Motivation: Emoticons on Real Face!

Goal:
Fast and robust facial feature changing to visualize emoticon

Challenge:
Face feature replacement, stable tracking and performance

Algorithms / Tools Used

Face and Facial Feature Detection
• Used Haar Cascade Classifiers to detect face as well as facial features

Fast Real-Time Feature Tracking
• Face detection more stable than feature detection
• Use face detection as reference to make up for lost features in a frame

Facial Feature Replacement
• Before drawing emoticons, need to remove feature and fill with skin color
• Blend pixels close to skin color to avoid filling a “block” of solid color
• Gaussian blurring for smoother result

Workflow

Results

Device:
• Motorola Atrix
• 1GHz Dual Core
• 2G Memory
• 500 MP Camera
• Android 2.3.6

Performance:
• Features stably detected and tracked
• Running speed reasonable

Future Work
• Improve Blending Visual Effect
• Camshift Algorithm for Tracking
• Simple Emotion Detection

References

Face Features Detection with OpenCV.