
 BRAIN PERFORMANCE INFRASTRUCTURE

Your Brain's Vital Sign

Making brain performance measurable, trainable, and trackable in real-world activities, so people can improve Neuromotor Control across the full span of life.

A holistic story for employees, advisors, investors, partners, and pilot clients.

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What's Inside

A complete picture of NERON: the science, the platform, the evidence, and the applications transforming how brain performance is understood and improved.

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"Brain performance can no longer be treated as a black box."

— THE STORY IN ONE BREATH

Brain Performance Infrastructure

NERON exists to make brain performance measurable, trainable, and trackable in real-world activities, so people can improve Neuromotor Control across the full span of life.

Most solutions measure only motor *or* cognitive function, measure without a path to improvement, or train without objective proof.

NERON closes that gap by integrating **Assess** → **Train** → **Improve**, verifying meaningful change over time and capturing how the brain plans, executes, and adapts movement under cognitive load.

In doing so, NERON is building **Brain Performance Infrastructure**: an accessible, global standard for understanding and improving functional brain performance in the real world, and providing a structured path to improving it, with progress verified over time.



The Brain Signature™: NERON's foundational output

The shift: NERON transforms brain performance from a reactive experience into a proactive practice, one with a baseline, a path, and verifiable progress.

— WHY NOW

The Global Need

We are at a major inflection point. Populations are aging, workloads are becoming more cognitively demanding, safety-critical environments are operating under increasing complexity, and AI is reshaping how humans interact with the world.

In all these contexts, brain performance becomes the limiting factor for independence, safety, recovery, quality of life, and the ability to perform consistently under increasing demands, whether in daily life, work, or sport.

Yet despite this reality, there is still no widely adopted, scalable standard for understanding how the brain actually performs under real-world conditions. Most available tools are episodic, clinic-bound, paper-based, or disconnected from how people function in everyday life.

The cost of this gap is significant. Functional decline is often discovered too late to meaningfully alter its trajectory. Elite cognitive performance is overlooked, and safety risks surface only after mistakes or near misses. Recovery decisions are made using tools that miss subtle but persistent impairment. At the same time, consumers track almost everything (sleep, heart rate, steps) except the brain systems that govern real-world performance.

NERON exists because the world can no longer afford to treat the brain as a black box.

The World Before NERON → The World After NERON

BEFORE NERON

- Brain performance is vague, reactive, and largely invisible.
- Assessments are episodic, clinic-bound, and often subjective.
- Cognition and movement are evaluated separately, missing how they interact in daily life.
- Progress is hard to verify; single snapshots provide limited insight.

AFTER NERON

- Performance becomes visible, objective, and actionable.
- People and institutions establish baselines and track change over time.
- Assessment and training are connected in a closed loop that verifies improvement.
- A functional "vital sign" for brain performance becomes scalable and standard.

THE CORE INSIGHT

What Others Missed

Cognitive decline, performance loss, and reduced independence do not begin with diagnostic labels or obvious symptoms. They begin with subtle breakdowns in how the brain controls movement under cognitive load.

Agility slows.

Precision decreases.

Adaptability weakens.

Thinking while moving becomes more effortful and error-prone. These early changes appear first in Neuromotor Control, and not in isolated memory or reaction tests.

For more than two decades, research led by Professor Lauren Sergio and her colleagues at York University, Toronto, Canada, has demonstrated that impairments in visuomotor integration and Neuromotor Control appear early in aging populations, in individuals at increased Alzheimer's risk, and in people with concussion histories, often while standard clinical tests still look normal.

NERON is built on one foundational principle:

If you want to understand brain function, you must measure neuromotor control: how the brain controls movement in real time, under meaningfully cognitively demanding tasks.



Research led by Prof. Lauren Sergio, York University, Toronto. 20+ years of peer-reviewed neuroscience

THE SCIENCE

What is Neuromotor Control?

Neuromotor Control refers to how the brain and nervous system plan, coordinate, and execute movement. In simple terms, it's the connection between thinking and moving.

Step-by-step breakdown

"neuro"

The Brain & Nerves

The brain (motor cortex, cerebellum, basal ganglia), the spinal cord, and peripheral nerves. These systems decide, plan, command, and adjust movements.

"motor"

Muscles & Movement

The physical action: muscle activation, joint movement, and the force, speed, precision, and timing of every motion.

"control"

Coordination & Feedback

The nervous system sends signals to muscles, receives feedback from vision, touch, balance, and proprioception, and continuously corrects errors in real time.

A practical example, picking up a coffee cup: Your brain plans the movement (size, weight, distance). Nerves carry signals to your arm and hand muscles. Sensory feedback adjusts grip force so you don't crush or drop it. The brain fine-tunes the motion as you move. *That entire loop is Neuromotor Control.*

Why it matters everywhere

Neuromotor Control is critical for everyday movement (walking, typing, speaking), athletic performance (timing, balance, coordination), rehabilitation (stroke, spinal cord injury, Parkinson's, MS), human-machine interaction (prosthetics, brain-computer interfaces, robotics), and motor learning.

And, as the neuromotor control company, NERON is critical for every aspect of life.

— WHAT NERON IS

The Brain Performance Platform

NERON is the Brain Performance Platform designed to assess and strengthen Neuromotor Control. This functionality underlies real-world performance across aging, longevity, sport, work, recovery, rehabilitation, and activities of daily living.

Most traditional approaches evaluate cognition or motor performance in isolation, leaving a critical blind spot. NERON closes that gap by measuring how the brain plans, executes, inhibits errors, and adapts action under changing rules and complexity, then turning that measurement into guided improvement.

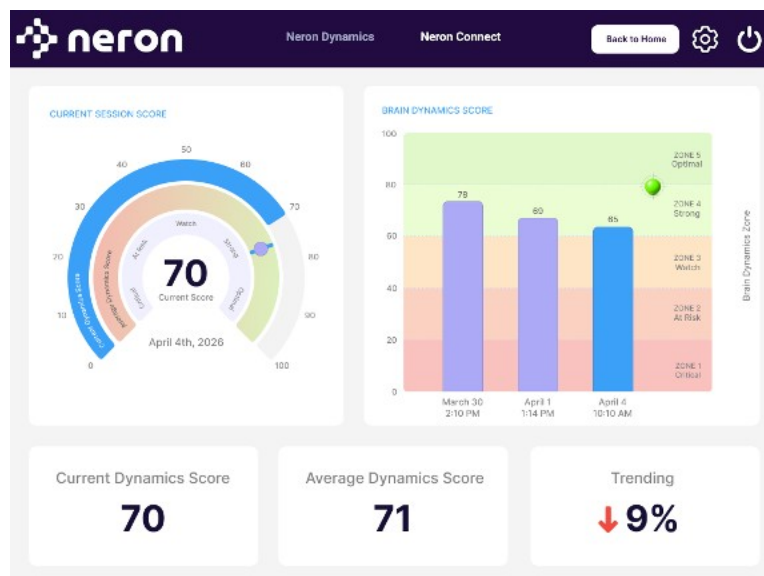
Platform Architecture: A Closed-Loop System

The individual interacts with a tablet, using their finger to guide movement toward on-screen targets. Each activity introduces a different set of rules, requiring the brain to continuously adjust, inhibit automatic responses, and maintain precision as conditions change.

The tasks are simple to perform but become progressively challenging to control, eliciting the patterns needed to assess how the brain is coordinating perception, decision-making, timing, and movement.

ASSESS → TRAIN → IMPROVE

Every NERON Dynamics assessment produces a Brain Signature, making brain performance visible, measurable, and actionable.



NERON Dynamics™ assessment dashboard

THE BRAIN SIGNATURE™

The Neuro Network Patterns

The Brain Signature is the foundational output of the assessment. It is a visual pattern created from a person's actual movement data, representing how the brain's motor control network operates in real time: how it plans movement, adapts to changing rules, and corrects errors under cognitive load.

This pattern is then scored on a scale of 1–100 and mapped to a Risk Zone from 1 to 5, providing a clear, contextual understanding of how that level of performance relates to real-world demands.

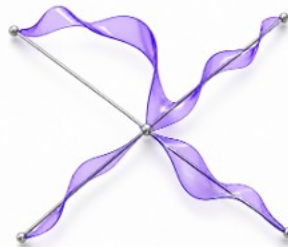
"I took the assessment and got my Brain Signature. That pattern is my brain network in action."

The Brain Signature is NERON's core differentiator. It captures how performance is achieved, not just how it is summarized. The Score enables performance to be tracked over time, compared against prior assessments, and communicated clearly using a shared reference.

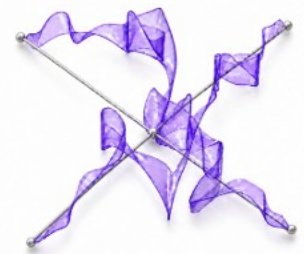
Three signatures, three realities



ZONE 5: OPTIMAL



ZONE 3: WATCH



ZONE 1: CRITICAL

Most tools reduce performance to abstract scores. NERON preserves the underlying pattern (the Brain Signature) and gives that pattern meaning through a consistent score and contextual Zones.

NERON SIGNATURE ZONES™

Contextualizing Brain Performance

Zones are contextual, not categorical. They describe the functional demands that a given level of brain performance can reliably support at that point in time. They are not classifications of individuals.

Examples below reference professions or environments where similar levels of performance demand are commonly observed. These are illustrative, not prescriptive.

5	ZONE 5 · OPTIMAL Sustained precision and rapid adaptation in highly dynamic, high-consequence environments. Commonly associated with elite athletics, advanced aviation, or complex surgical procedures.
4	ZONE 4 · STRONG Reliable neuromotor control with adaptability for demanding real-world roles. Supports environments requiring sustained coordination, responsiveness, and accuracy under pressure.
3	ZONE 3 · WATCH Adequate daily function with reduced margin under fatigue, stress, or multitasking. Often supports typical daily activities but may show reduced consistency as demands increase.
2	ZONE 2 · AT RISK Reduced coordination under complexity; caution warranted in safety-sensitive or recovery contexts. Environments requiring sustained coordination may introduce increased risk.
1	ZONE 1 · CRITICAL Severely constrained function best understood by situational demands and support needs. Most appropriately described in terms of recovery, care, or support contexts.

NERON CONNECT™

Training & Engagement

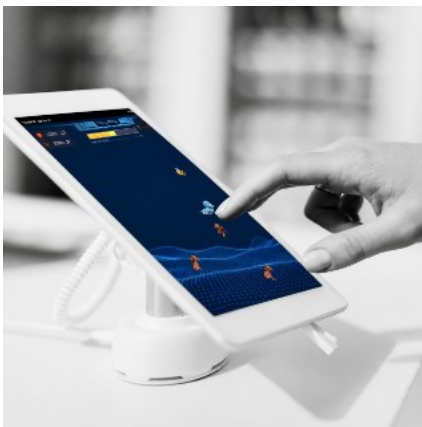
NERON Connect™ is the training and engagement layer of the platform, designed to translate assessment insight into structured, goal-directed improvement, using the Brain Signature as reference points for guiding progression.

Rather than offering generic or open-ended activities, NERON Connect™ delivers targeted neuromotor training aligned to the individual's current performance level and desired trajectory, with progress verified through repeat assessment.

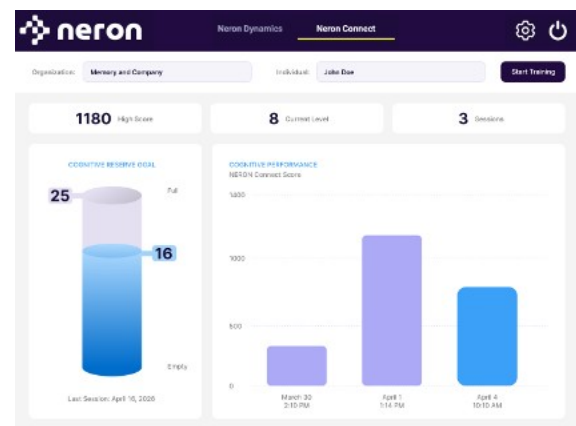
"Your current Brain Signature is here. We're working to move it toward the next range over time, as your Brain Signature becomes more stable and controlled."

Training time is allocated intentionally, based on the individual's starting point, response to training, and evolving trajectory. Cadence, duration, and pacing are shaped by context including role demands, recovery status, workload, and longitudinal trends.

Progress is verified through repeat assessment, ensuring improvement is measured, not assumed.



NERON Connect Kiosk



Connect Member Dashboard

Inside a Training Session

Participants navigate a moving element through varying levels of challenging environments, collecting targets while avoiding obstacles. The task begins simply, but over time pace increases and demands become less predictable. Although the experience is engaging, it is not a game. It is structured training grounded in validated task design.

NERON INTELLIGENCE™

Adaptive Learning Across the Platform

NERON Intelligence™ is the adaptive learning layer across both NERON Dynamics™ and NERON Connect™. It helps make sense of change over time, using past performance and ongoing activity to guide progression.

Rather than treating each session as an isolated moment, NERON Intelligence connects them into a continuous trajectory. It looks at where someone is starting, how their Brain Signature is changing, and how they are responding to different levels of challenge, distinguishing normal day-to-day variation from meaningful shifts.

Today, this adaptation is driven by transparent, rule-based logic that adjusts task demands in real time based on performance and consistency. As an individual progresses, training evolves, becoming more or less challenging depending on how the brain responds.

Over time, as more data are collected, NERON Intelligence becomes increasingly adaptive, learning from longitudinal patterns to refine how difficulty, content, and pacing are personalized for each individual.

What this supports

Earlier Detection

Earlier detection of meaningful change in brain performance, before it becomes symptomatic.

Stronger Personalization

Training calibrated to the individual's evolving Brain Signature and trajectory.

Deeper Understanding

A clearer view of how brain performance evolves across different real-world contexts.

From individual sessions to continuous trajectory: assessment and training, connected.

SCIENTIFIC EVIDENCE & VALIDATION

Grounded in Decades of Peer-Reviewed Research

80%

IMPROVED COGNITIVE
FUNCTIONING

100%

REPORTED IMPROVED
DAILY LIFE

2015

MILITARY VALIDATION

20+

YEARS OF RESEARCH

Aging & Alzheimer's Risk

Older adults and individuals at increased risk show selective impairments under rule-based visuomotor conditions, even when standard screening appears normal.

Memory Care Facility Pilot Outcomes

In a 16-week program combining NERON Connect training with integrated care, 80% of participants improved cognitive functioning, and 100% reported improved daily life performance.

Performance & Readiness

Defence Research and Development Canada has used the visuomotor test underlying NERON since 2015 to assess neuromotor impairment in military personnel.

Sports Concussion

NERON metrics reveal persistent neuromotor deficits even when athletes are asymptomatic and cleared for return-to-play by standard tools.

Why this matters: Rather than asking *"Is something wrong?"*, the NERON Dynamics™ Assessment enables a more practical question: **"How is brain performance changing, and what should we do next?"**

— APPLICATIONS OF NERON

One Platform. One Standard. Multiple Real-World Applications.

Across NERON's primary use-case areas, the Brain Signature provides a shared, objective reference point for understanding current function and monitoring change.

Active Aging & Senior Living

Supports early understanding of functional brain-body coordination. Used to establish personal baselines, monitor aging trajectories, and inform proactive strategies for independence, mobility, and quality of life, without relying on diagnostic labels.

Healthcare & Clinical Practice

Provides objective insight into functional Neuromotor Control. Complements clinical judgment by tracking recovery trajectories, identifying functional change even when traditional measures appear normal, and supporting return-to-function discussions.

Research & Academia

Serves as a standardized, quantitative output representing integrated brain-body performance. Used to improve ecological validity, track longitudinal change, and evaluate the functional impact of interventions beyond static or single-domain tests.

Fitness & Wellness

Helps inform training and recovery decisions. Used to track readiness, fatigue, and adaptation over time, enabling individuals and professionals to balance performance goals with sustainable recovery and whole-system readiness.

Sports Performance & Recovery

Contextualizes readiness and recovery. Used to assess stabilization relative to baseline, detect subtle performance changes that may persist beyond symptoms, and inform return-to-play or workload decisions alongside existing protocols.

Workplace Health & Safety

Supports understanding of cognitive-motor readiness under real-world demands. Provides objective insight into how fatigue, stress, or cognitive load may be affecting brain-controlled movement, enabling proactive safety decisions without diagnosis or labeling.

COMPETITIVE DIFFERENTIATION

How NERON Differs

Scientific validity, real-world relevance, and measurable impact, not novelty.

Integrated Neuromotor Assessment

Not isolated tests. NERON measures the interaction between cognition and movement as a unified system.

Objective Kinematic Data

Not symptom-based. Performance is captured through movement data, not self-report or observation.

Scores & Time-Resolved 3D Patterns

NERON preserves the underlying Brain Signature pattern alongside the score, not just a number.

Baseline & Longitudinal Tracking

Designed from the ground up for repeated use. Tracking change over time is the point, not a feature.

Higher Ecological Validity

Goal-directed movement tasks that mirror real-world cognitive demands, not artificial lab conditions.

Proactive Rather Than Reactive

NERON identifies change before it becomes symptomatic, enabling intervention before decline is visible.

The result: a system that doesn't just assess *or* train, but verifies improvement, closing the loop between understanding brain performance and strengthening it.

— THE FIVE-YEAR VISION

Brain Performance, Visible.

Within five years, NERON Brain Signature histories will become as familiar as heart-rate charts.

Communities, clinicians, employers, athletes, and individuals use NERON to monitor and improve brain performance proactively, not reactively.

NERON's impact is a world where brain performance is no longer invisible.

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