

A Real-Time Facial Pressure-Matrix Feedback System for Massage Skill Training



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Agenda

- Motivation
- Introduction
- System Architecture
- Data Processing and Feature Extraction
- Experimental Evaluation
- Results
- Conclusion

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Live Performance Heatmaps

Introduction



(a)

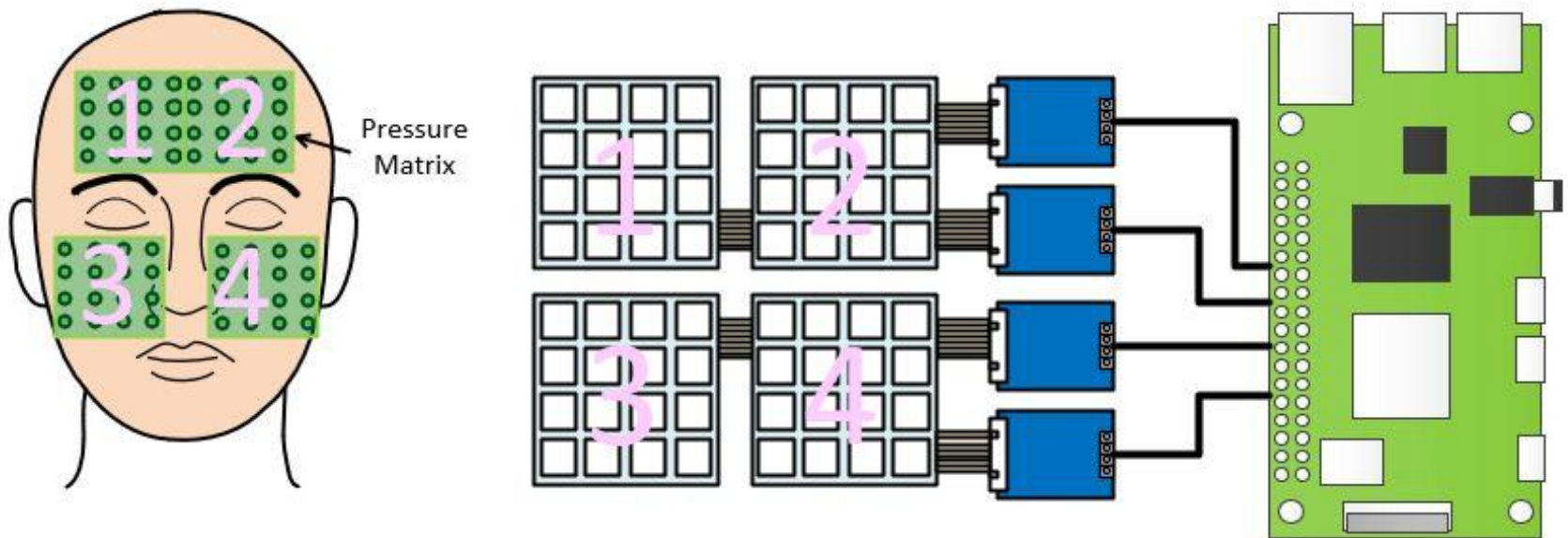


(b)

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(a) Traditional massage instruction relies on expert demonstration and imitation. (b) Practice mannequins provide positional training but lack force or motion feedback.

System Architecture



- 4 Hardware architecture of the proposed facial pressure-matrix feedback system.

Dara Processing and Feature Extraction

Stage 1:
Spatial
Smoothing

Stage 2:
Baseline
Calibration

Stage 3:
Visual Feedback
Mapping

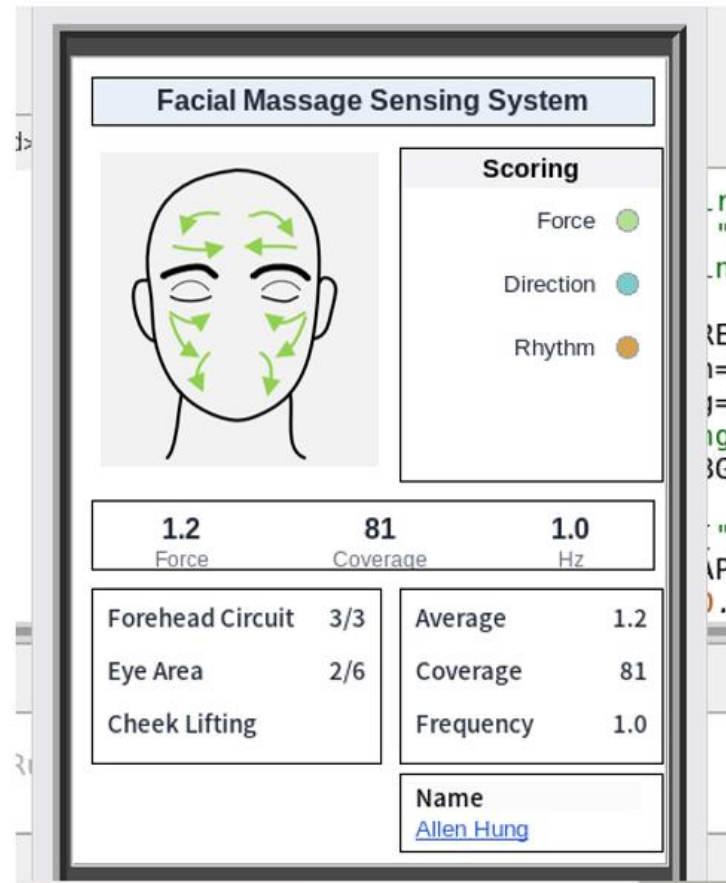
Stage 4:
Feature
Extraction

Four-stage processing pipeline

Experimental Evaluation

Metric	Evaluation Metrics		
	<i>Symbol</i>	<i>Description</i>	<i>Expected Expert Trend</i>
Force Magnitude	F	Average applied pressure	Stable, moderate
Directional Consistency	D	Variance of motion direction	Lower variance (more consistent)
Coverage Uniformity	C	Spatial distribution uniformity across the panel	Higher
Rhythmic Stability	R	Dominant tempo consistency (Hz)	Closer to target tempo (≈ 1.0 Hz)

Results



Conclusion

- Successful Development of a Quantifiable System
- Bridging the Gap Between Perception and Data
- Real-Time Feedback and Responsiveness
- Scientific Validation of Manual Techniques
- Future Development Directions

The background of the slide features a light blue gradient with abstract circuit board patterns and glowing white nodes connected by thin lines, creating a network-like effect.

Thanks for your attention !!

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