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Title of the paper: An Automated Workflow for Deepfake Detection

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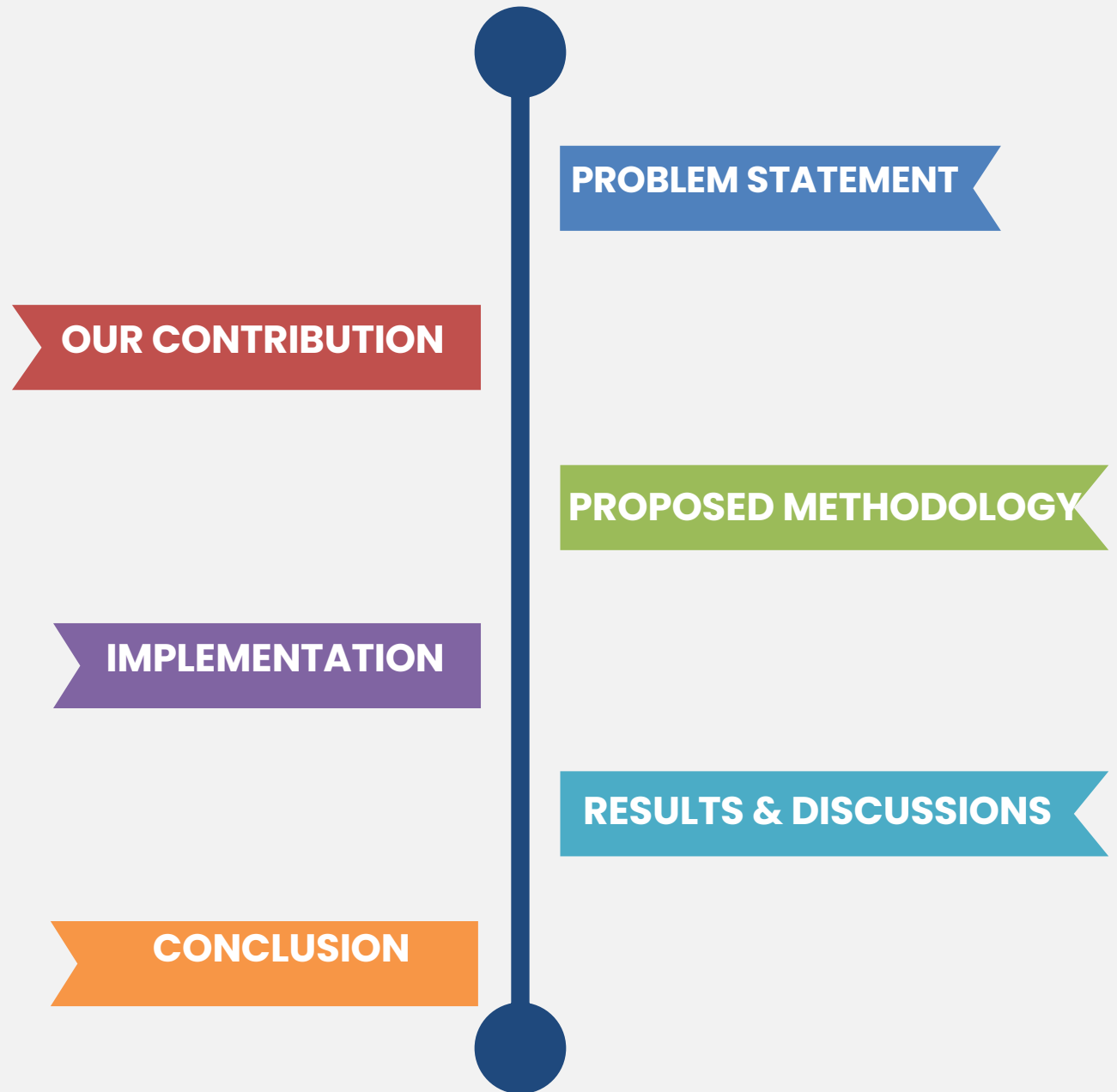Author Affiliations: PES University

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An Automated Workflow for Deepfake Detection

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PROBLEM STATEMENT

The advent of AI has surfaced many concerns around destructive activities such as **misinformation** & defamation of individuals using **deepfake** videos and images. The instant dissemination of information necessitates the need of a robust framework that could detect visual forgery and flag such content before it leads to harm to an individual or builds chaos on a global scale.
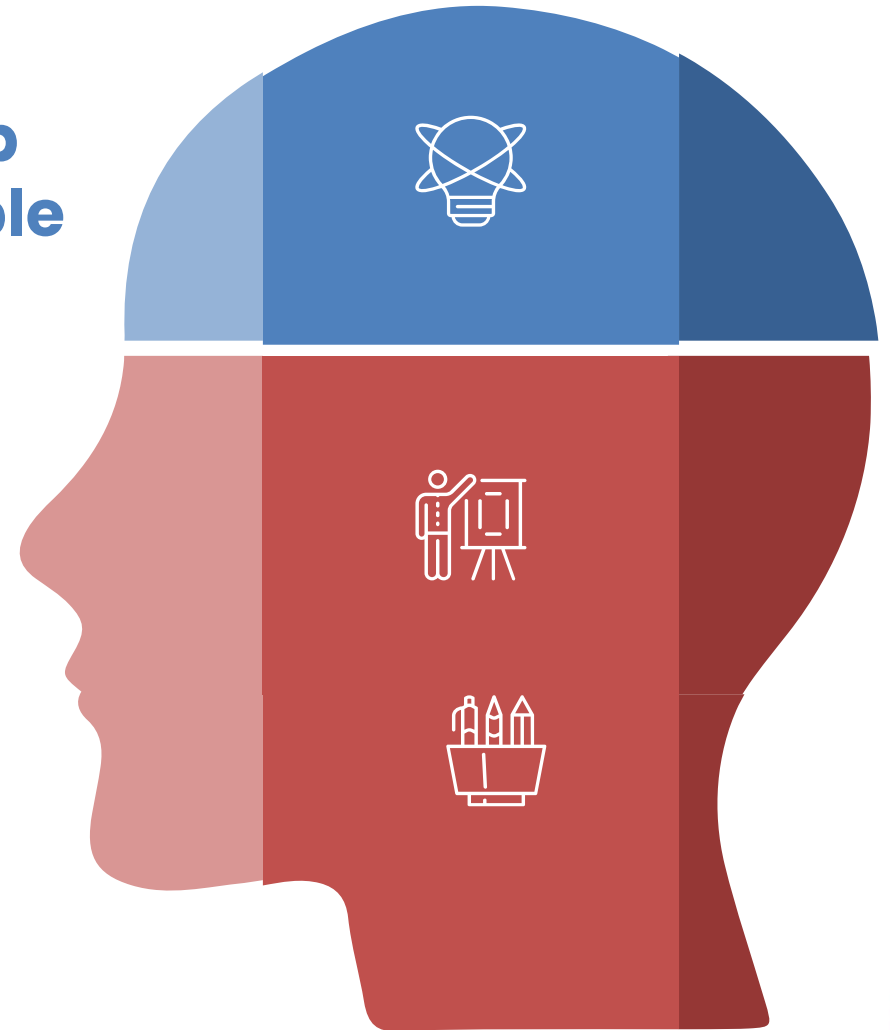
OUR CONTRIBUTION

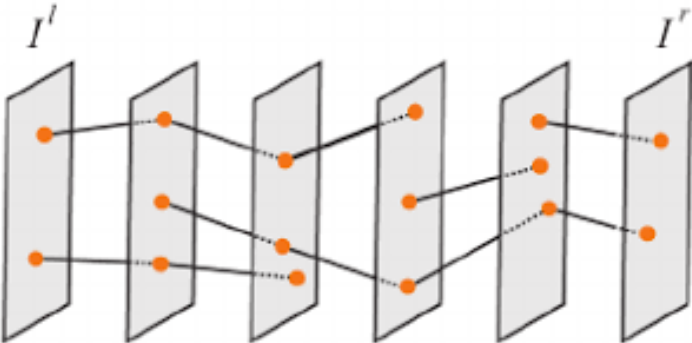**1** **Computationally cheap workflow with comparable performance to SOTA**

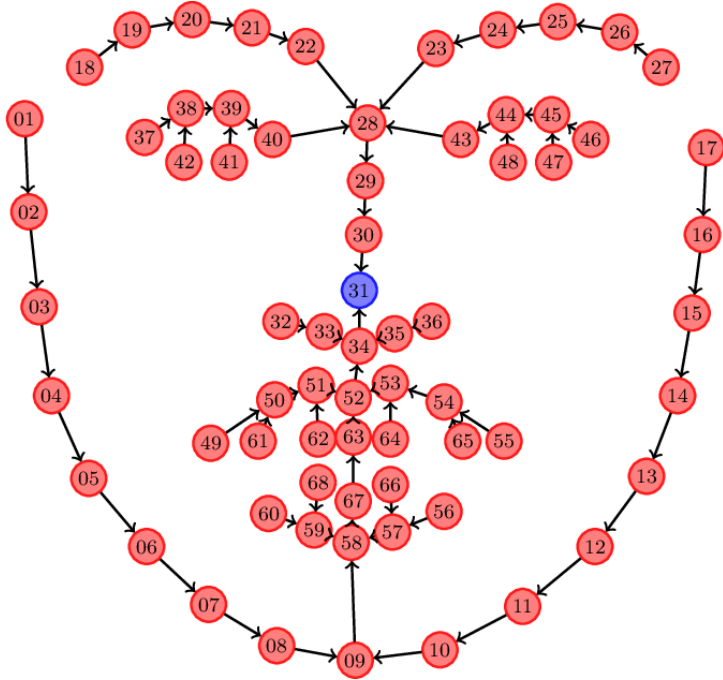**2** **A functioning implementation as a web app and API.**
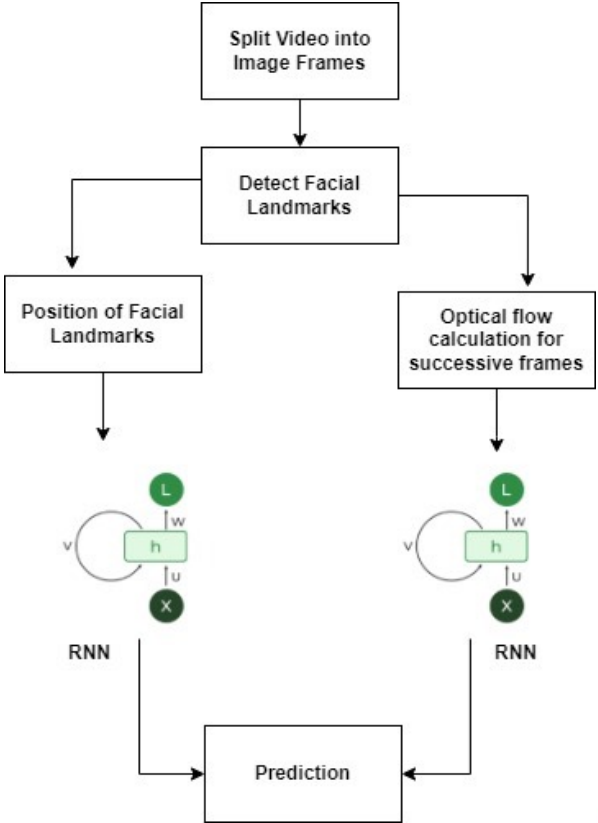
LINK TO CODE

PROPOSED METHODOLOGY

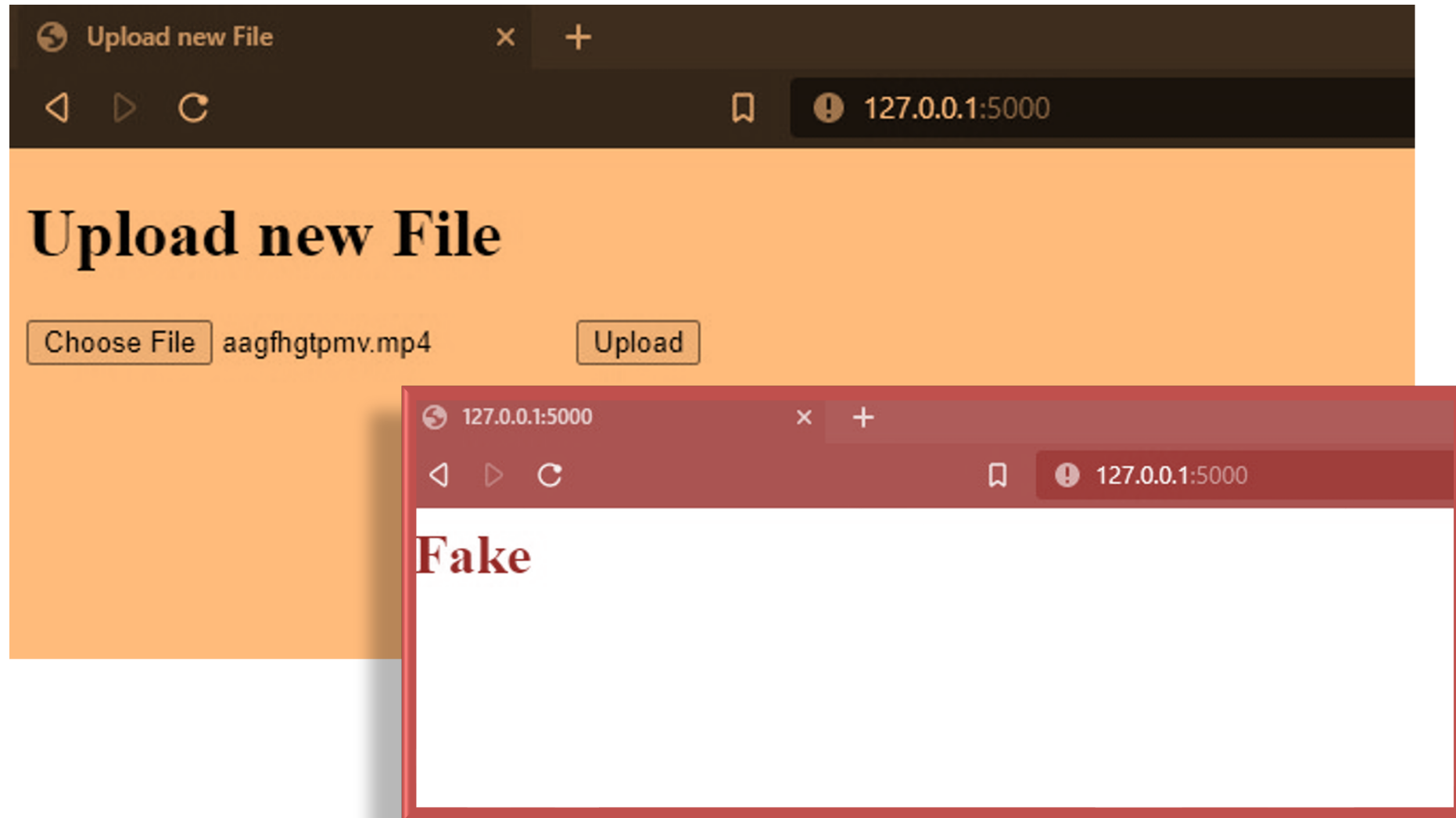**Optical Flow Across Frames**

68 Facial Landmarks

Workflow

IMPLEMENTATION

RESULTS & DISCUSSIONS

112X   112x Lesser trainable parameters than DSP-FWA.

104X   104x Lesser trainable parameters than FWA.

84X   84x lesser trainable parameters than Xception Net.

RESULT TABLE

Parameter	Parameter	Data set			Data Augmentation
		UADFV	FF+	Celeb-DF	
MesoNet [1]	0.03M	84.30%	84.70%	54.80%	X
Two Stream [2]	--	85.10%	--	53.80%	X
FWA [5]	26M	97.40%	80.10%	56.90%	✓
Capsule [4]	15M	61.30%	96.60%	57.50%	X
Xception [3]	21M	80.40%	**99.70%**	48.20%	X
DSP-FWA [6]	28M	**97.70%**	93.00%	**64.60%**	✓
PROPOSED METHOD	0.25M	96.20%	99.30%	56.40%	X

CONCLUSION

Geometric features are effective in detecting forged videos.

The proposed approach offers a best of both world solution, guaranteeing comparable performance to SOTA methods with a significant reduction in model parameters.

This method depends on the accuracy of position of facial landmarks and more study is needed to improve this accuracy through denoising and alternative facial representations.

THANK YOU

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