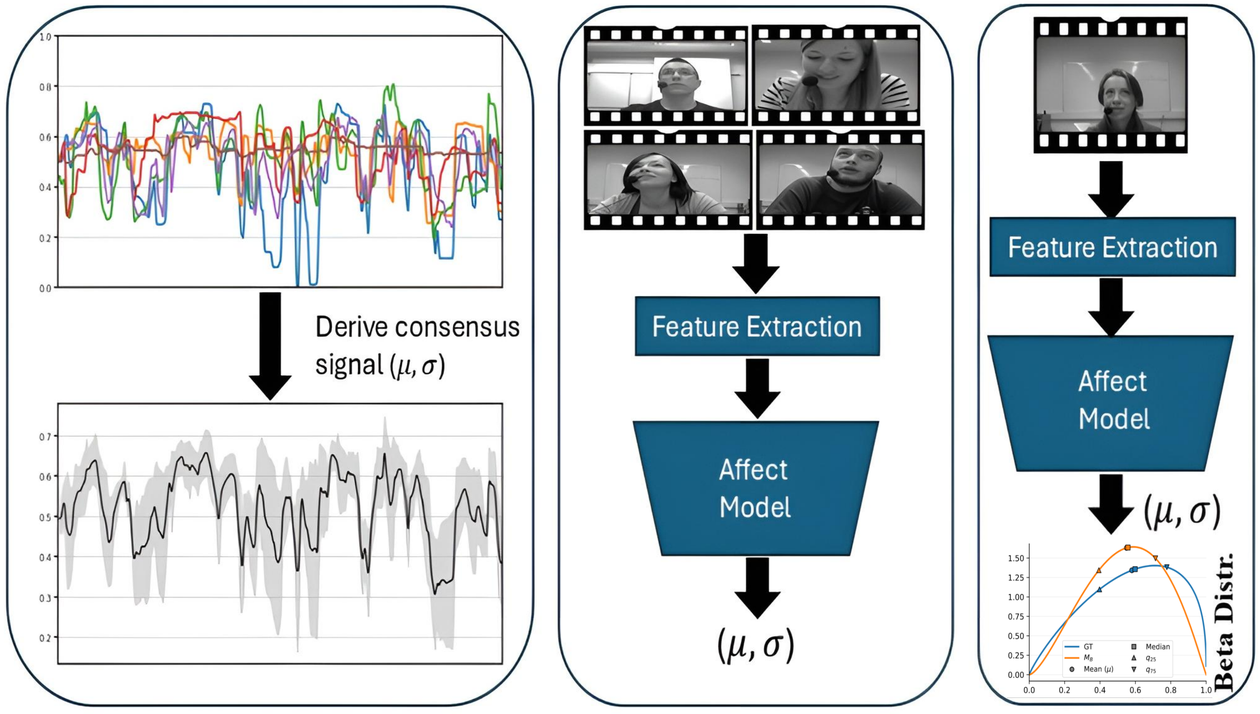
The Challenge

Continuous affect prediction **collapses annotations into single-point estimates** discarding valuable information about annotator disagreement, uncertainty, and distributional characteristics

Contributions

- Distribution Modelling via moment matching
- Captures variability across annotators
- High-order descriptor recovery

Framework Overview



Results

RECOLA		Arousal		Valence	
Modality	Descriptor	B	M	B	M
Audio	median	0.16	**0.18**	0.50	**0.52**
	q75	0.10	**0.13**	**0.45**	0.44
	q25	0.12	**0.18**	0.50	**0.53**
	skew	-0.02	**0.01**	-0.01	**0.03**
	kurt	**0.05**	-0.01	**0.04**	0.02
Fusion	median	0.30	**0.31**	0.44	**0.48**
	q75	0.23	**0.25**	0.39	**0.40**
	q25	**0.26**	0.24	0.48	**0.51**
	skew	0.02	**0.02**	0.01	**0.01**
	kurt	**0.06**	0.01	**0.02**	0.01

RECOLA		Arousal		Valence	
Modality	Model	$\mathcal{U}$	$\mathcal{B}$	$\mathcal{U}$	$\mathcal{B}$
Audio	M_I	13.59	**0.64**	5.97	**0.53**
	M_S	13.18	**0.62**	5.90	**0.55**
	M_F	13.77	**0.64**	5.87	**0.57**
Fusion	M_I	16.87	**0.78**	6.18	**0.61**
	M_S	15.73	**0.75**	5.89	**0.60**
	M_F	16.00	**0.76**	6.46	**0.63**

Conclusions

- Matches empirical distributions without performance loss
- Shows potential for modeling subjectivity in AC tasks

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