



On-device AI for Real-Time Emotion Detection

Enabling Inclusive and Privacy-First Public Services

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The Problem

Limited Access

Mental health support remains out of reach for millions in rural regions

Unawareness of Importance of Psychology

Public service systems lack the capability to understand and respond to citizens' emotional states

Privacy Concerns

Existing cloud-based AI systems raise significant data protection and surveillance issues



Current Solutions

Cloud-Based AI Systems

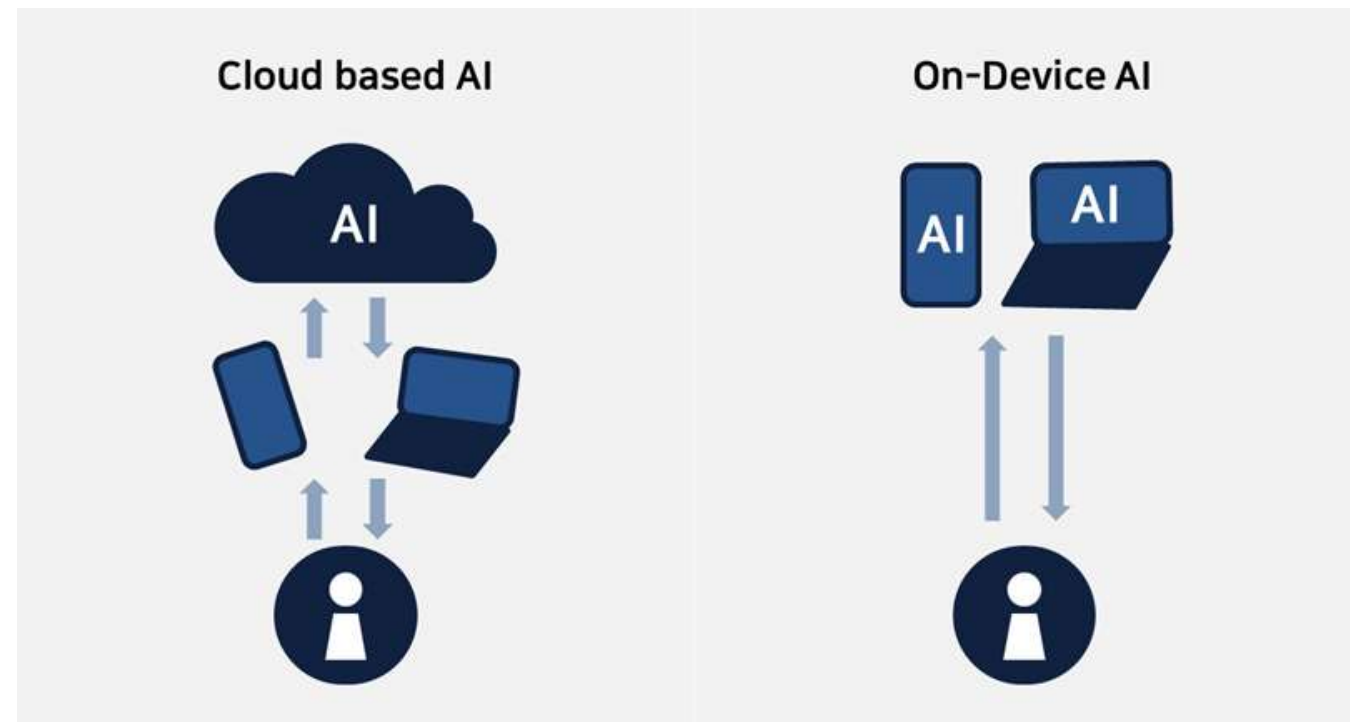
Emotion detection via cloud processing using camera, voice, and text analysis

- Internet Dependency

Requires constant connectivity, limiting accessibility in remote areas

- Privacy Risk

Personal data transmitted to servers creates security vulnerabilities



What is On-device AI?



Local Processing

AI runs directly on the device—phone, tablet, or PC—without external servers



Internet Optional

Functions offline or with intermittent connectivity, expanding accessibility



Real-Time Speed

Instant processing with no network latency, enabling immediate feedback



Enhanced Privacy

No data leaves the device, ensuring complete user control over sensitive information



Our Proposed Solution

Real-Time Emotion Detection

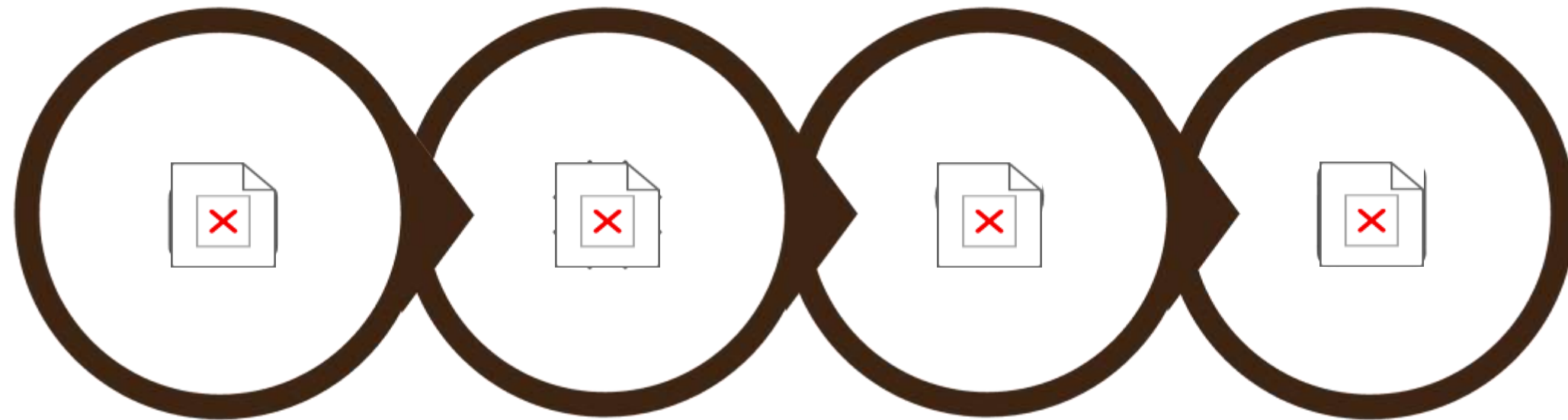
Advanced AI analyzes facial expressions, voice patterns, and text input—all processed locally on the device

- *Facial expression recognition*
- *Voice tone analysis*
- *Natural language processing*

Complete privacy: no data ever leaves the device



How It Works



Input

On-Device AI

Real-Time
Emotion

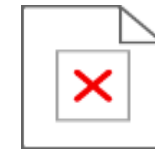
Feedback

Use Cases in Public Services



Mental Health Self-Check

Accessible tools for citizens to monitor emotional wellbeing in private, with guidance to professional resources when needed



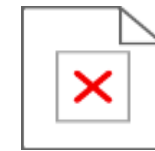
Student Stress Monitoring

Educational systems that identify struggling students early and provide timely support through counselors or adaptive learning paths



Telemedicine Support

Remote healthcare consultations enhanced by real-time emotional awareness, helping doctors better understand patient needs



Airports

At airports, citizens from other countries are tested using a device to assess their stress levels and determine whether they may be suspicious while entering the country.

Why It Matters for Inclusion



Offline Functionality

Works without internet, bringing services to rural and remote communities



Data Protection

Protects sensitive emotional data from unauthorized access and misuse



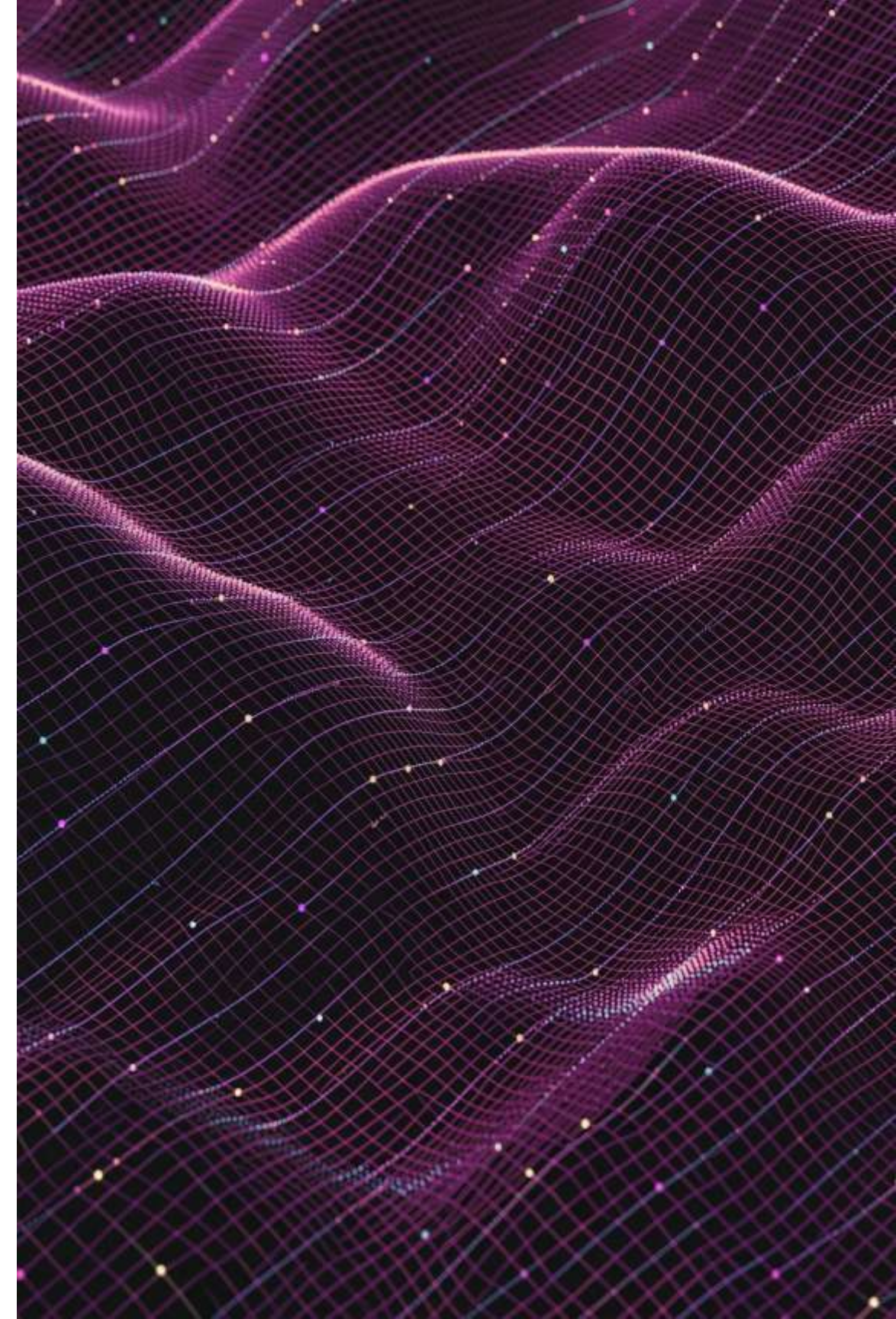
Trust Building

Builds citizen confidence in public systems through transparent privacy practices



Cultural Adaptation

Supports multilingual interfaces and local cultural expressions of emotion



AI Should Be Accessible, Private, and Inclusive



Vugar Aliyev

Together, we can build a future where technology serves humanity with compassion and respect for privacy.