Smarter, Faster, Safer:
Cognitive Enhancement Training to improve Decision-Making Under Pressure

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NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

Visual Psychophysics and Perception Laboratory Scientific collaboration

- CogniSens is the commercial platform for technologies from the lab
- Development of multi-disciplinary Human Performance technologies
- Commercialization platform for new technologies and applications
- Partnership facilitates Key Opinion Leader validation

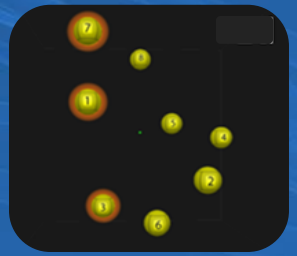
Complex dynamic environment

NeuroTracker: simple training

Presentation

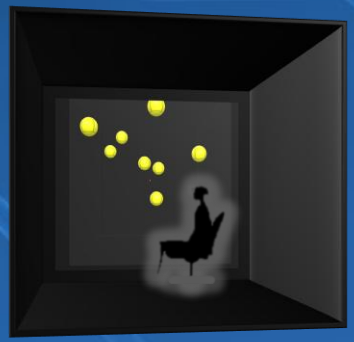
Indexation

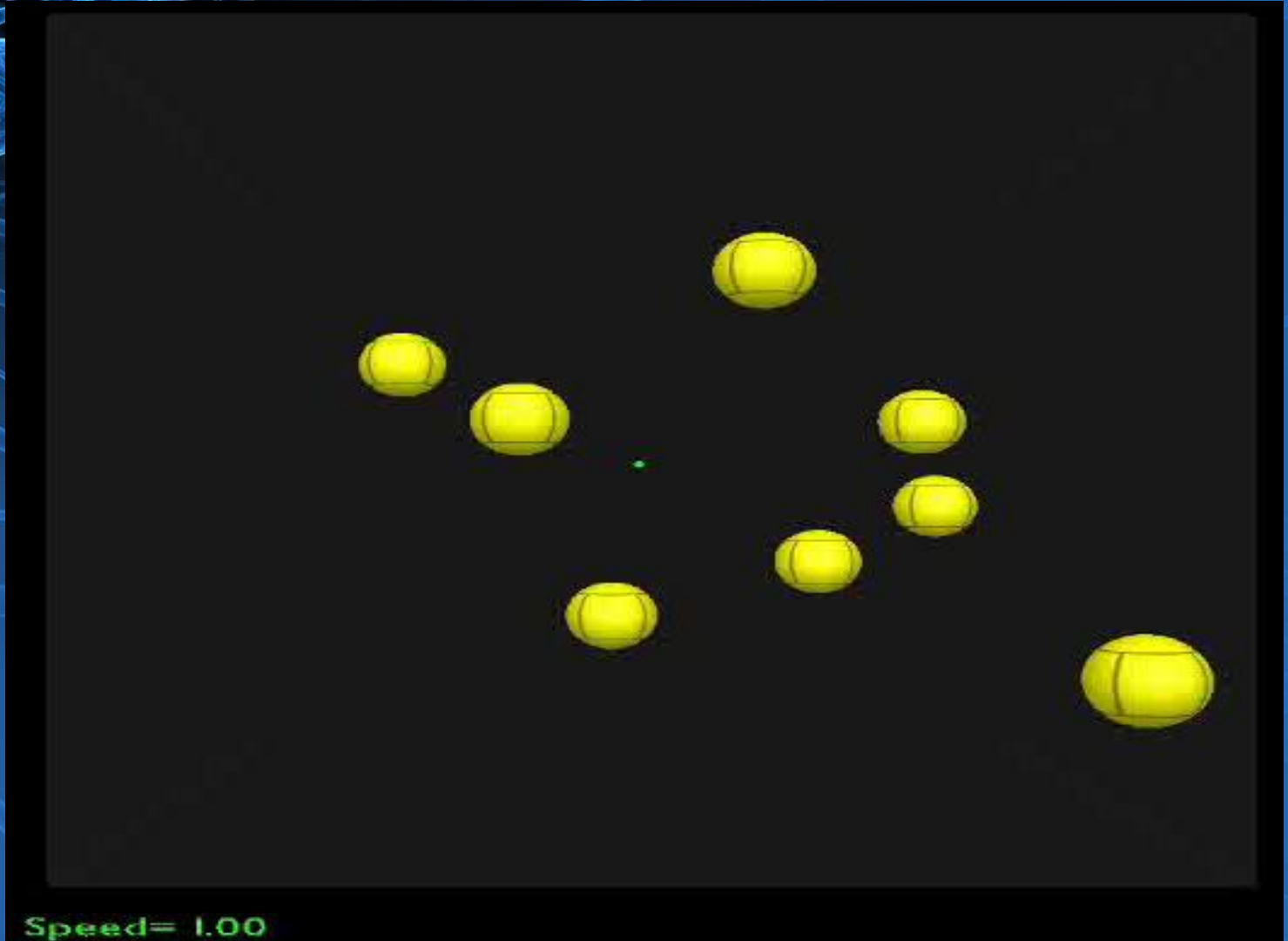
Movement

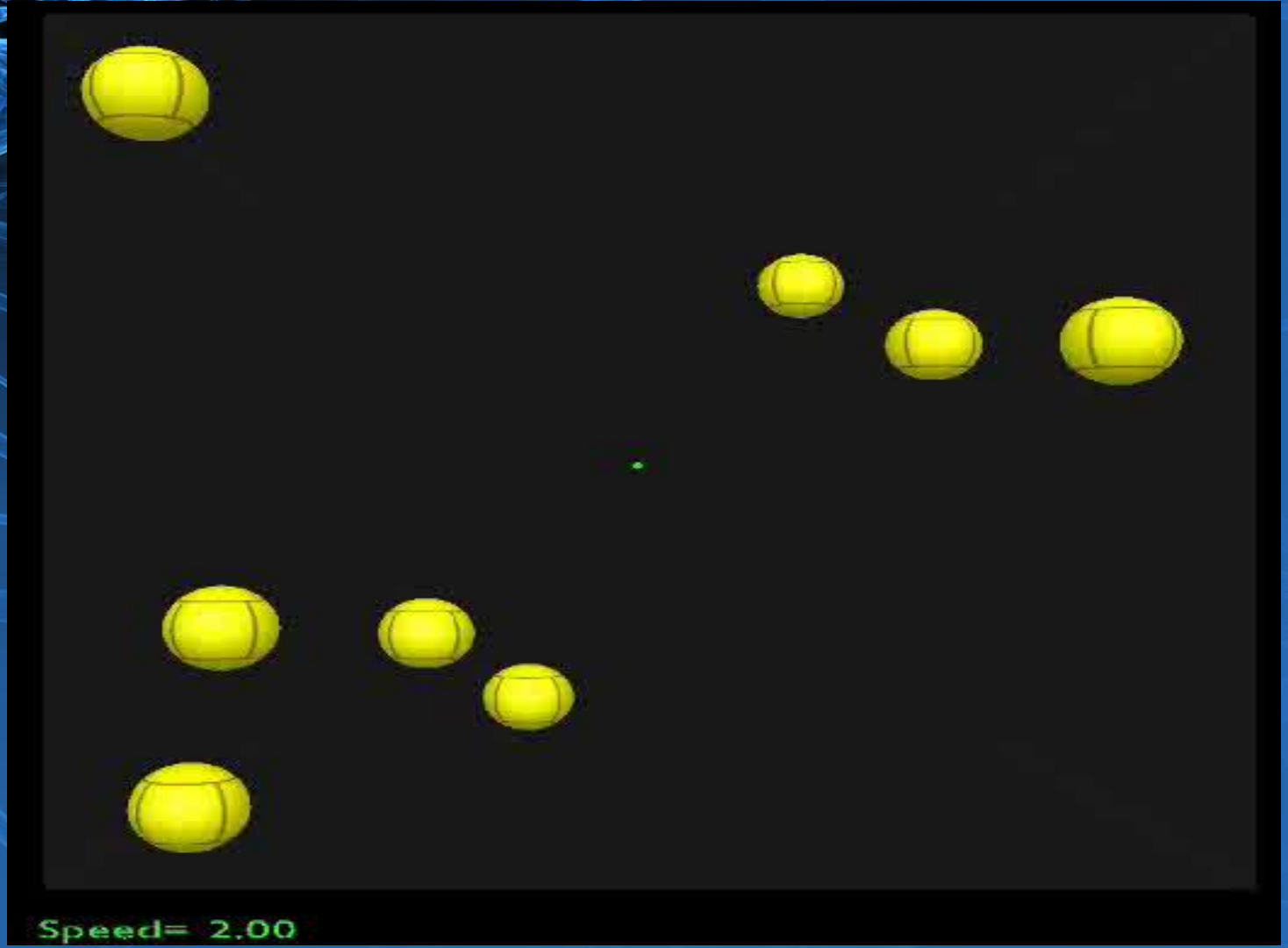


Identification

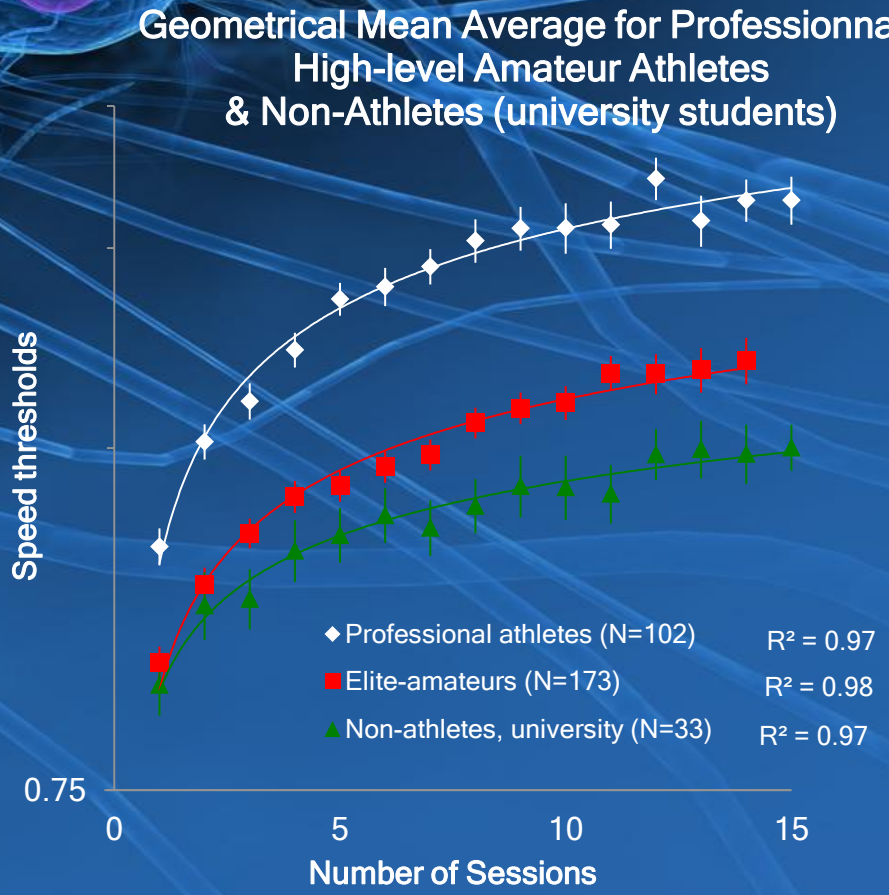
Feedback

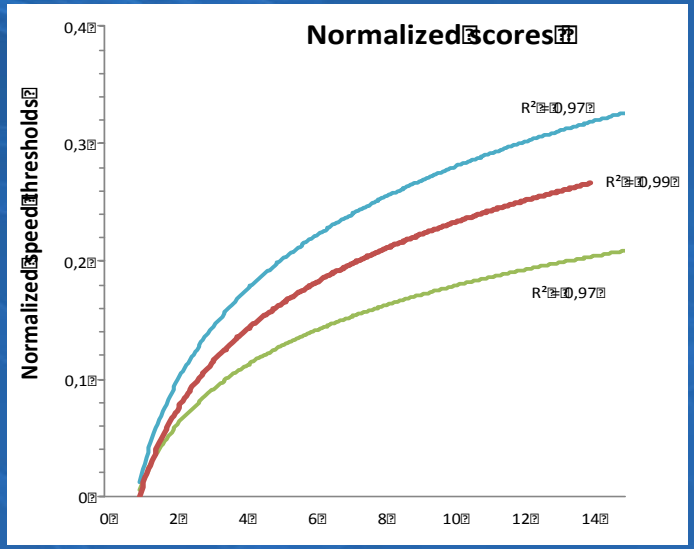



Speed= 1.00


Speed= 2.00

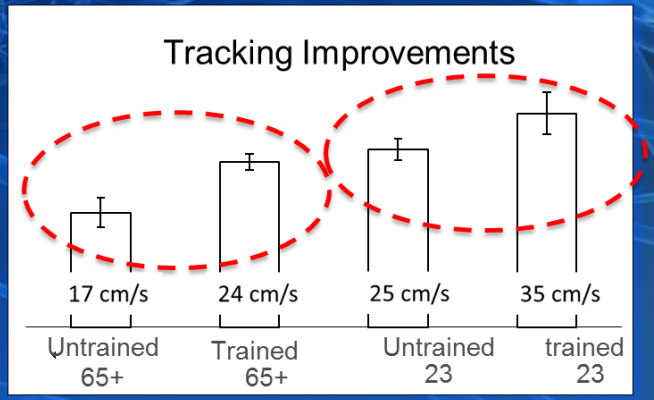
Learning

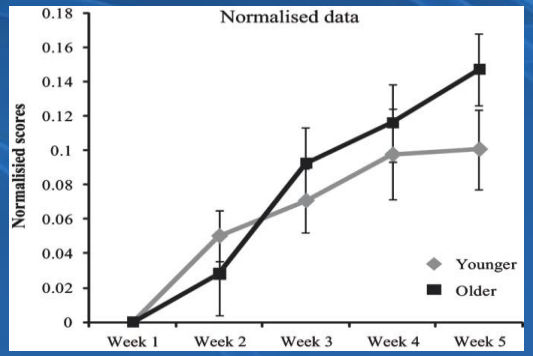

Geometrical Mean Average for Professionnals
High-level Amateur Athletes
& Non-Athletes (university students)
Speed thresholds
0.75
0
5
10
15
Number of Sessions
Professional athletes (N=102)
Elite-amateurs (N=173)
Non-athletes, university (N=33)
R² = 0.97
R² = 0.98
R² = 0.97


Normalized scores
Normalized speed thresholds
0,4
0,3
0,2
0,1
0
0
2
4
6
8
10
12
14
R² = 0,97
R² = 0,99
R² = 0,97

NeuroTracker Active Aging

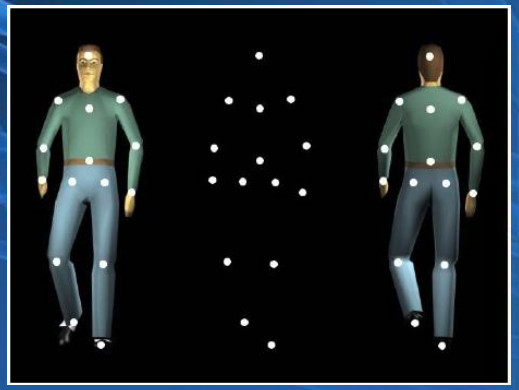
Neuroplasticity Remains

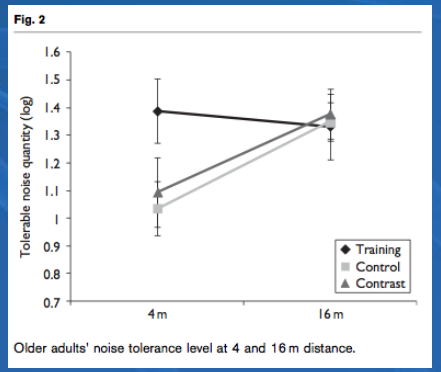




Legault, Allard & Faubert, 2013

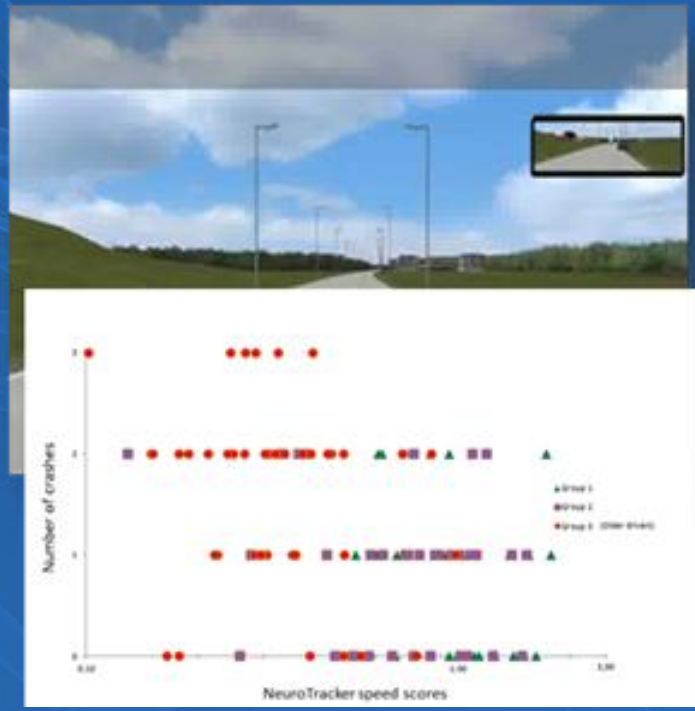
Social Impact





Legault & Faubert, 2012; Legault, Troje & Faubert, 2012

Driving Improvement



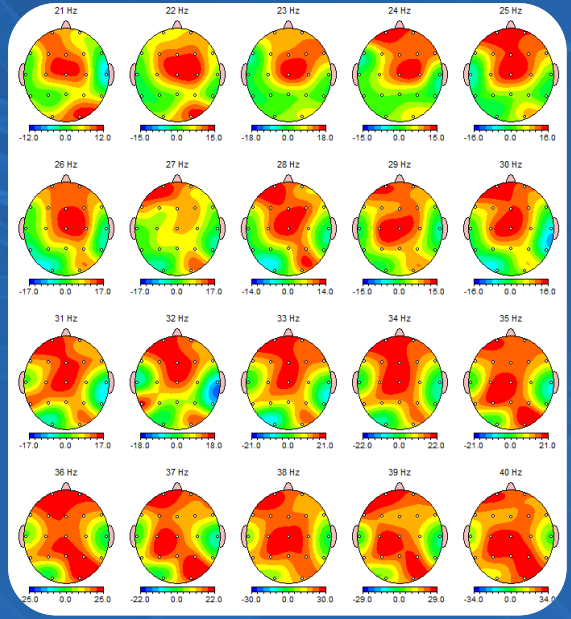
Faubert et al., 2014

NeuroTracker Enhances Cognitive Function (Published 2015)

Healthy university students

- 2 groups:
  1. NT group (trained; n=10)
  2. CON group (untrained; n=10)

- Neuropsychological tests
  1. Attention, working memory, information processing speed
  2. Functional brain scan (qEEG)
- 10 training sessions; 2x per week over 5 weeks




Thank you!
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