Dynamic Lip-Flip Application
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Goals
Inspired by Lip-Flip sketch on Jimmy Fallon’s Tonight Show

Task: Create an entertaining Lip-Flip application using two webcams
• Dynamically determine and track mouth locations
• Swap opposing mouths and apply realistic blending in real time
• Application should be both fast and robust

Future Work
• Adjust color balancing to improve blending for participants with differing skin colors
• Improve face recognition for participants not looking straight at the camera
• Further reduce pipeline latency for smoother video

Data Pipeline

Raw Webcam Images
• Capture independent webcam video streams

Color Balancing / Gain Consistency
• Find SURF Keypoints (matched with RANSAC)
• Find best transform for color and brightness

Find Faces
• Locate faces using Haar Face Cascade
• Choose largest face if multiple are present

Find Mouth Within Faces
• Search only within bottom half of face
• Locate mouth using Haar Mouth Cascade

Swap Mouth Regions
• Flip corresponding mouths
• Scale to correct size

Blend Images
• Blend swapped mouths using Laplacian pyramid blending

Experimental Results

References

Special Thanks to Roland Angst for the inspiration behind this project