HEALTH AND TECHNNOLOGY

BCI AND NON-INVASIVE GLUCOSE MONITOR

W12-D-UNIT4

TABLE OF CONTENT

INTRODUCTION

- **AI in medical technology for paralyzed and diabetic patients**

INTRODUCTION

- BCI and Non-Invasive Glucose Monitor

control with thoughts

test blood sugar levels without needles

INTRODUCTION

- both aim to improve desipte the differences
- compare data, predictive power, and patients' autonomy

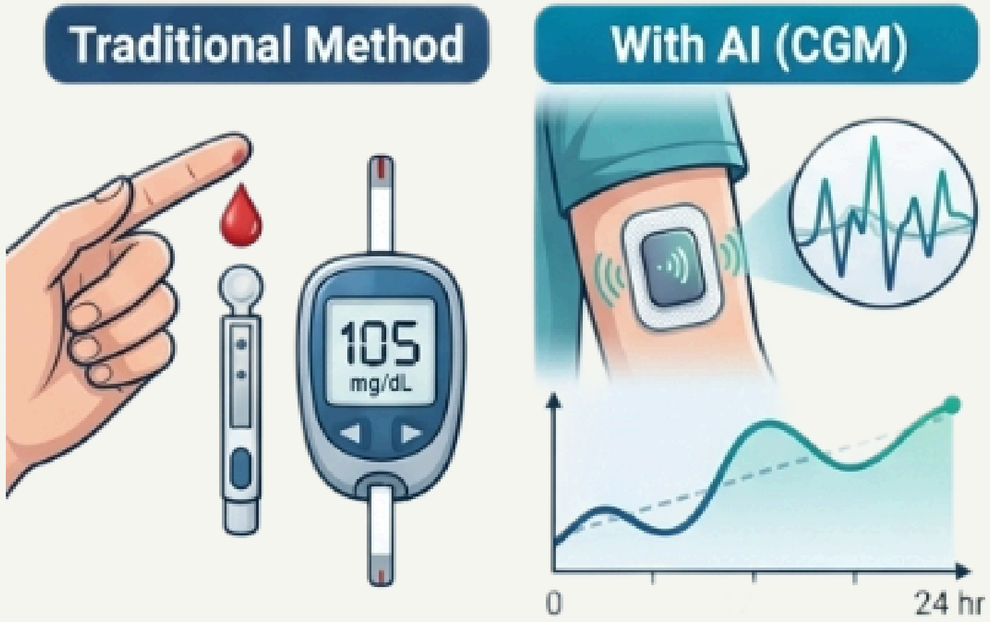
POINT 1

DATA NATURE – BIOCHEMICAL VS. ELECTROPHYSIOLOGICAL

GLUCOSE MONITOR: FROM STATIC POINTS TO DYNAMIC STREAMS

Glucose Monitor (CGM)

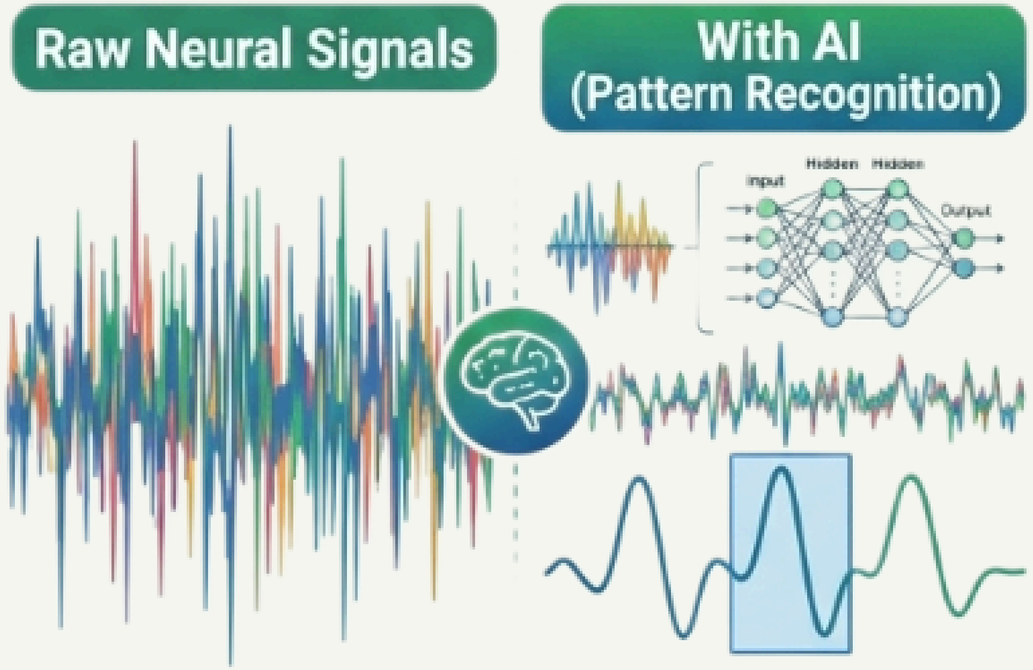
- Data: Biochemical Signals
- Traditional: Discrete Snapshots (Finger-prick)
- AI Era: Continuous Data Streams 24/7
- Impact: Non-invasive / Needle-free



BCI: DECODING THE "NEURAL NOISE"

BRAIN-COMPUTER INTERFACE (BCI)

- DATA: ELECTROPHYSIOLOGICAL SIGNALS
- TRADITIONAL: RAW NEURAL NOISE
- AI ERA: PRECISE SIGNAL FILTERING
- IMPACT: INTENT RECOGNITION (PATTERN DECODING)



SUMMARY TABLE: THE TRANSFORMATION

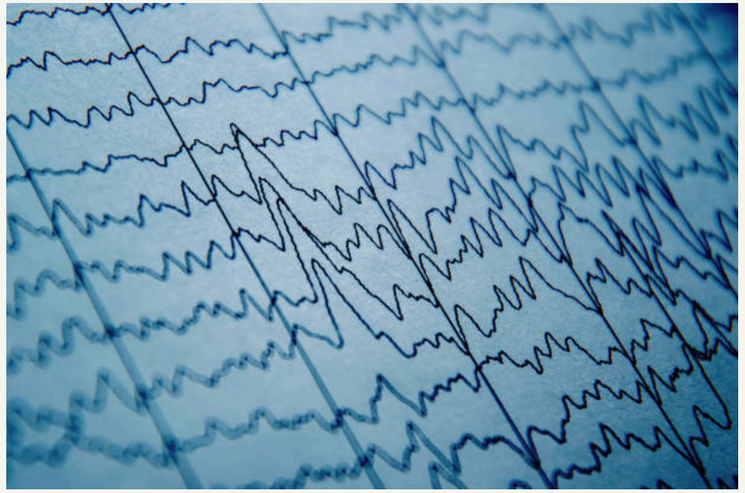
Feature	Glucose Monitor	BCI
Data Nature	Biochemical	Electrical
AI Role	Continuity & Smoothing	Filtering & Decoding
Shift	From "Stamps" to "Video"	From "Noise" to "Signal"

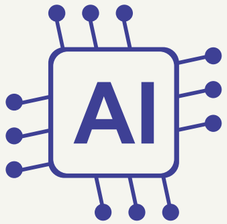
POINT 2 - PREDICTIVE POWER

GLUCOSE MONITOR: FROM RECORDS TO NAVIGATION

Past: Static Records	Future: 30-min Early Warning
	

BCI:
FROM NOISE TO INTENTION



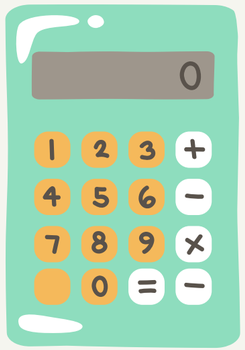


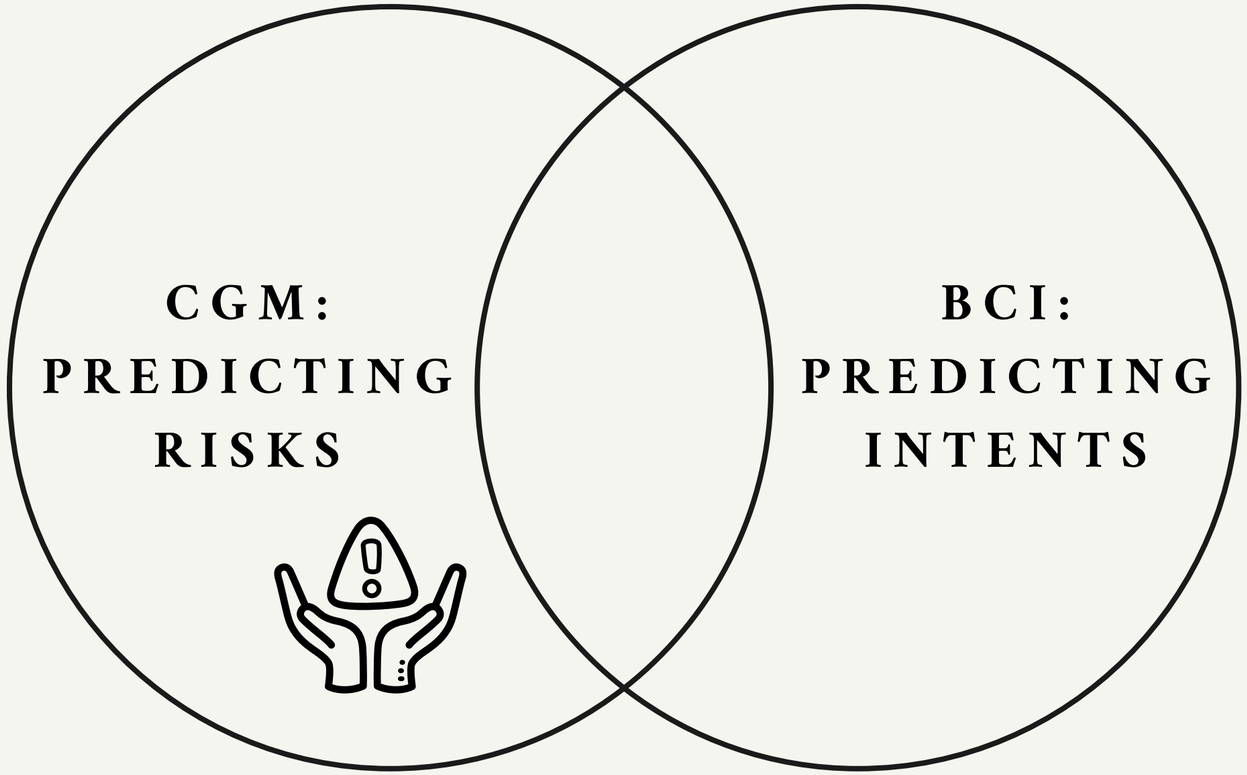
SIGNAL → MEANING

ACTION → REALITY

THE POWER OF PREDICTION

'CALCULATORS' → 'FORTUNE TELLERS'



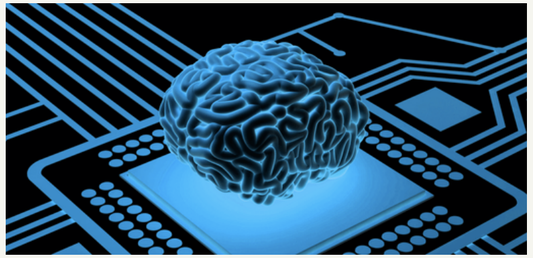


POINT 3 - PATIENT AUTONOMY & INTERACTION

BCI

Target

ALS, spinal cord injuries, or severe paralysis



How it helps

translate brain signals into digital commands

Quality of Life

restore "Agency" and the ability to communicate

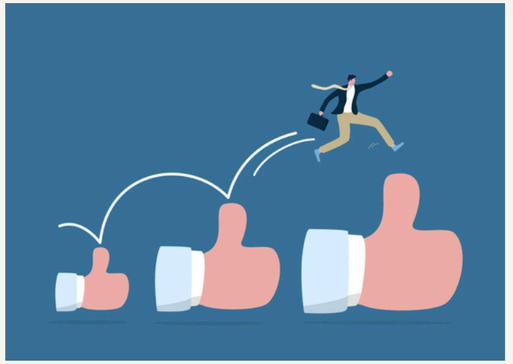
NON-INVASIVE GLUCOSE MONITOR

Target

Type 1 & Type 2 Diabetes

How it helps

real-time monitoring without skin penetration



Quality of Life

pain-free management and reduced medical anxiety

COMPARISON

BCI

- Active & Direct
- High effort, High empowerment

Non-Invasive GM

- Passive & Fluid
- Low effort, Low interference

enhance patient autonomy & dignity

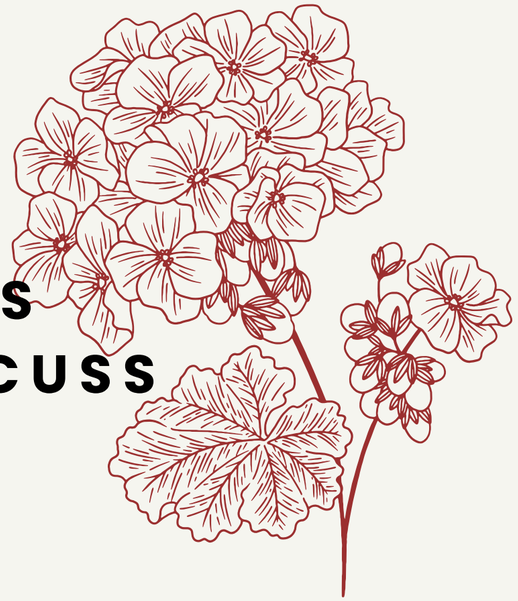
RENE

Conclusion

- Data→Prediction→Autonomy
- From tools to intelligent systems
- Diginity and Independence

THE END

LET'S
DISCUSS

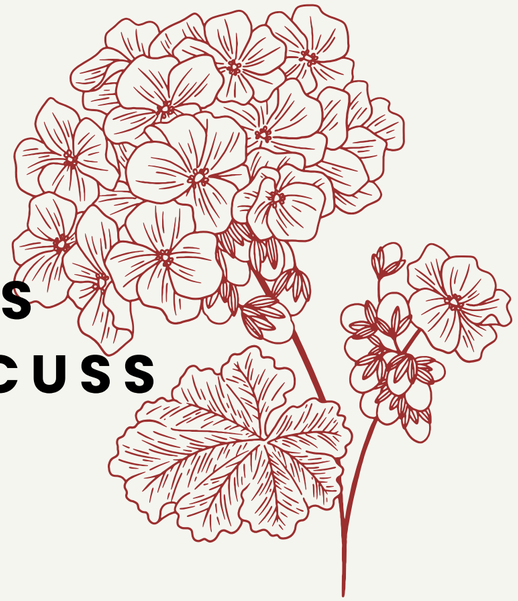


Question 1 : How does the Sugar Monitor (CGM) help?

(A) Patients cannot feel if their sugar is low.
(B) AI warns them before it happens.
(C) It keeps the patient safe 24/7.

Answer:(C) It keeps the patient safe 24/7.

LET'S
DISCUSS

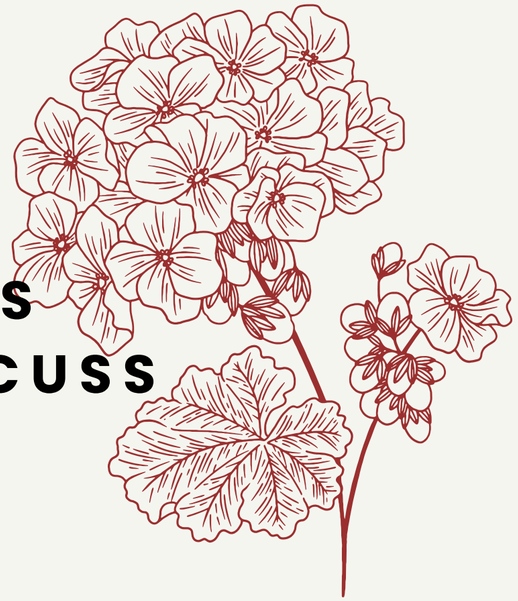


Question 2: With AI, what is the main difference in how these devices help paralyzed patients?

(A) They store more data.
(B) They predict future needs and risks.
(C) They make the devices smaller.

Answer: (B) They predict future needs and risks.

LET'S
DISCUSS



Question 3:Who isn't the target group for BCI ?

(A) Patients with spinal cord injuries.
(B) Patients with Type 1 & Type 2 Diabetes.
(C) Patients with ALS.

Answer: (B) Patients with Type 1 & Type 2 Diabetes.

CITATION

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