

# Fingerprint Presentation Attack Detection: Generalization and Efficiency

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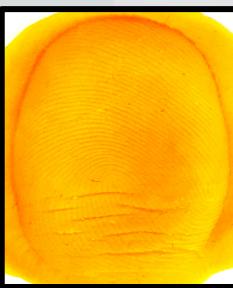
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Silicone



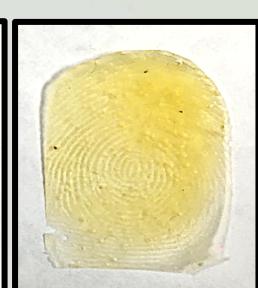
Dragon Skin



Play Doh



Gelatin



Wood Glue



Gold Finger



Monster  
Liquid Latex



Latex Body  
Paint



2D Printed  
Paper



2D Printed on  
Transparency



Conductive  
Ink on Paper



Universal  
Targets

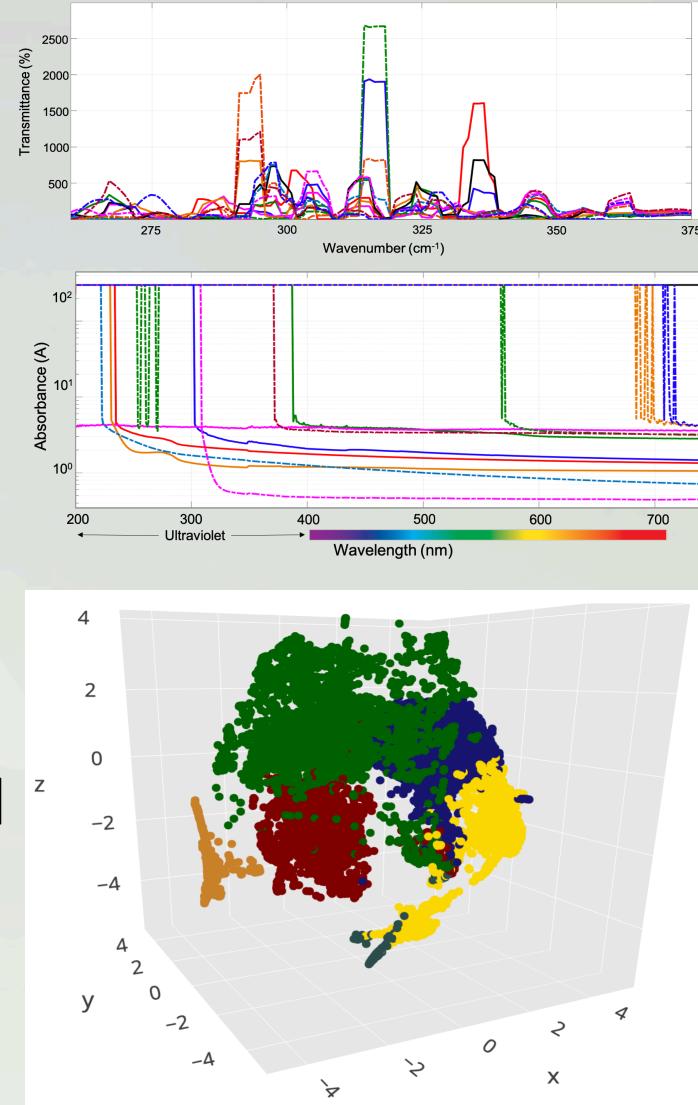
# Proposed Approach

## ➤ Generalization

- Evaluated leave-one-out performance of a SOTA spoof detector, *Fingerprint Spoof Buster*, using 12 materials
- Investigated material characteristics and 3D t-SNE CNN feature embeddings
- Identified a subset of representative PA materials to train a robust spoof detector

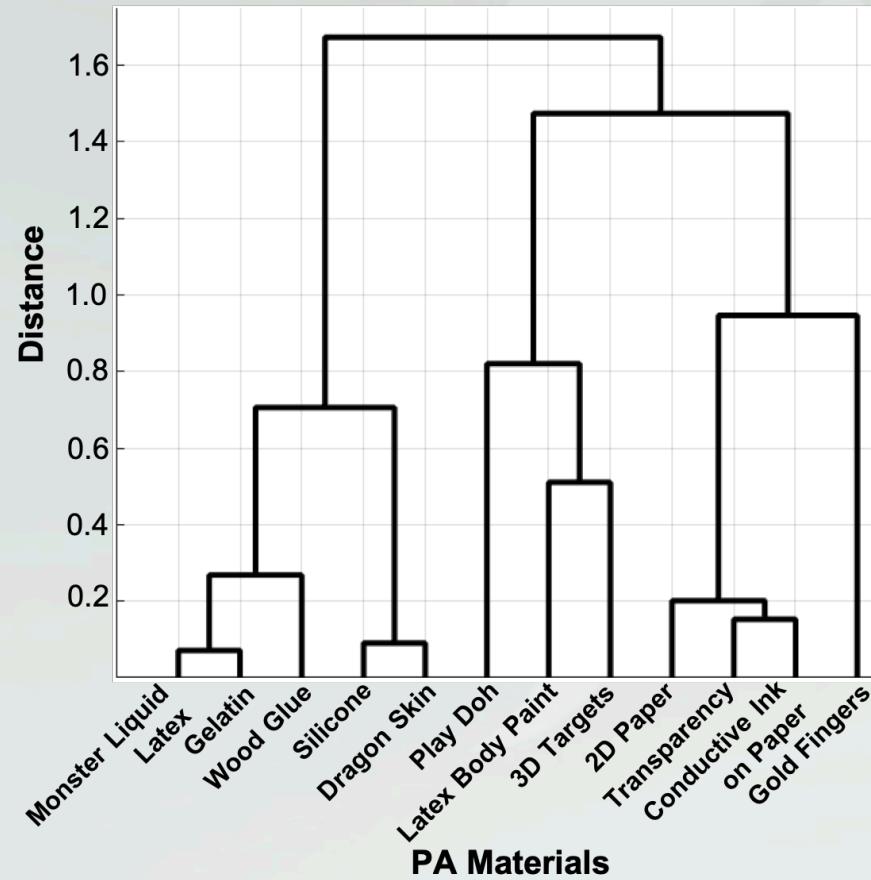
## ➤ Efficiency

- Quantization of CNN model for byte computations instead of floating-point
- Minutiae clustering followed by weighted score fusion to reduce redundant computations

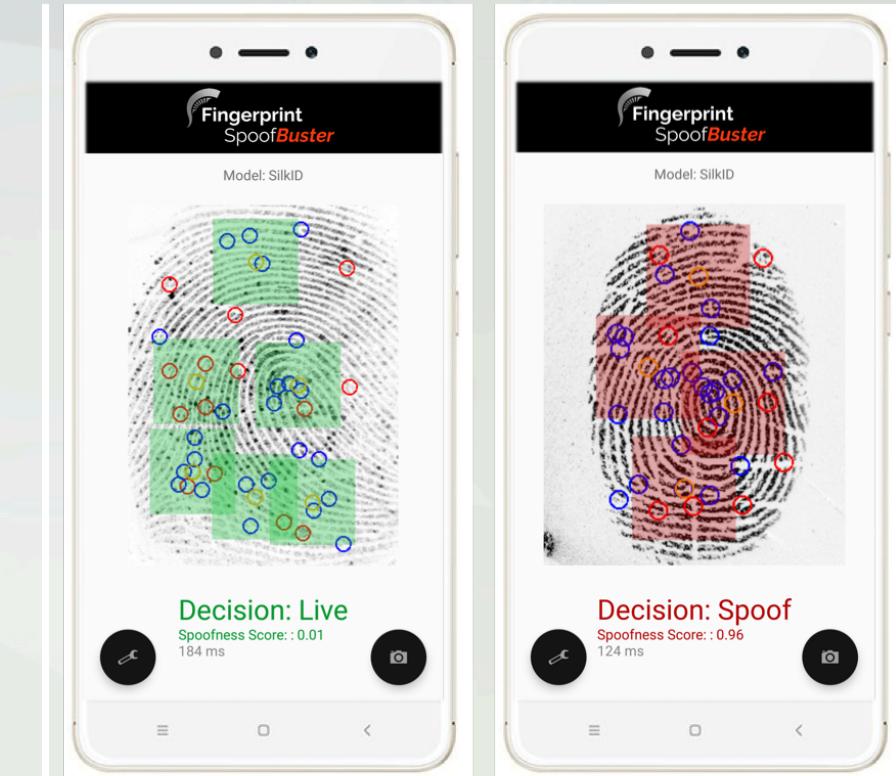


# Key Findings

Identified a subset of 6 materials that are essential to train a robust spoof detector



Developed an efficient spoof detector that can perform spoof detection in less than 100ms on a commodity smartphone



Check out the live demo at Poster #2 😊