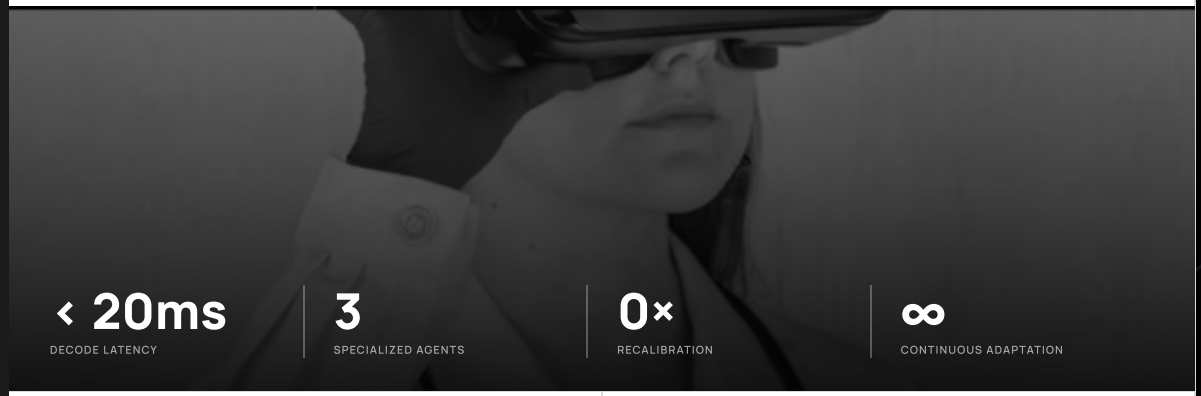
TRIDENT

Reteena
APPLIED AI LAB

TEMPORAL · REASONING · DYNAMIC · EMBEDDED · NEURAL · TRANSLATION

An adaptive brain-computer interface that reasons about intent, growing more accurate and more personal the longer it is used, with zero recalibration.



< 20ms
DECODE LATENCY

3
SPECIALIZED AGENTS

0×
RECALIBRATION

∞
CONTINUOUS ADAPTATION

THE PROBLEM

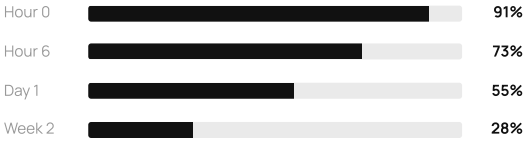
Static decoders fail in the real world

Today's BCIs are trained once, then locked. They cannot adapt to the living brain, where electrode impedances drift, cortical circuits reorganize, and attentional states shift continuously.

Decode accuracy degrades within hours without recalibration sessions, making long-term reliable use impractical for the patients who need it most.

The 39.2 million Americans projected to need assistive neural technology by 2030 deserve a decoder that actually works in the world, not just a lab.

DECODER ACCURACY OVER TIME



OUR APPROACH

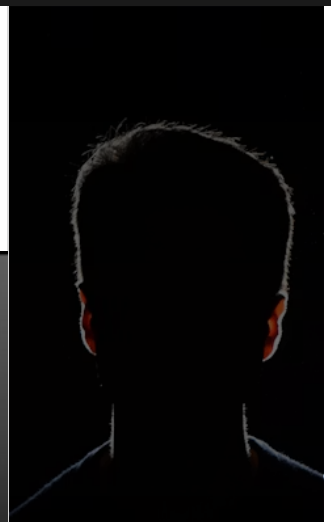
Reason over intent, not signals

TRIDENT replaces classification with reasoning. Rather than asking what a signal maps to, it asks what this person intends given everything known, maintaining probabilistic beliefs updated with every neural frame.

A Hierarchical Bayesian framework encodes the intent, temporal context, and personal neural identity without retraining then compresses into a student decoder running at sub 20ms latency on edge hardware

Personalizes continuously, growing more accurate over time without supervised intervention or recalibration.

- Probabilistic intent tracking, not binary classification
- Per-user neural identity, updated continuously
- Runs on edge hardware with no cloud dependency



Multi-Agent Architecture

Three specialized agents and a router fused into one continuously adapting neural model.

HOW IT WORKS

01 Temporal Agent
Applies causal self-attention across a rolling context window, ca
dynamics that single-frame classifiers entirely discard.

02 Intent Agent
Maintains continuous action hypotheses through probabilistic e
modeled on drift-diffusion dynamics of neural decision-making.

03 Persona Agent
Encodes a probabilistic model of each user's neural geometry, c
priors, making TRIDENT genuinely and persistently personal.

04 Attention Router
Dynamically weights agent contributions based on the current r
between temporal context, intent, and uncertainty in real time.

APPLICATIONS

01 Motor Restoration
Daily prosthetic control for spinal cord injury patients. No recalibration sessions, no accuracy degradation over weeks of continuous daily use.

02 Augmentative Communica
High-accuracy intent decoding fo
the fatigue of constant system re
between clinical sessions.

03 Cognitive Augmentation
Learns each user's cognitive patterns continuously for cursor control, command selection, and predictive assistance that improves every single day.

04 Clinical Research
Per-session neural phenotyping e
neurodegenerative disease monit
broader Reteena diagnostic missi

MARKET OPPORTUNITY

A $45B total market growing at 20.4% per year, spanning clinical providers, research institutions and defense organizations, with deployments valued between $250K and $1M each.

$45B
TOTAL MARKET

$9.5B
SERVICEABLE

$250M
OBTAINABLE

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We are actively seeking pilot partners, clinical collaborators, and strategic investors.

reteena.com · contact@reteena.com