# NURA

## AI Early Detection Assistant

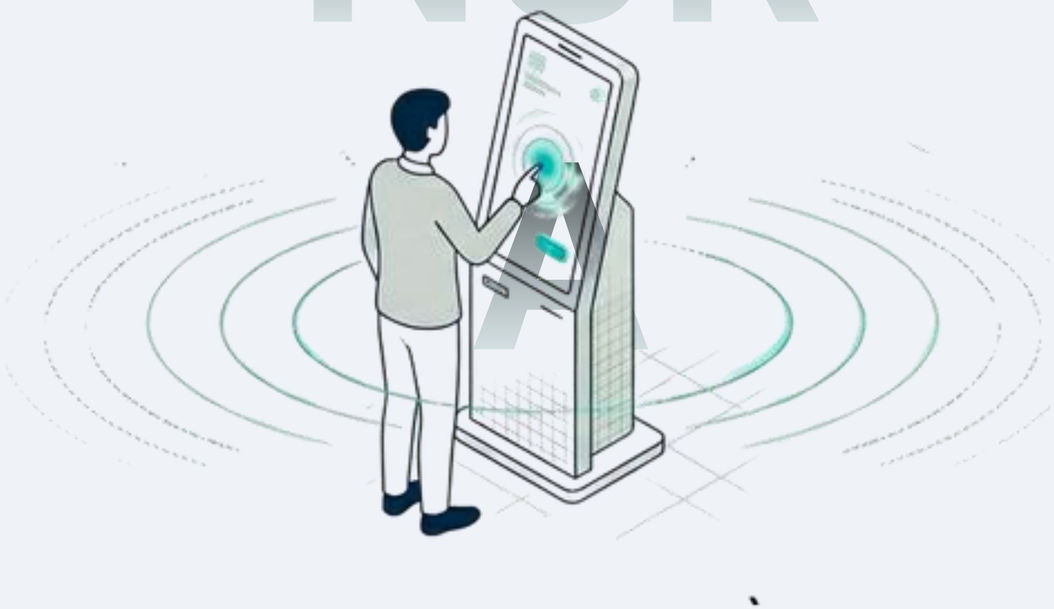
Detect earlier. Treat faster. Save lives.


gct solutions

Developed by GCT Solutions

# AGENDA

NUR

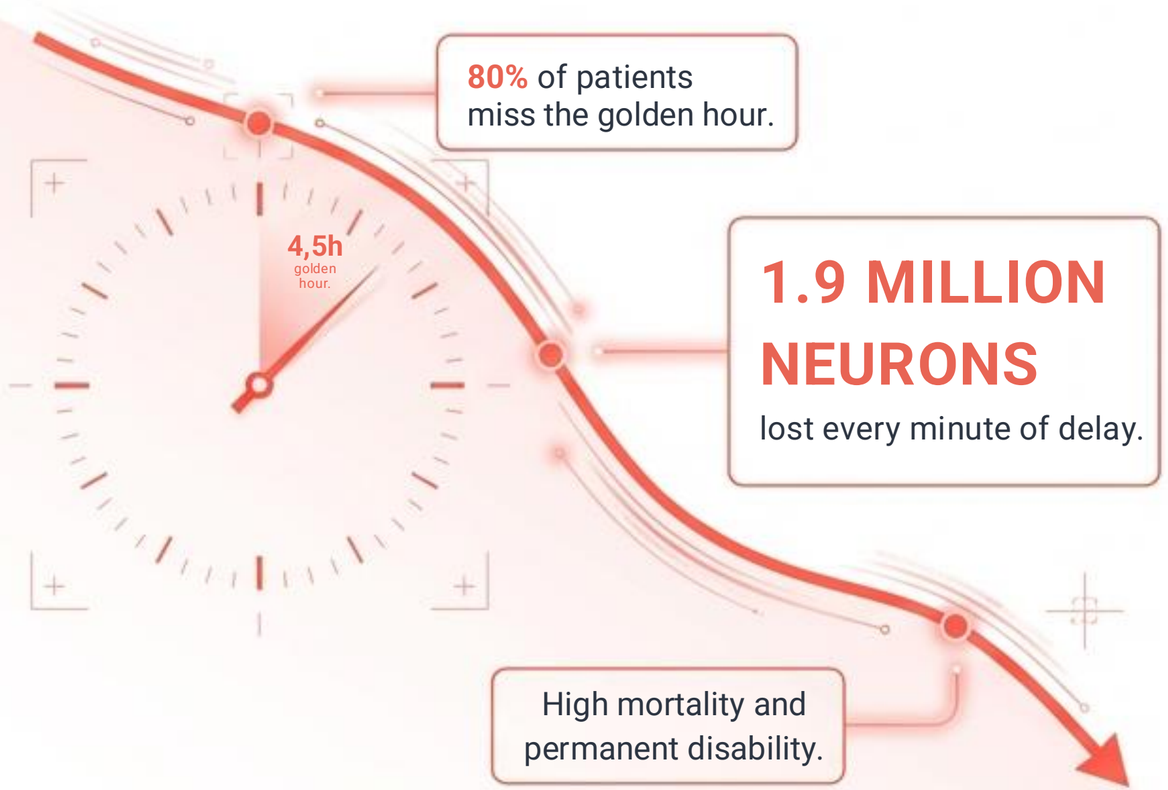


1. **The Problem & Market Opportunity**
2. **NURA Solution Overview**
3. **How NURA Works**
4. **Core Module 1: BEFAST** (Stroke Early Detection)
5. **Core Module 2: NIHSS** (Stroke Severity Assessment)
6. **Core Module 3: Autism Screening Mini-Game**
7. **Supporting Module: Health Tracking**
8. **Technology, Experience & Deployment**

# THE COST OF LATE DETECTION

The challenge is not diagnosis-it's the lack of scalable, early, and standardized screening.

## STROKE: THE GOLDEN HOUR




**80%** of patients miss the golden hour.

**1.9 MILLION NEURONS**

lost every minute of delay.

High mortality and permanent disability.

## AUTISM: EARLY INTERVENTION WINDOW

**~1M** children affected in Vietnam.

**INTERVENTION BEFORE AGE 3**

improves outcomes **by ~50%.**

Age 1

Age 2

Age 3

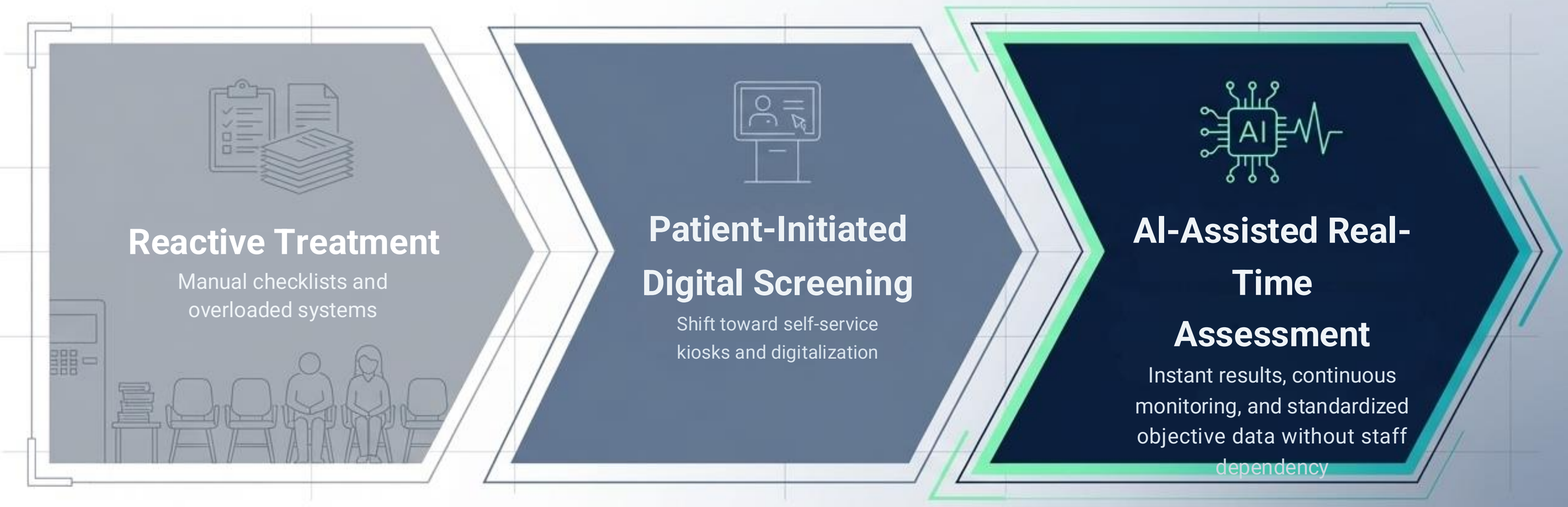
Age 4

Lifelong developmental delays due to subtle, easily missed behavioral signs.

# THE OPPORTUNITY

## Healthcare Is Shifting from Treatment to Early Detection

The demand for early screening is rising, and AI makes it possible - yet hospitals struggle to keep up

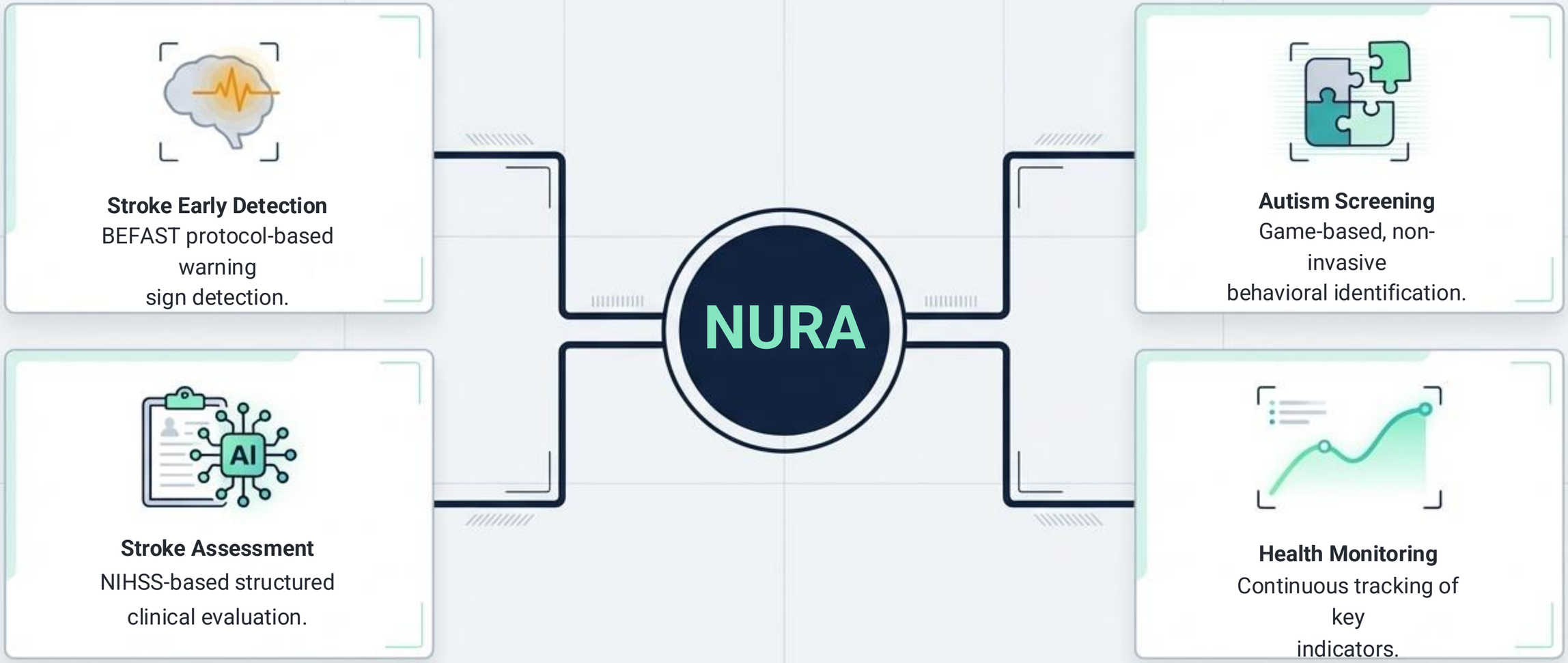



The opportunity is to deliver **fast, standardized, AI-assisted screening** - that scales with the needs of modern healthcare.

# Meet NURA

## Fast, accessible health screening at the point of care.

An AI-powered self-screening assistant that provides quick, structured insights without staff dependency.



# The NURA Workflow

NURA enables fast, structured screening by combining user interaction with real-time AI analysis - across different care settings.

**Step 1:**
**Access**

User selects screening module (Mobile, Tablet, Kiosk).

**Step 2:**
**Guided Interaction**

Simple step-by-step instructions (movement, speech, or game). Takes 2-5 minutes.

**Step 3:**
**AI Analysis**

Real-time processing of visual speech, and behavioral signals
,

**Step 4:**
**Result**

Generation
Structured outputs, risk indications, and supporting data.

**Step 5:**
**Clinical**

Review
Results passed to clinicians for faster, informed decision-making.

# NURA - Main Module

From Early Screening to Clinical Decision - Powered by AI

### BEFAST (Stroke Early Detection)

A widely used method to highlight early warning signs of stroke (Balance, Eyes, Face, Arm, Speech, Time).

- **Users:** Public (patients, caregivers)
- **Devices:** Mobile, Kiosk
- **Context:** Hospital, public, at-home
- **Role:** Enables fast, self-guided screening to support early awareness and timely follow-up

### NIHSS (Stroke Severity Assessment)

A clinical scale used to evaluate stroke severity through structured neurological assessment.

- **Users:** Clinicians
- **Devices:** Mobile, Tablet
- **Context:** Hospital
- **Role:** Provides standardized scoring (0–42) to support treatment decisions after stroke is suspected

### AUTISM SCREENING

A brief screening to identify early behavioral and communication signs in children.

- **Users:** Children (with caregiver support)
- **Devices:** Mobile, Tablet
- **Context:** Home, school, controlled environments
- **Focus:** Attention, eye contact, and response patterns
- **Role:** Enables early behavioral signs to support timely

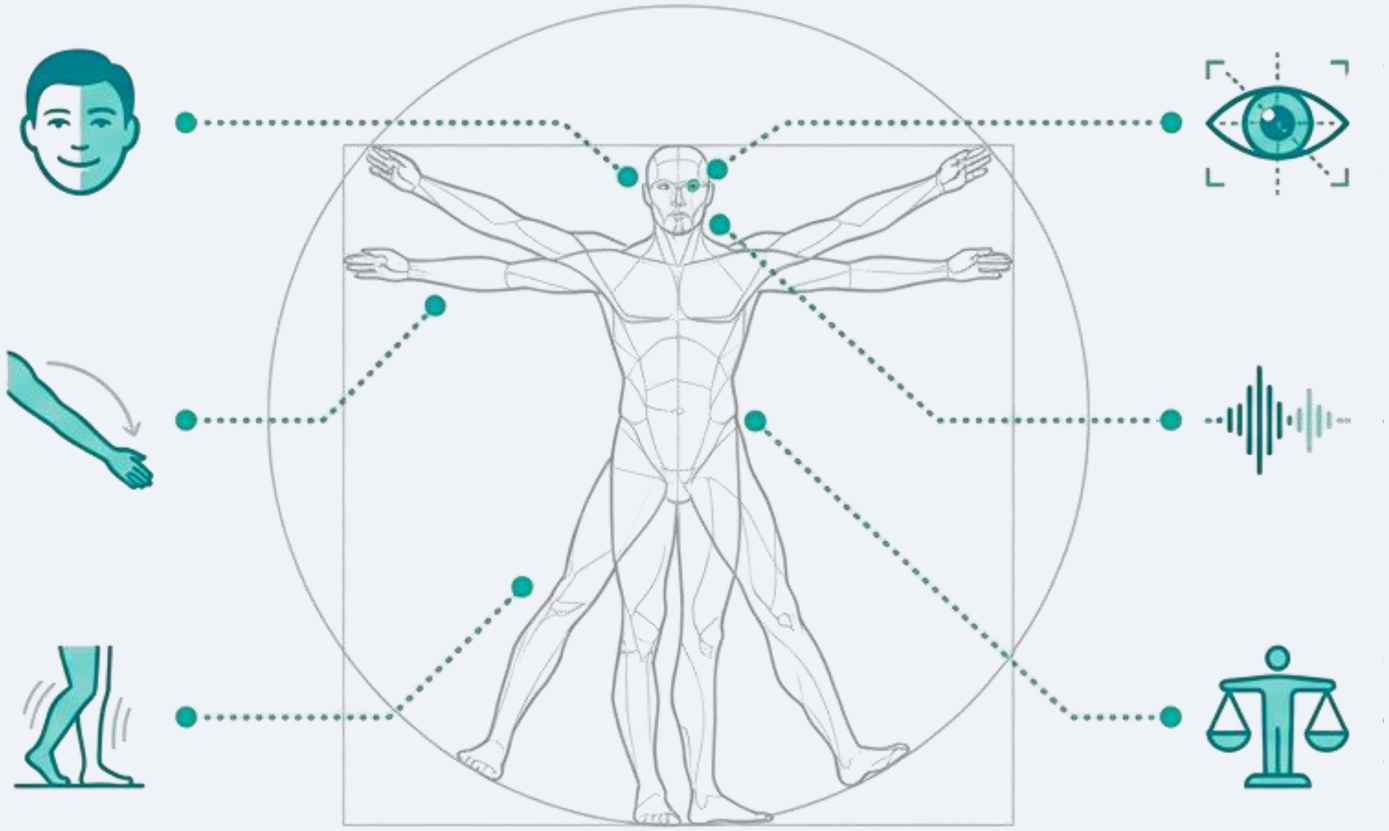
### Health Monitoring (Supporting Module)

Continuous tracking of key health indicators (BP, glucose, symptoms).

- **Users:** Patients / General users
- **Devices:** Mobile or integrated into hospital applications
- **Context:** Daily monitoring and clinical follow-up
- **Role**: Enables structured health tracking to support better clinical decisions over time

# CORE MODULE 1

# BEFAST



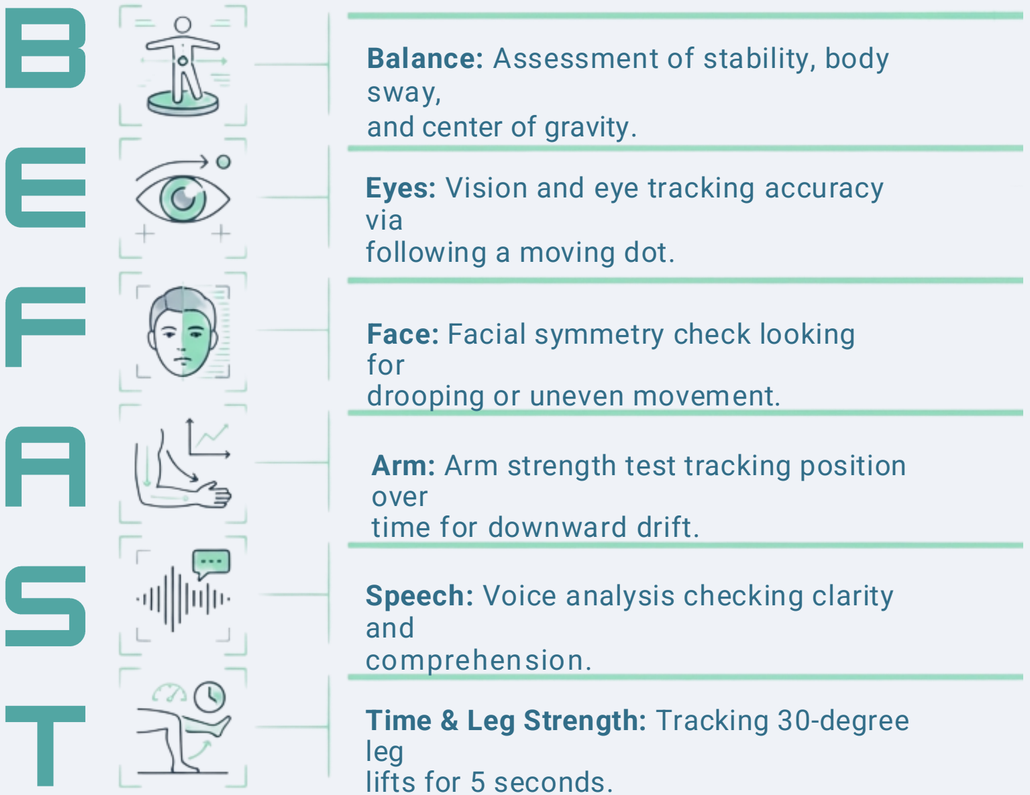
Core Module 1: BEFAST

# Using AI to Support Screening for Early Warning Signs of Stroke with the BEFAST Framework

- **Built on the BEFAST Protocol:** A widely used clinical approach to identify possible stroke signs.
- **How AI Makes a Difference**
  - Faster: Quick assessment in minutes
  - More Consistent: Same standard applied every time
  - More Objective: Data-driven results to support decisions

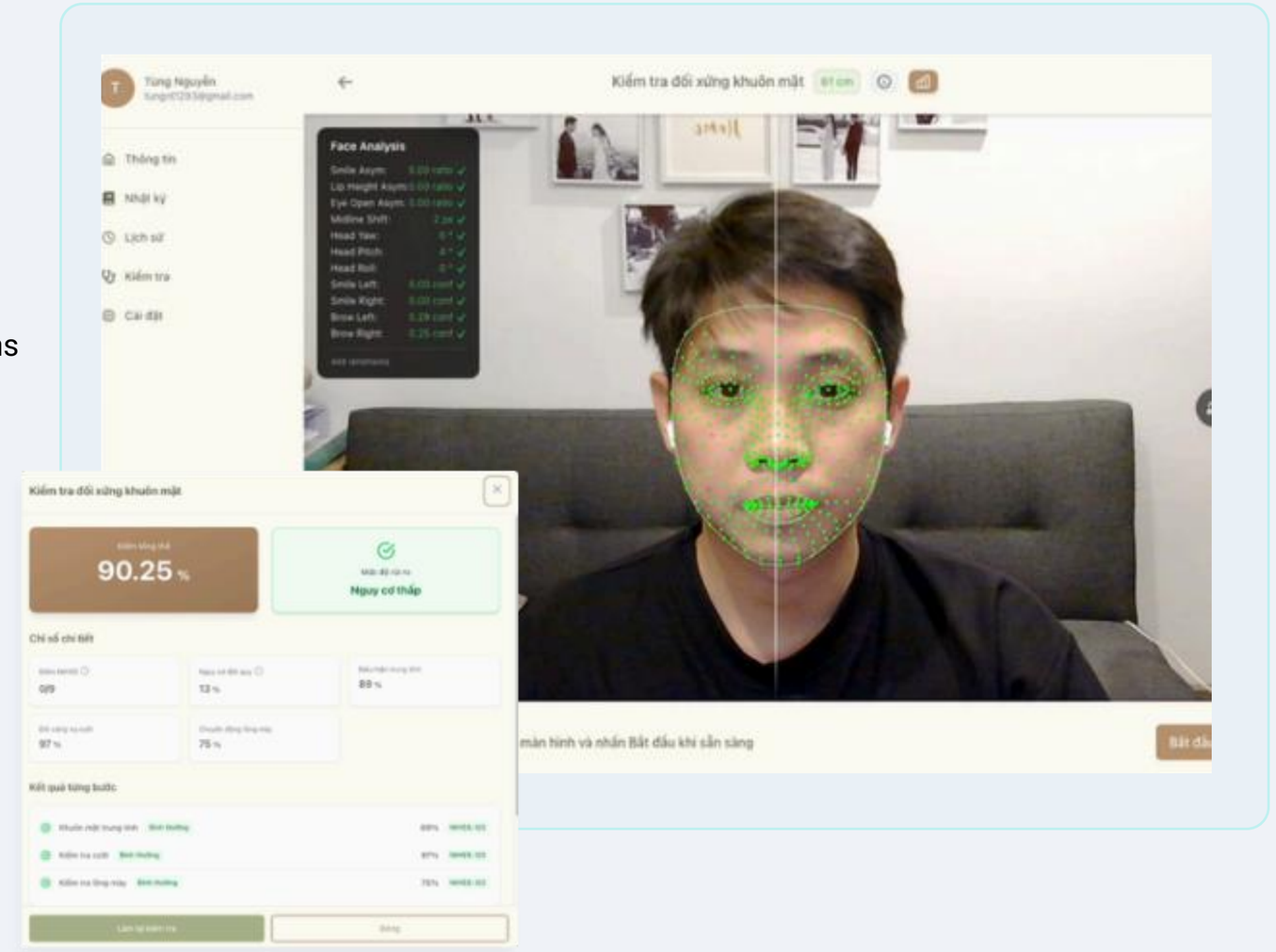
**6 test included:**

- Facial Symmetry Check
- Arm Strength Test
- Leg Strength Test
- Balance Assessment
- Speech & Cognitive Evaluation
- Vision / Eye Tracking



Core Module 1: BEFAST

# Facial Symmetry Check




**How the test works**

- The patient looks directly at the screen
- The system guides the user step by step with voice instructions
- The patient performs simple actions:
  - Keep a neutral face (3 seconds)
  - Smile and hold (3 seconds)
  - Raise eyebrows and hold (3 seconds)

**What AI analyzes**

- Compares left and right facial movement
- Detects asymmetry during expressions

**What the result shows**

- Normal symmetry vs. potential facial drooping
- Indication of potential warning signs

Core Module 1: BEFAST

# Arm Strength Test

**How the test works**

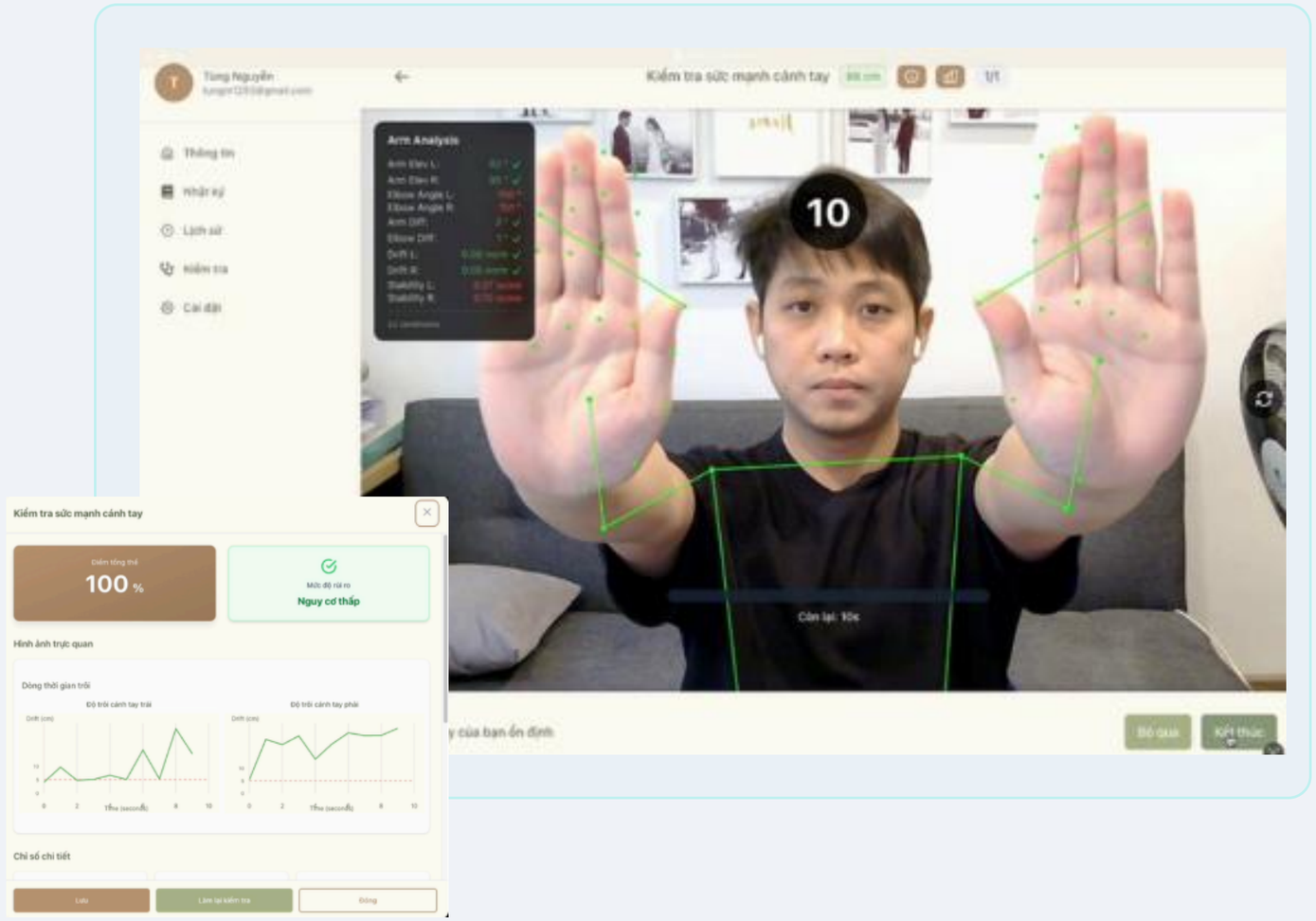
- The patient raises both arms in front of the body
- Holds position for 10 seconds
- Follows guided instructions on screen

**What AI analyzes**

- Tracks arm position over time
- Detects if one arm drifts downward

**What the result shows**

- Stability vs. weakness
- Differences between left and right arms



Core Module 1: BEFAST

# Leg Strength Test

**How the test works**

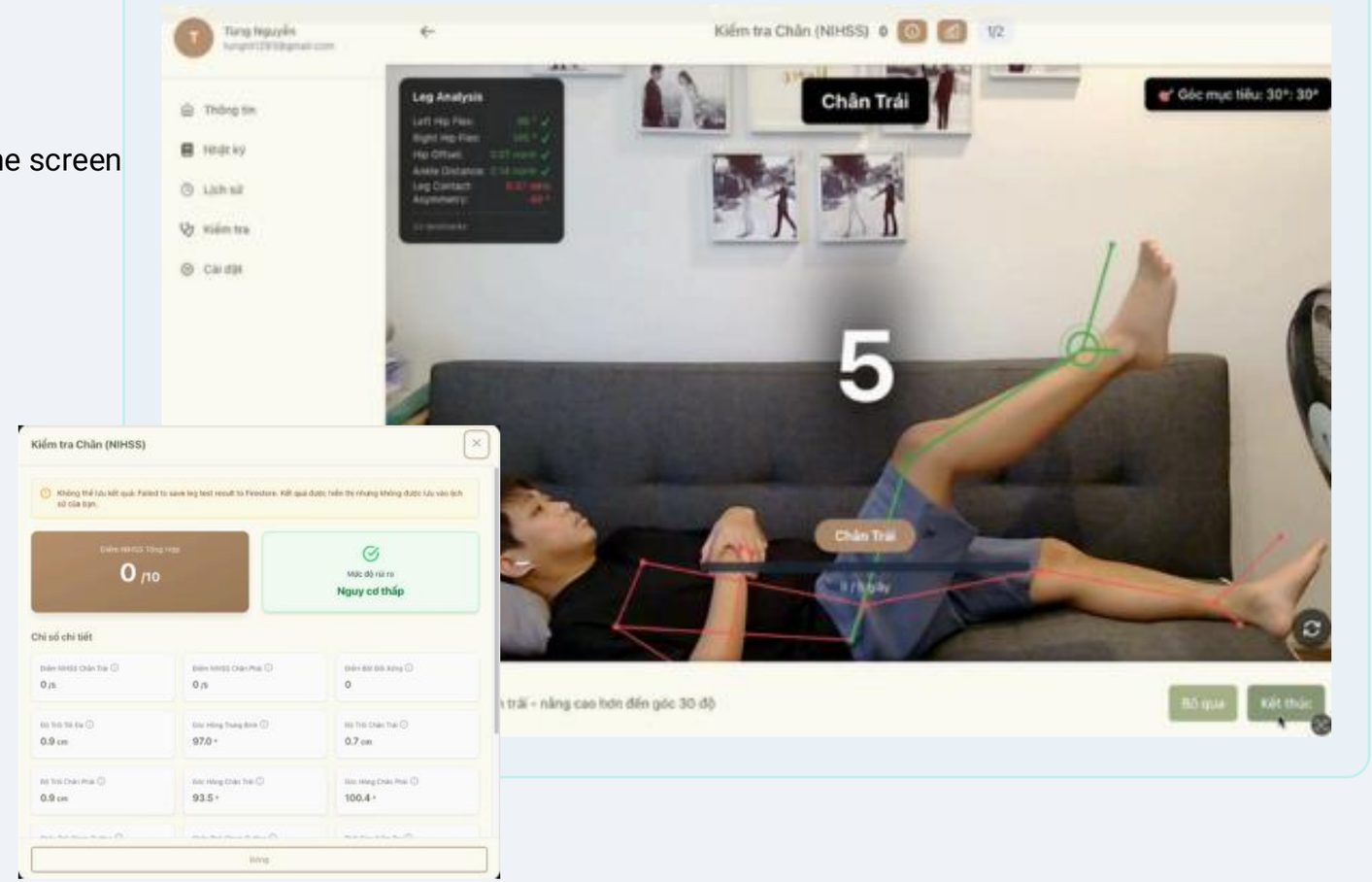
- The patient lies or positions body ~1.5–2 meters from the screen
- Lifts each leg to ~30 degrees
- Holds for 5 seconds, then switches legs

**What AI analyzes**

- Tracks leg height and stability
- Detects dropping or inability to hold position

**What the result shows**

- Muscle strength and control
- Signs of weakness or imbalance



Core Module 1: BEFAST

# Balance Assessment

**How the test works**

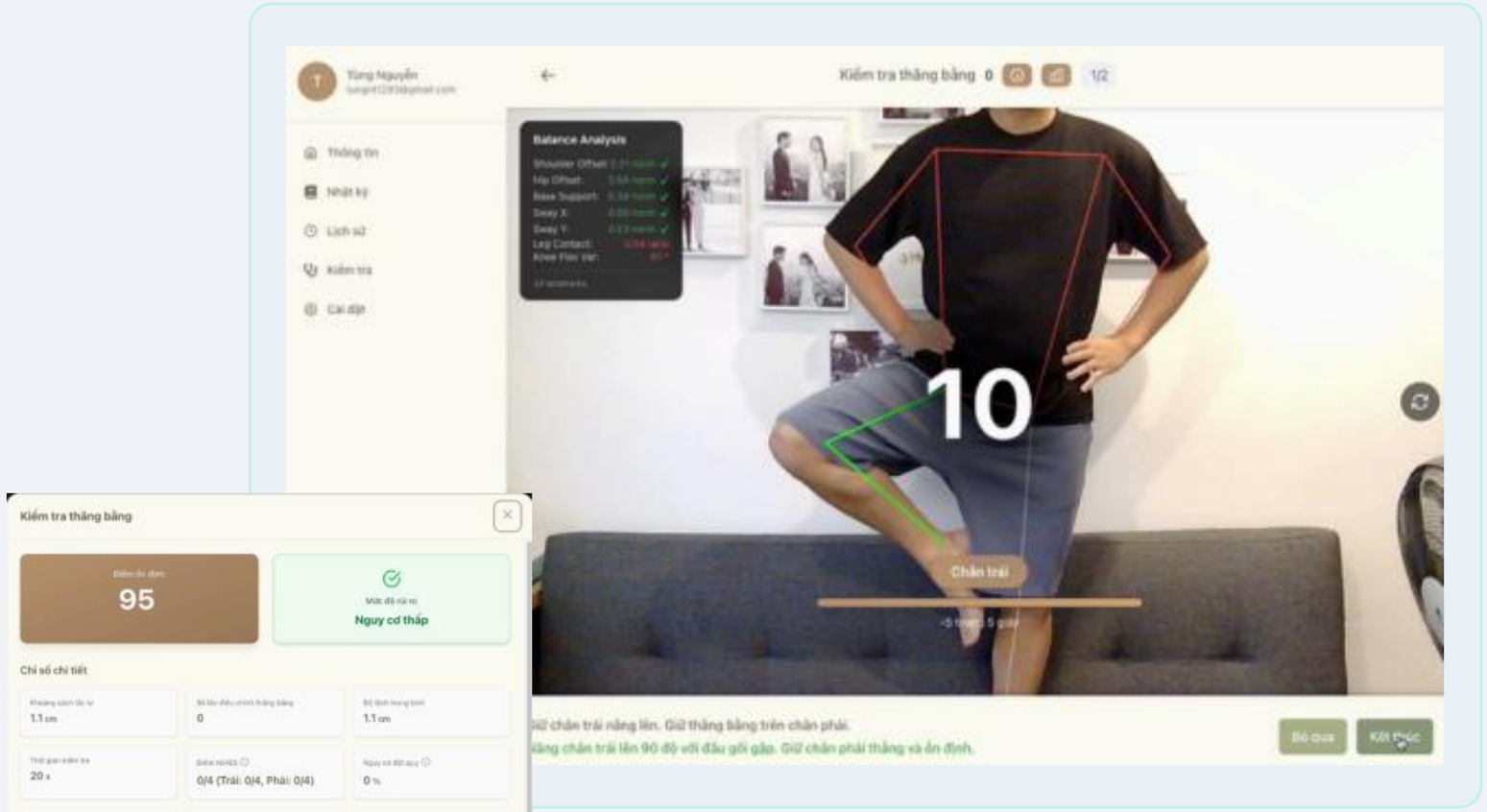
- The patient stands following guided posture
- Holds balance position for a few seconds
- Repeats on both sides

**What AI analyzes**

- Body posture and center of gravity
- Stability and body sway

**What the result shows**

- Stable vs. unstable balance
- Signs of coordination issues



**Core Module 1: BEFAST**

# Speech & Cognitive Test

**How the test works**

- The patient follows guided tasks:
  - Describe a situation in an image
  - Name objects
  - Read sentences clearly
- The system records responses via microphone

**What AI analyzes**

- Speech clarity
- Response accuracy
- Language and comprehension

**What the result shows**

- Slurred or unclear speech
- Cognitive or language difficulties

Core Module 1: BEFAST

# Vision/ Eye Tracking Test

**How the test works**

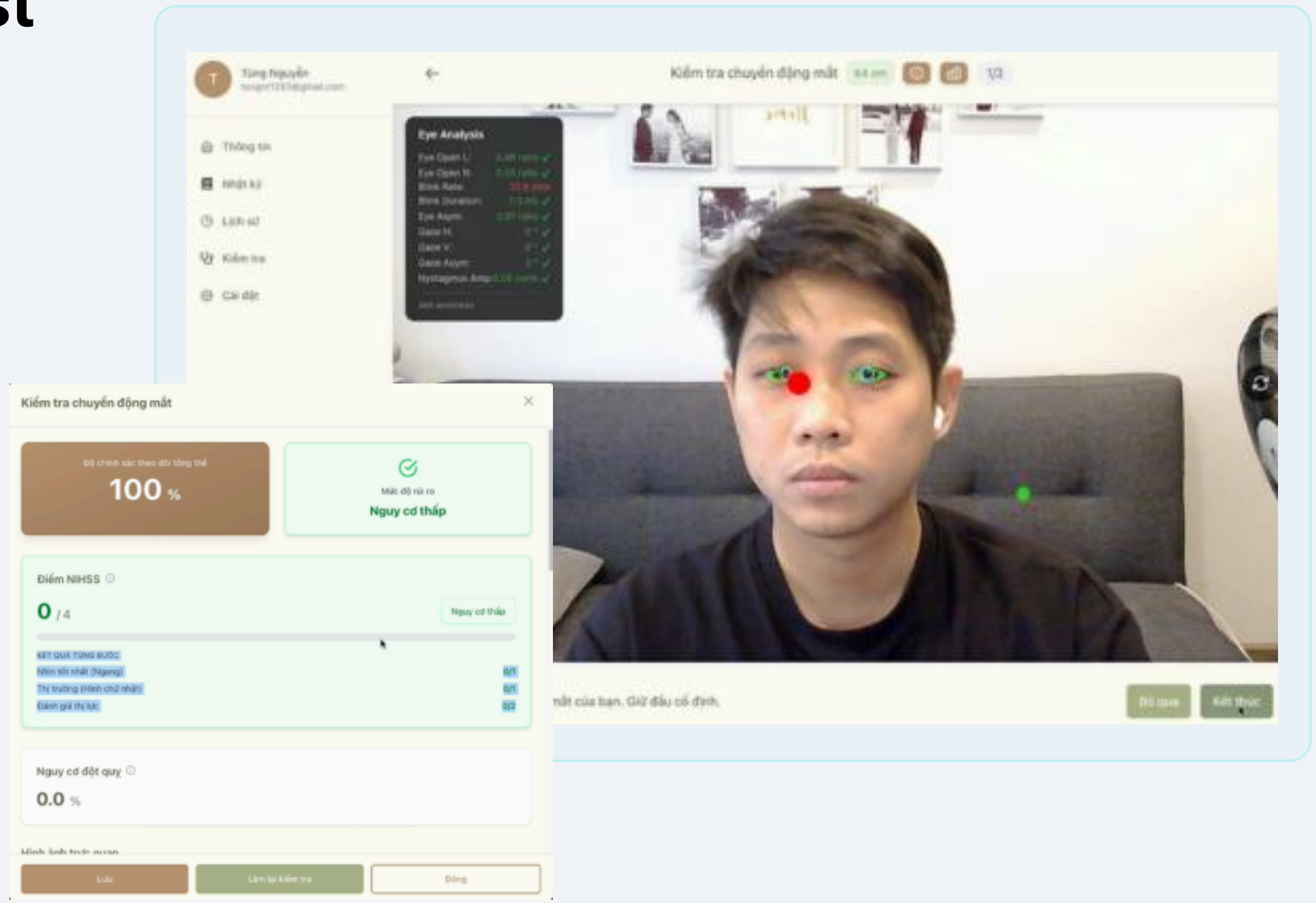
- The patient follows a moving dot on the screen
  - Horizontal movement
  - Rectangular pattern
- Eye movement is continuously tracked

**What AI analyzes**

- Gaze direction and tracking accuracy
- Focus and response consistency

**What the result shows**

- Eye movement patterns
- Signs of visual or neurological issues

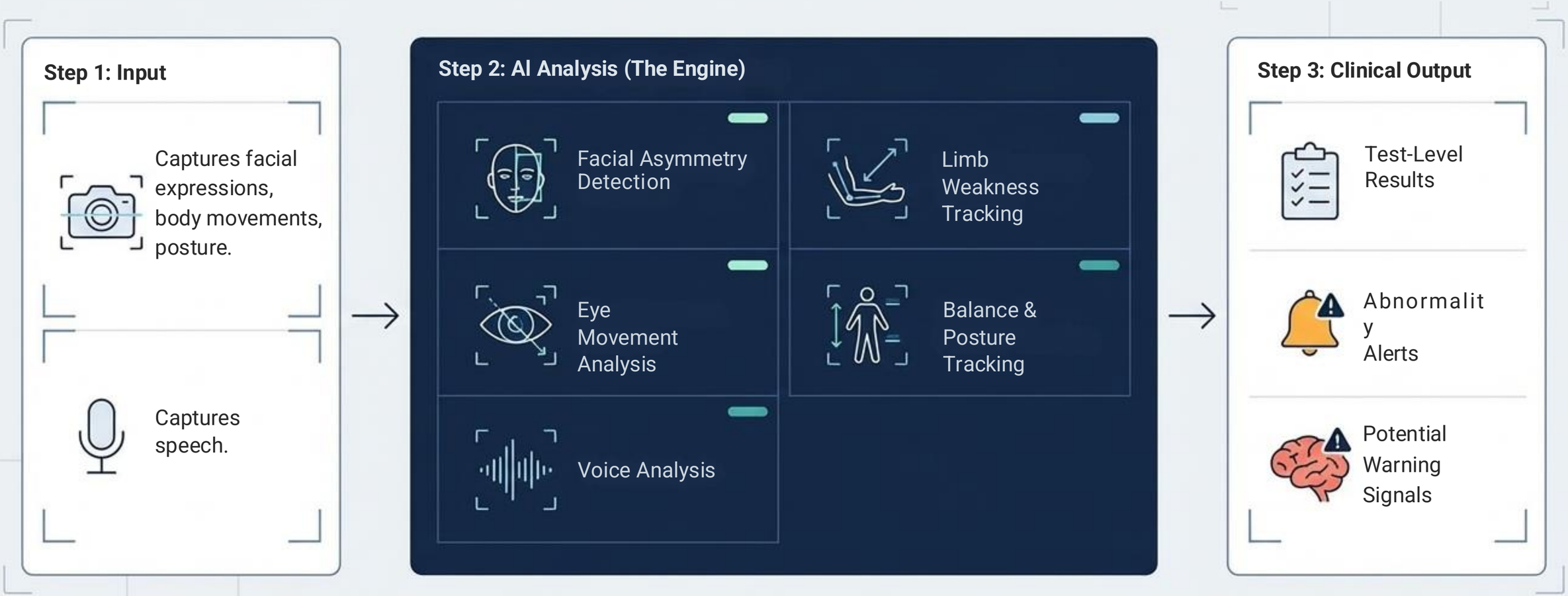


Core Module 1: BEFAST

# The Invisible Lens:

# Converting everyday patient behavior into clinical signals.

The system turns everyday patient actions into clear clinical information, helping clinicians make faster and more confident decisions.



Core Module 1: BEFAST

# From Manual Screening to AI-Supported Workflow

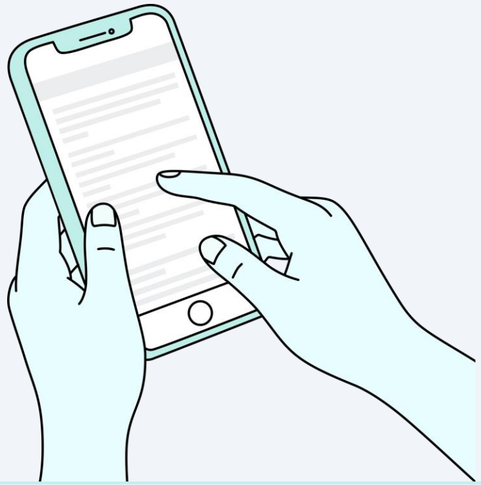
**BEFAST-Based Self-Screening (Entry Layer)**

Start screening on kiosk / mobile

Perform guided BEFAST tasks with AI assistance

AI analyzes facial, speech, and movement signals

Automated potential warning signal



**BEFAST (Self-Screening)**

At home: User searches for BEFAST guidance and performs self-checks

At hospital: Doctor performs rapid BEFAST screening

Based on visual observation and subjective judgment

Core Module 1: BEFAST

# Impact on Early Stroke Detection

### For Healthcare Providers

- Earlier identification of potential stroke cases before clinical evaluation
- Reduced burden on initial screening and triage
- More consistent and standardized early screening

### For Patients

- Early awareness of stroke warning signs
- Faster action when symptoms appear
- Increased likelihood of timely medical attention

### System-Level Impact

- Scalable early screening beyond hospital settings
- Increased detection coverage across populations
- Reduced risk of missed early warning signs

# CORE MODULE 2

# NIHS

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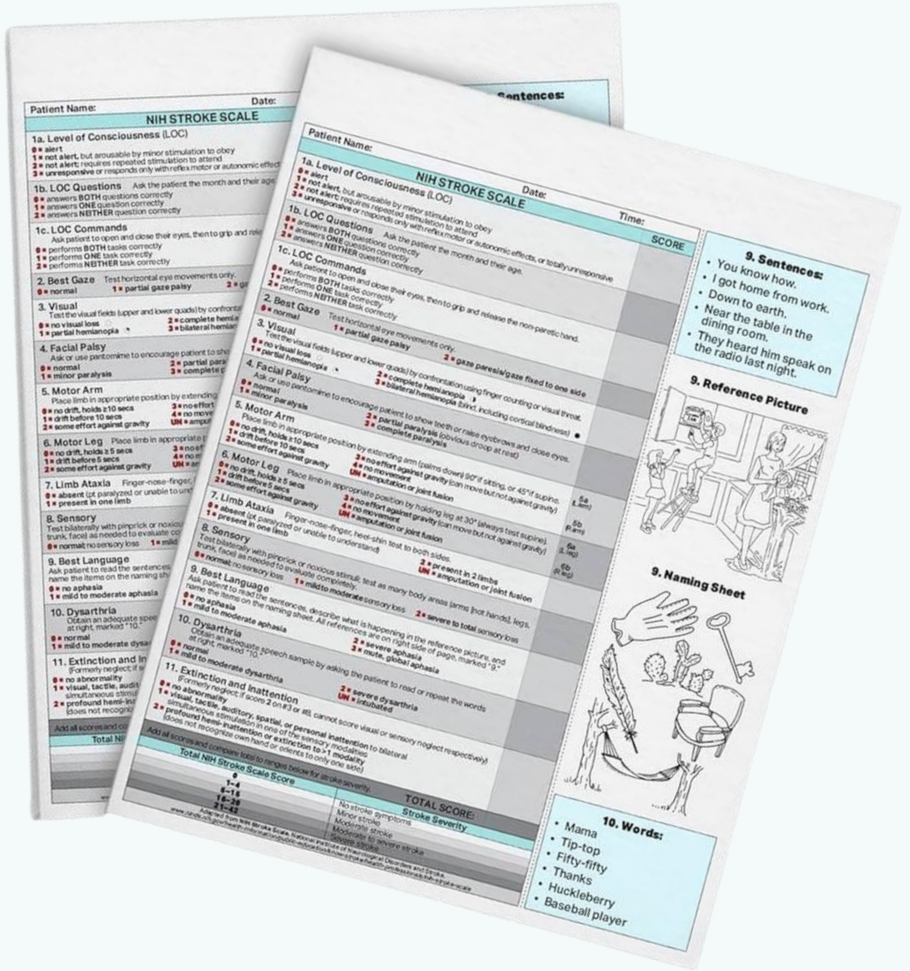
**Core Module 2: NIHSS**

# Structuring first-line stroke assessment with an AI Physician Assistant

Assisting clinicians with guided, step-by-step evaluations aligned with NIHSS protocols to determine stroke severity.

- **Structured clinical support:** Assists clinicians during patient evaluation with a guided approach
- **Post-screening assistance:** Supports assessment after initial screening signals
- **Standardized guidance**: Provides step-by-step evaluation aligned with NIHSS protocols
- **Consistent scoring support:** Enables structured scoring and reduces manual variation
- **Assist, not replace**: Supports clinical judgment without replacing clinician decisions



**Core Module 2: NIHSS**

# Using AI to Support First-Line Stroke Assessment

## HOW IT WORK

Guided questions: AI asks simple questions and task, capturing user responses

↓

Step-by-step interaction: Users follow structured tasks aligned with NIHSS-based evaluation

↓

Real-time analysis: AI reviews responses and reaction timing

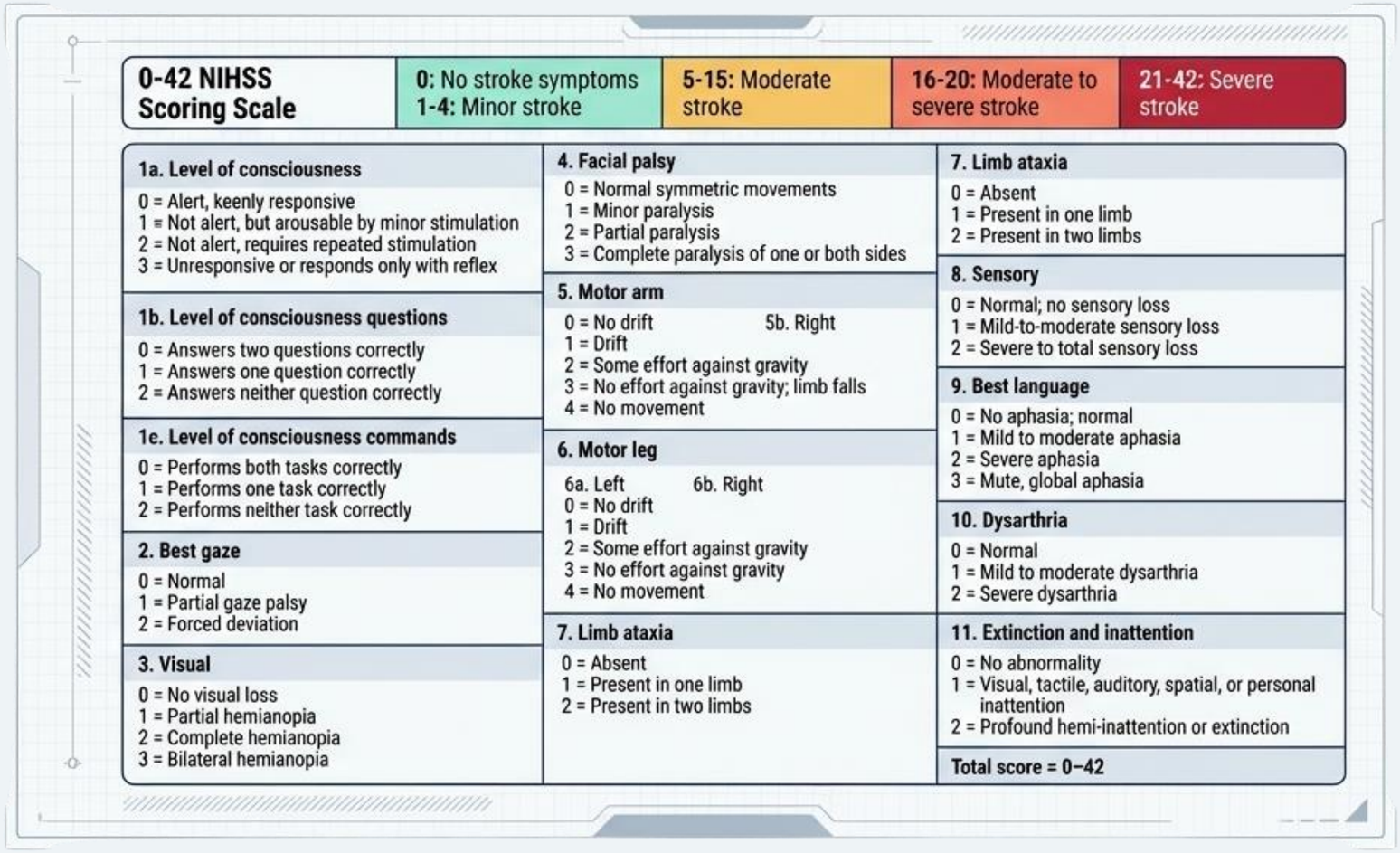
↓

Automatic scoring: AI applies the NIHSS scale (0-42)

↓

Data capture & tracking: Results are recorded and organized for review and follow-up

| WHAT IS ASSESSED | | |
|---|---|---|
| Consciousness | Vision | Motor function |
| Language | Cognition | |



**0-42 NIHSS Scoring Scale** | **0:** No stroke symptoms / **1-4:** Minor stroke | **5-15:** Moderate stroke | **16-20:** Moderate to severe stroke | **21-42:** Severe stroke

**1a. Level of consciousness**
0 = Alert, keenly responsive
1 = Not alert, but arousable by minor stimulation
2 = Not alert, requires repeated stimulation
3 = Unresponsive or responds only with reflex

**1b. Level of consciousness questions**
0 = Answers two questions correctly
1 = Answers one question correctly
2 = Answers neither question correctly

**1c. Level of consciousness commands**
0 = Performs both tasks correctly
1 = Performs one task correctly
2 = Performs neither task correctly

**2. Best gaze**
0 = Normal
1 = Partial gaze palsy
2 = Forced deviation

**3. Visual**
0 = No visual loss
1 = Partial hemianopia
2 = Complete hemianopia
3 = Bilateral hemianopia

**4. Facial palsy**
0 = Normal symmetric movements
1 = Minor paralysis
2 = Partial paralysis
3 = Complete paralysis of one or both sides

**5. Motor arm**
0 = No drift 5b. Right
1 = Drift
2 = Some effort against gravity
3 = No effort against gravity; limb falls
4 = No movement

**6. Motor leg**
6a. Left 6b. Right
0 = No drift
1 = Drift
2 = Some effort against gravity
3 = No effort against gravity
4 = No movement

**7. Limb ataxia**
0 = Absent
1 = Present in one limb
2 = Present in two limbs

**7. Limb ataxia**
0 = Absent
1 = Present in one limb
2 = Present in two limbs

**8. Sensory**
0 = Normal; no sensory loss
1 = Mild-to-moderate sensory loss
2 = Severe to total sensory loss

**9. Best language**
0 = No aphasia; normal
1 = Mild to moderate aphasia
2 = Severe aphasia
3 = Mute, global aphasia

**10. Dysarthria**
0 = Normal
1 = Mild to moderate dysarthria
2 = Severe dysarthria

**11. Extinction and inattention**
0 = No abnormality
1 = Visual, tactile, auditory, spatial, or personal inattention
2 = Profound hemi-inattention or extinction

**Total score = 0–42**

Core Module 2: NIHSS

# From Manual Scoring to Standardized Stroke Severity Assessment

## 1. NIHSS (Today)

**OBSERVE & QUESTION:**
Conducts NIHSS using checklist.

**NOTE ANSWERS:**
Asks structured questions.

**CALCULATE SCORE:**
Manually assigns score.

**Results vary by clinician and experience.**

## 2. AI-Assisted NIHSS (NURA)

**INITIATE ASSESSMENT:**
Start guided NIHSS evaluation.

**AUTO INTERVIEW & ANALYSIS:**
AI analyzes responses in real time.


## Clinical Impact

- **Reduce variability** in stroke severity assessment
- **Improve consistency** across departments
- **Support faster** treatment decisions
- **Improve consistency** across departments

**NURA delivers standardized,** consistent stroke assessments with AI support.

Core Module 2: NIHSS

# Impact on Clinical Stroke Assessment

Faster and more consistent assessment supports timely treatment - improving overall stroke care outcomes.

### For Healthcare Providers

- Faster and more structured severity assessment
- Reduced manual effort in scoring and evaluation
- More consistent application of clinical standards

### For Patients

- Faster clinical evaluation after suspected stroke
- More timely and appropriate treatment decisions
- Reduced delays in care pathways

### System-Level Impact

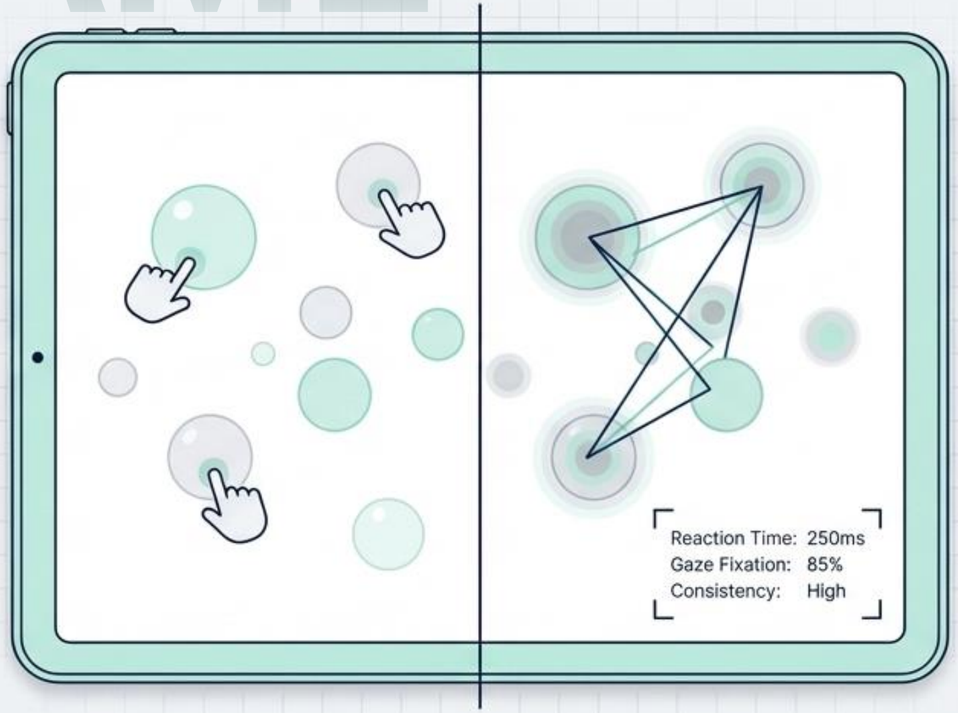
- Standardized assessment across clinicians and settings
- Improved efficiency in stroke management workflows
- Better utilization of clinical resources

## CORE MODULE 3

# AUTISM DETECTION MINI-GAME

### What the Child Sees

An engaging mini-game with no formal instructions. The experience feels entirely like play.




### What the AI Sees

Continuous tracking of eye movement, attention/ focus patterns, reaction timing, and behavioral consistency.

**Core Module 3: Autism Detection**

# Making autism screening engaging, scalable, and non-invasive

Game-based screening designed for non-clinical settings.
It feels like play, but acts like a test.

1 **Eye Movement & Gaze:** Tracking focus patterns.

2 **Attention & Focus:** Analyzing engagement levels.

3 **Reaction Timing:** Measuring consistency and response speed.

4 **Behavioral Responses:** Recognizing patterns linked to autism indicators.

Generates an **Early Autism Risk Indication** and behavioral insights
for specialist referral, without requiring a clinical setup.

**Core Module 3: Autism Detection**

# Making Autism Screening Engaging, Scalable, and Non-Invasive

### HOW IT WORK:

- Child plays a bubble-tapping game.
- System observes behavior during natural interaction.
- No formal instructions - experience feels like play.

### WHAT'S DIFFERENT?

Game-based screening using simple mini-games.
Designed for children and non-clinical settings.
Feels like play, not a test.

### HOW AI HELPS:

- Analyzes attention & engagement levels.
- Tracks response timing and consistency.
- Recognizes behavioral patterns linked to autism indicators.

### WHAT THE SYSTEM OBSERVES:

- Eye movement & gaze.
- Attention & focus patterns.
- Reaction timing.
- Behavioral responses.

### OUTPUTS

- Early Autism Risk Indication: Screening-level insight, not a diagnosis.
- Behavioral Insights: Useful for further evaluation and specialist referral.

### KEY BENEFITS

- Non-invasive and child-friendly.
- Scalable across home and educational settings.
- Does not require clinical setup.
- Supports earlier awareness and intervention.

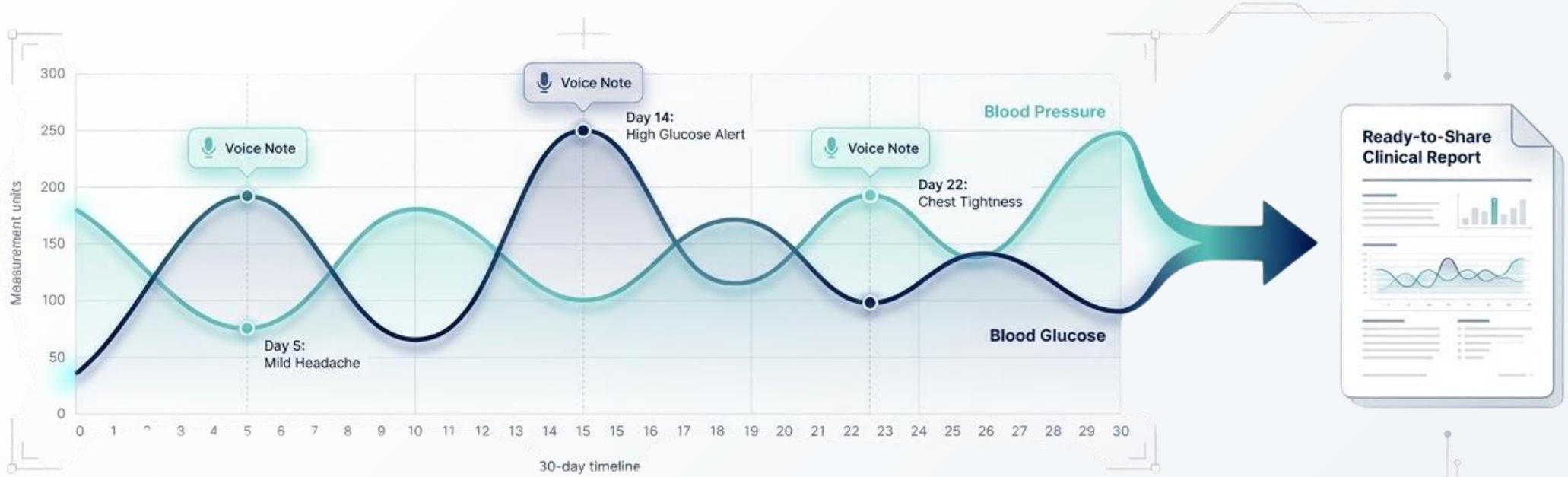
### NURA

Enables earlier and more accessible autism screening without adding clinical complexity.

### For Caregivers & Providers

- Early signals for further evaluation.
- Better support for specialist referral decisions.

# SUPPORTING MODULE:
# HEALTH MONITORING







**Eliminates memory bias for patients.**

**Provides clinicians with longitudinal data for faster, informed consultations.**

Supporting Module

# A Structured Health Journal for Better Clinical Review

**WHAT USERS LOG**

- Daily Measurements: Blood Pressure, Blood Glucose
- Symptoms & Pain: Time, location, severity, notes
- Flexible Input: Voice recording or manual typing

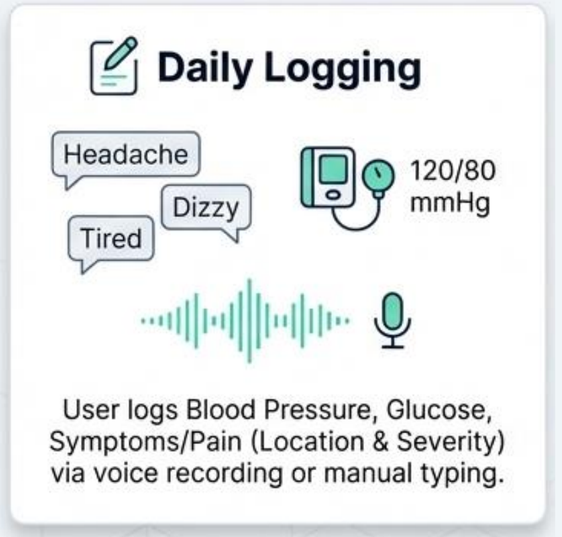
**HOW NURA WORKS**

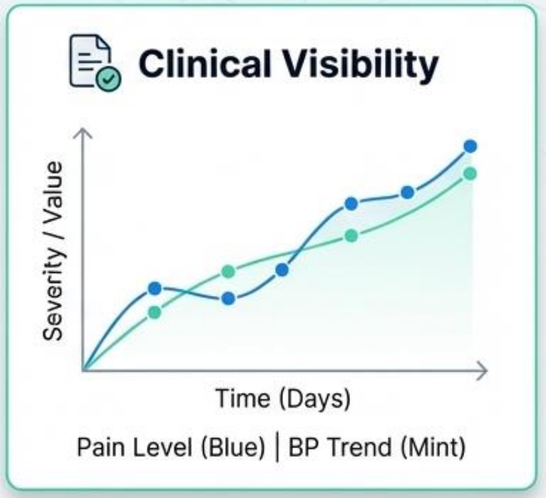
- Capture & Timestamp: Records inputs with date and time
- AI Follow-up Questions: Asks simple questions to clarify details
- Structured Health Records: Organizes data consistently by type
- Trend Aggregation: Generates summaries and trends over time

**WHAT THIS ENABLES**

- Accurate History Without Memory Bias: No need to rely on memory when visiting the doctor.
- Clear Trends Over Time: See patterns of pain, BP, and glucose across days and weeks.
- Ready-to-Share Report for Doctors: Export a monthly summary in one tap.
- Faster & More Informed Consultation: Doctors can assess your condition quickly and make better clinical decisions.

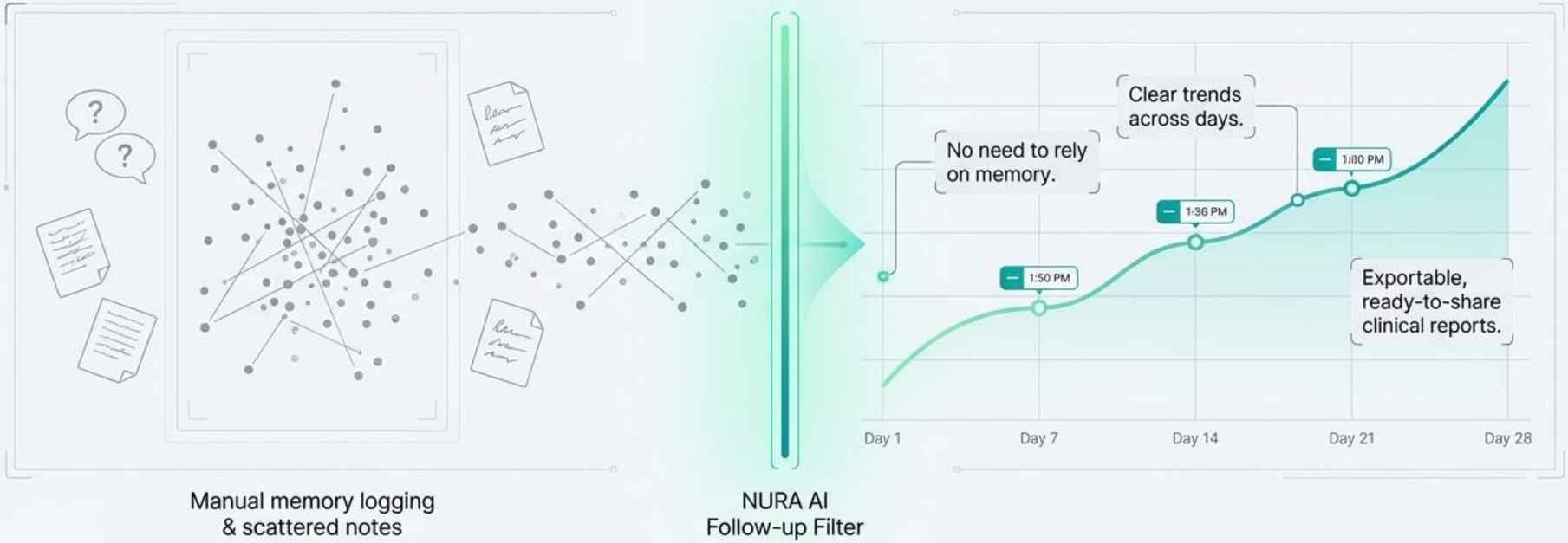
*From scattered inputs to structured health records - ready for clinical use.*



Supporting Module

# From Daily Tracking to Clinical Insight




Manual memory logging & scattered notes

NURA AI Follow-up Filter

**For Patients**

- Easier tracking without relying on memory
- Better visibility into health patterns

**For Clinicians**

- Faster and more informed consultations
- Access to longitudinal patient data
- Improved decision-making

**Deployment**

- Mobile-first experience
- Can be integrated into hospital systems

This module complements screening by enabling continuous health visibility.

TECHNOLOGY

# EXPERIENCE & DEPLOYMENT

User Experience

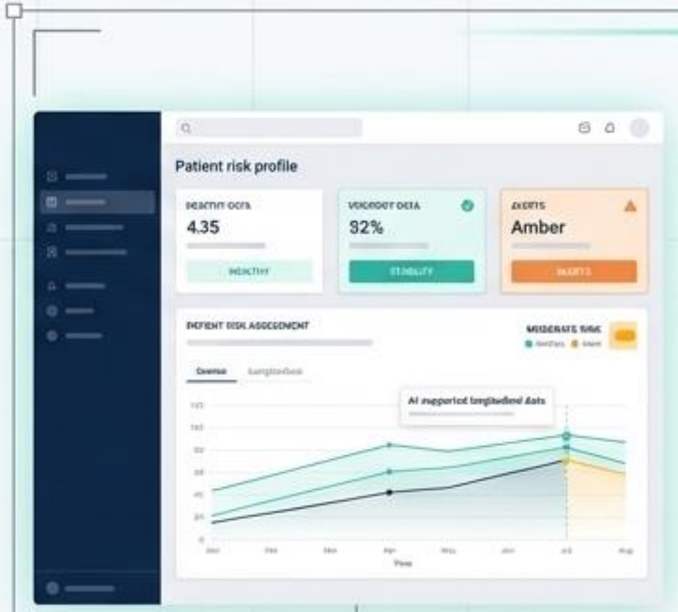
# Designed for absolute adoption, not complexity.

Simple for patients to use independently; valuable for clinicians making fast decisions.

## The Patient POV

- Takes only 2-5 minutes per check.
- Simple, self-guided step-by-step interaction.
- Zero staff required during screening.
- Available in multiple languages.

## The Doctor POV




Clear results available immediately.

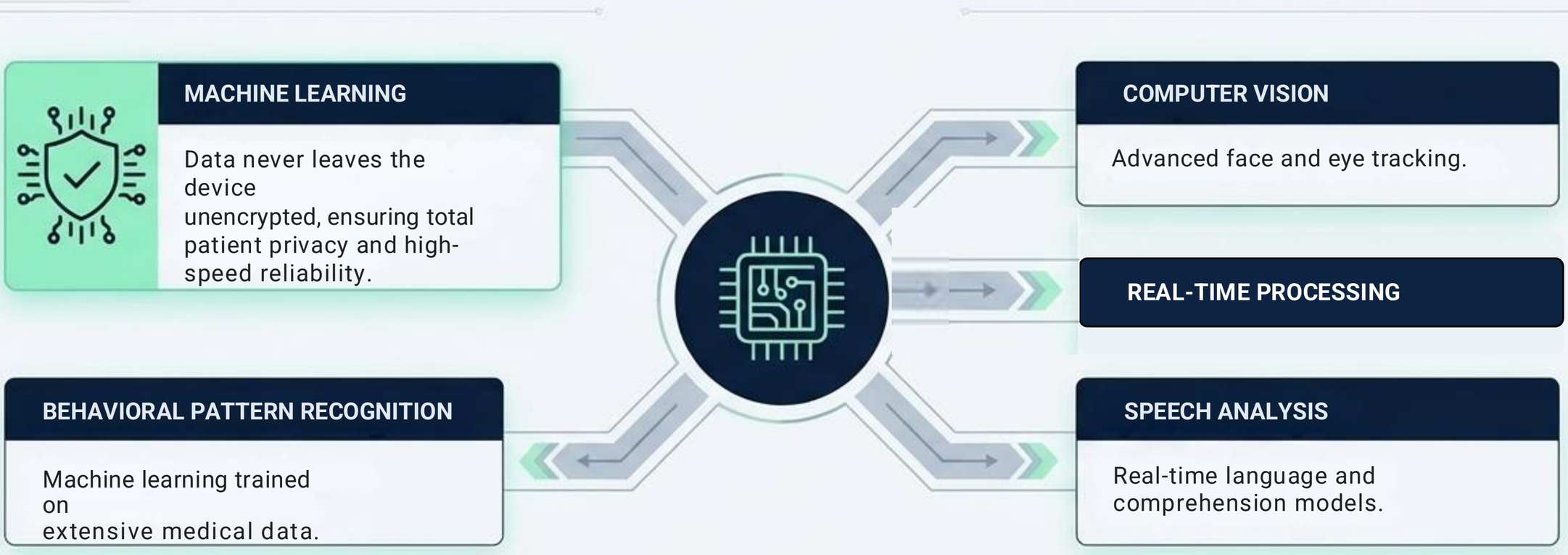
Real-time dashboard with structured risk levels.

Easy to review and act on, with AI-supported insights

AI & Technology Layer

# Built for accurate, real-world clinical use.

Advanced behavioral recognition paired with absolute data privacy.



Accuracy & Validation

# Built for Accurate, Fast, and Real-World Use

Flexible infrastructure that integrates seamlessly across any care setting.

## The AI Layer

- Computer Vision (Face & Eye tracking)
- Speech Analysis
- Behavioral Pattern Recognition

## Privacy & Speed

On-Device Processing: Data is processed locally on the hardware, ensuring maximum patient privacy and reliability without cloud latency.

## Flexible Deployment

Deployable in hospitals, public screening locations, schools, or homes with no complex setup required.

Note: Detailed validation metrics available upon request / pilot deployment.

Deployment Model

# Flexible deployment across the entire healthcare ecosystem.

Easy to deploy with zero complex setup required, bridging the gap between home and hospital.


## The Kiosk

Hospitals, Clinics, and Public Screening Locations.

## The Tablet

Dedicated screening stations and school settings.


## The Mobile Phone

Home and community tracking.

Competitive Advantage

# What Makes NURA Different in Real-World Screening?

More than just a tool-it enables healthcare teams to act earlier, scale wider, and perform more consistently.

| | Traditional Screening | NURA AI |
|---|---|---|
| Workflow | Manual, staff-dependent. | Self-service and automated. |
| Scope | Single condition per assessment. | Multi-condition (Stroke, Autism, Health tracking). |
| Speed | Results delayed by clinical bottlenecks. | Real-time results in 2-5 minutes. |
| Privacy | Often cloud-based, data transferred externally. | On-device processing for absolute data privacy. |
| Accessibility | Strictly limited to specific medical facilities. | Flexible across hospital, public, and home settings. |

gci solutions

# Scaling early detection.
# Empowering clinicians. Transforming outcomes.

NURA makes vital early warning signs visible, standardized, and actionable.

- System-level impact on overloaded hospital workflows.
- Consistent, objective clinical data for every patient.
- Capturing the intervention window before it closes.