

# Digital Image Processing For Facial Morphing Application

~2 | Years of relationship

## Business Problems

Client seeks to assist clinicians and patients with **remote clinical trial consultations** to detect and measure wrinkles, and view age progression images

Develop an **algorithm that localize subtle discontinuities/cracks in skin texture** caused by wrinkles across various skin surface texture and variable skin tone

Adopt a **deterministic approach**, incorporating prior knowledge about wrinkles and other factors to generate a **progression timeline** with significant accuracy

## CitiusTech Solution(s) & Value Delivered

- ▶ CitiusTech's team has engaged with both **domain and machine learning SMEs** to provide insights and anticipate continuing their engagement through the duration of the project
- ▶ Functional flow, ML algorithmic flow and technical architecture designed
- ▶ Building a **deterministic benchmarked algorithm** which can localize subtle discontinuities in skin texture
- ▶ **Prediction algorithm** that has been trained on extensive patient identity preservation & age classification
- ▶ Model evaluated against industry standard fairness metrics to avoid bias
- ▶ Baseline ML models, open-source libraries and public data sets



**70%**

*Accuracy in  
Wrinkle  
Detection*

**60%**

*Intersection  
n over  
Union*

**OpenCV,  
VGG16**

*& Custom built  
models used*