UNIVERSITY OF TRIESTE

DIPARTIMENTO DI SCIENZE DELLA VITA

Research group "Basic and applied Cognition"

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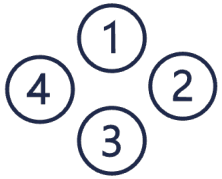
PhD Program in Neural and Cognitive Sciences

Department of Life Sciences

University of Trieste

Main lines of research



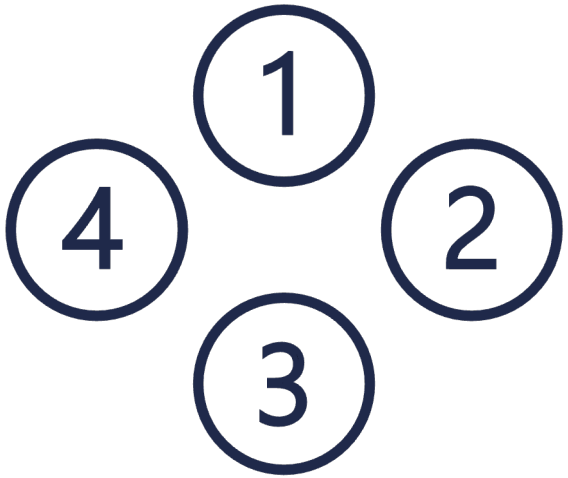
- Spatial associations for symbolic and non-symbolic quantities (also using eye-tracking)

- Perceptual-cognitive processes in sports

- Perceptual-cognitive processes and motor rehabilitation in Parkinson's disease

- Smartphone and cognitive processes

Line of research



Spatial associations for symbolic and non-symbolic quantities

Spatial-Numerical Association of Response Codes (SNARC) effect

The SNARC effect:

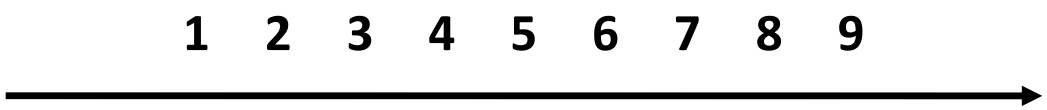
A spatial-numerical association emerges when judging the magnitude of numbers using lateralized keys (Dehaene, Bossini, & Giraux, 1993)

Faster responses to small numbers with the left key

Faster responses to large numbers with the right key

Spatial-Numerical Association of Response Codes (SNARC) effect

Existence of a **mental number line** oriented from left to right with small numbers on the left (e.g. 1 and 2) and large numbers on the right (e.g. 8 and 9)

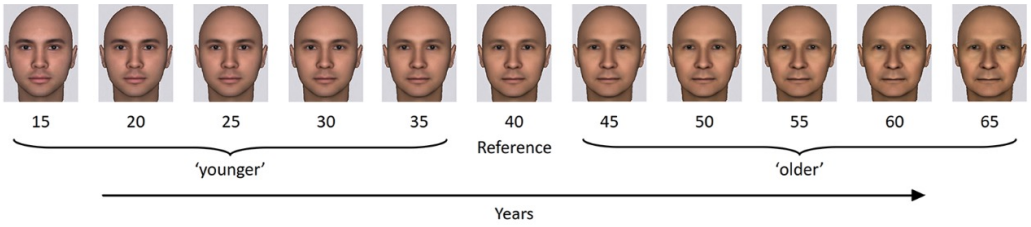


Mental "Number Line" (MNL)
(Restle, 1970)

Spatial-Numerical Association of Response Codes (SNARC) effect

SNARC-like effect:

Similar to numbers, other non-numerical domains are spatially coded and elicit similar effects, which are known as SNARC-like effects.



Face age (Dalmaso et al. 2023)

120 Bpm

Music tempo (Mariconda et al., 2024)

Our publications

scientific reports

OPEN

A systematic investigation reveals that Ishihara et al.'s (2008) STEARC effect only emerges when time is directly assessed

Alberto Mariconda[1,4]✉, Valter Prpic[2,3,4]✉, Serena Mingolo[1], Fabrizio Sors[1], Tiziano Agostini[1] & Mauro Murgia[1,4]✉

COGNITIVE SCIENCE
A Multidisciplinary Journal

Cognitive Science 47 (2023) e13374

ISSN: 1551-6709 online
DOI: 10.1111/cogs.13374

Face Age is Mapped Into Three-Dimensional Space

Mario Dalmaso,[a] Stefano Pileggi,[a] Michele Vicovaro[b]

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[b]*Department of General Psychology, University of Padova*

Received 9 June 2023; received in revised form 28 September 2023; accepted 16 October 2023

PeerJ

SNARC-like effect for tempo is consistent for fast and full tempo ranges but still controversial for slow tempo range

Alberto Mariconda[1,*], Mauro Murgia[1], Matteo De Tommaso[2], Tiziano Agostini[1] and Valter Prpic[3,4,*]

[1] Department of Life Sciences, University of Trieste, Trieste, Italy
[2] Department of Psychology, University of Milan, Bicocca, Milano, Italy
[3] Department of Philosophy, University of Bologna, Bologna, Italy
[4] Institute for Psychological Sciences, De Montfort University, Leicester, United Kingdom
[*] These authors contributed equally to this work.

Psychological Research (2025) 89:76
https://doi.org/10.1007/s00426-025-02101-8

RESEARCH

Unravelling the small number bias: the role of pseudoneglect and frequency of use in random number generation

Serena Mingolo[1,2] · Valter Prpic[3,4] · Alberto Mariconda[2] · Tiziano Agostini[2] · Mauro Murgia[2]

Line of research

Perceptual-cognitive processes in sports

Cognitive processes and sports

- Experimental psychology to study the cognitive processes of athletes
- Four main skills:
  - Perception and attention
  - Decision-making
  - Motor control
  - Learning and memory

Cognitive processes and sports

- Footballers during match:

- Perception and attention (e.g. observing the position of opponents; focusing on the movement of a partner)
- Decision-making (e.g. kicking to the right or left)
- Motor control (e.g. adjusting the direction and speed of the movement leading to a pass)
- Learning and memory (e.g. learning new movements; remembering the coach's schemes)

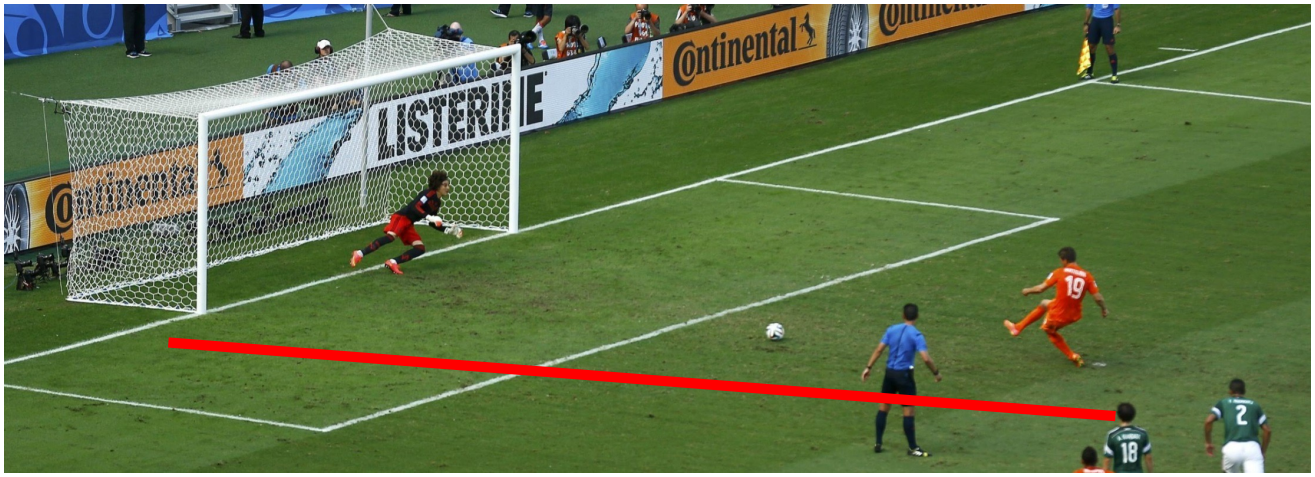
Cognitive processes and sports

Why studying these cognitive processes in sport? For two main reason:

1. To develop training to improve performance of athletes
2. To assess their abilities

Example of visual perception and sport:

Goalkeeper VS penalty taker



Our publications

European Journal of Sport Science, 2021
Vol. 21, No. 12, 1597–1605, https://doi.org/10.1080/17461391.2020.1845814

Routledge
Taylor & Francis Group

Check for updates

ORIGINAL ARTICLE

The sound of silence in association football: Home advantage and referee bias decrease in matches played without spectators

FABRIZIO SORS [1,2†], MICHELE GRASSI [2], TIZIANO AGOSTINI [2], & MAURO MURGIA [2†]

[1]*Department of Medicine, Surgery and Health Sciences, University of Trieste, Trieste, Italy &* [2]*Department of Life Sciences, University of Trieste, Trieste, Italy*

Psychology of Sport and Exercise 15 (2014) 642–648

Contents lists available at ScienceDirect

Psychology of Sport and Exercise

journal homepage: www.elsevier.com/locate/psychsport

Using perceptual home-training to improve anticipation skills of soccer goalkeepers

Mauro Murgia [a, b, *], Fabrizio Sors [a], Alessandro Franco Muroni [a], Ilaria Santoro [a], Valter Prpic [a], Alessandra Galmonte [c], Tiziano Agostini [a]

[a] *University of Trieste, Department of Life Sciences, Italy*
[b] *University of Cagliari, Department of Pedagogy, Psychology, Philosophy, Italy*
[c] *University of Verona, Department of Neurological and Movement Sciences, Italy*

PeerJ

A complete season with attendance restrictions confirms the relevant contribution of spectators to home advantage and referee bias in association football

Fabrizio Sors, Michele Grassi, Tiziano Agostini and Mauro Murgia

Department of Life Sciences, University of Trieste, Trieste, Italy

Line of research

Perceptual-cognitive processes and motor rehabilitation in Parkinson's disease

Relationship between perception and movement disturbances

Studies conducted on:

1. The rhythmic auditory stimulation and its influence on motor rehabilitation of people affected by Parkinson's disease (e.g. using a metronome)
2. The influence of physical activity on gait patterns and on the role of evaluation settings on quantitative assessment of gait.
3. The perception of visual illusions by people with Parkinson's disease.

Our publications

frontiers in Neurology

CLINICAL TRIAL
published: 24 May 2018
doi: 10.3389/fneur.2018.00348

The Use of Footstep Sounds as Rhythmic Auditory Stimulation for Gait Rehabilitation in Parkinson's Disease: A Randomized Controlled Trial

Mauro Murgia[1,2], Roberta Pili[3], Federica Corona[4], Fabrizio Sors[1], Tiziano A. Agostini[1], Paolo Bernardis[1], Carlo Casula[3], Giovanni Cossu[3], Marco Guicciardi[2] and Massimiliano Pau[4]*

frontiers | Frontiers in Neuroscience

TYPE Original Research
PUBLISHED 06 December 2023
DOI 10.3389/fnins.2023.1256224

Check for updates

OPEN ACCESS

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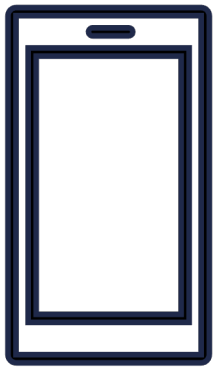
PUBLISHED 06 December 2023

CITATION
Cucca A, Manara CV, Catalan M, Liccari M,

Using illusions to understand hallucinations: differences in perceptual performances on illusory figures may underscore specific visuoperceptual impairments in Parkinson's disease

Alberto Cucca[1,2]*, Claudia Virginia Manara[1], Mauro Catalan[3], Marco Liccari[3], Lucia Antonutti[3], Tiziana Maria Isabella Lombardo[3], Valentina Cenacchi[3], Sophie Rangan[3], Serena Mingolo[1], Carmelo Crisafulli[4], Franca Dore[4], Mauro Murgia[1], Tiziano Agostini[1] and Paolo Manganotti[3]

Line of research



Smartphone and cognitive processes

Smartphone and cognitive processes

Smartphone use can interfere with:

- Attention
- Working memory
- Reward
- Executive functions

Brain drain effect → the mere presence of the smartphone seems to interfere with cognitive performance (Ward et al.,2017).

Our publications

Computers in Human Behavior Reports 14 (2024) 100428

Contents lists available at ScienceDirect

Computers in Human Behavior Reports

journal homepage: www.sciencedirect.com/journal/computers-in-human-behavior-reports

The abstinence from smartphone scale (ABSS-10): Psychometric properties and practical utility

Claudia Virginia Manara [a,1], Serena Mingolo [b,1], Michele Grassi [a,**], Fabrizio Sors [a], Valter Prpic [c,d], Tiziano Agostini [a], Mauro Murgia [a,*]

[a] Department of Life Sciences, University of Trieste, Trieste, Italy
[b] Department of Humanities, University of Trieste, Trieste, Italy
[c] Department of Philosophy and Communication Studies, University of Bologna, Bologna, Italy
[d] Institute for Psychological Science, De Montfort University, Leicester, UK

ARTICLE INFO

Keywords:
Smartphones
Smartphone addiction
Anxiety
Abstinence symptoms
Withdrawal symptoms
Psychometric validation

ABSTRACT

In order to frame excessive smartphone use as an addiction, it is important to understand whether this behavior determines abstinence symptoms and which damaging effect it has on emotions and cognition. However, an appropriate tool to assess the presence of smartphone abstinence symptoms is still lacking. In the present study, we propose a scale that is specifically developed to assess the psychological state deriving from smartphone abstinence: The Abstinence from Smartphone Scale (ABSS-10). The aim of this work is to validate ABSS-10 and to investigate its relevance in the context of smartphone addiction. Two studies were conducted to explore ABSS-10 psychometric properties, focusing on discriminant validity, and its relationship with smartphone dependence and emotional attachment. In Study 1, university students were administered the ABSS-10 two times during a two and a half-hour long smartphone restriction period. In Study 2, the scale was administered three times during a five-hour long smartphone restriction period. General state anxiety and smartphone dependence scales were also administered. The findings reveal that ABSS-10 effectively differentiates smartphone abstinence symptoms from general state anxiety and dependence. Moreover, results show that the scale detects changes in abstinence symptoms scores during a five-hour restriction period. The scale's utility in both research and practical settings is discussed, highlighting its potential contributions to understanding the psychological dynamics of smartphone use and abstinence. The present work suggests that ABSS-10 is a robust tool for research on the psychological effects of smartphone usage.

(in press)

Technology, Mind, and Behavior

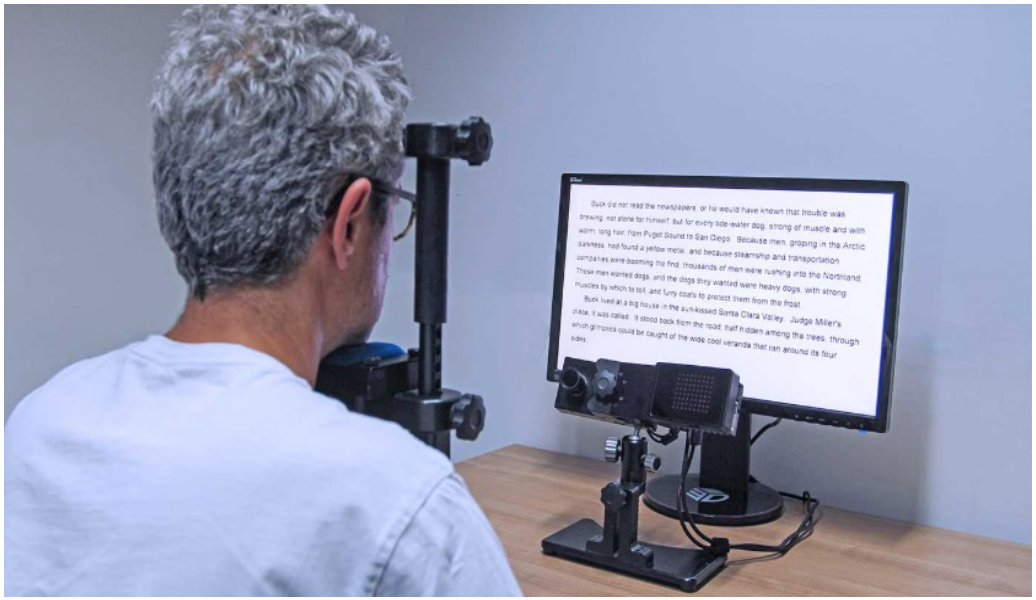
The Revised Extended iSelf: Disentangling the Effects of Smartphone Position and Ringing on Cognitive Performance and Psychophysiological Parameters

--Manuscript Draft--

Manuscript Number:	TMB-2025-0003R3
Full Title:	The Revised Extended iSelf: Disentangling the Effects of Smartphone Position and Ringing on Cognitive Performance and Psychophysiological Parameters
Abstract:	The Extended Self Theory posits that individuals perceive their possessions – e.g., the smartphone – as an extension of the Self, the separation of which may influence cognition and may cause emotional distress. In line with this theory, previous research found that when the smartphone is distant and ringing, cognitive performance decrease and psychophysiological activity increases, compared to when the smartphone is near and does not ring. The present study aims to disentangle the effects of the smartphone Position (Near vs. Distant) and Ringing (Pre vs. Post) on cognitive tasks and psychophysiological activity; we used a 2x2 mixed design, with Position as the between-subjects independent variable and Ringing as the within-subjects independent variable. Participants (N = 70) completed two word-search puzzles, while their psychophysiological activity was being recorded. We primarily hypothesized main effects of smartphone Position and Ringing, as well as the interaction between these factors, on cognitive performance and psychophysiological parameters; furthermore, we hypothesized that participants in Distant condition would perceive less extension of the Self. As for cognitive performance, findings did not reveal any effect of Position, Ringing or their interaction. As for psychophysiological parameters, only Ringing had an effect, which was primarily reflected by increased electrodermal activity, although it was inconsistent with other parameters. No difference in the perception of extended self was observed. This pattern of results may reflect habituation to constant smartphone connectivity in contemporary users.
Article Type:	Registered Reports

Instruments

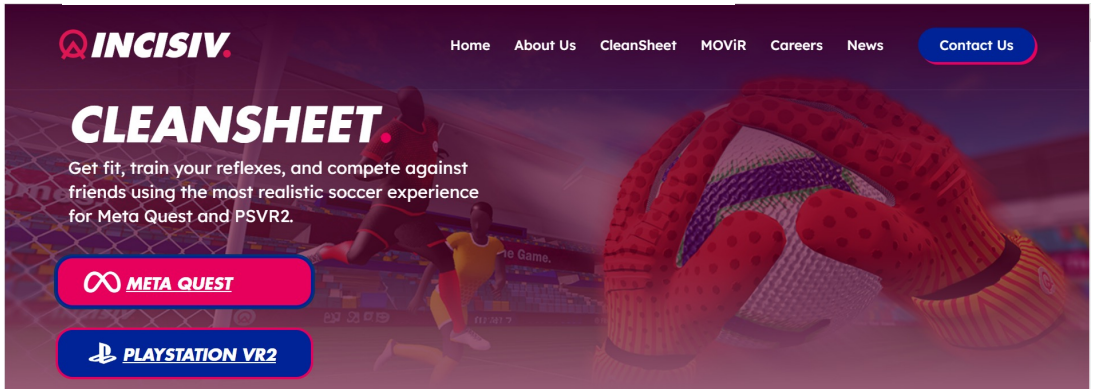
Cycle-ergometer – BK-24



Eye Tracker - EyeLink 1000 Plus

Instruments

VR headset Meta Quest 2



Biograph Infiniti

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UNLOCKING HUMAN POTENTIAL

TT-pIR HEadGear™ System - T2600

Skin Conductance Sensor - SA9309M

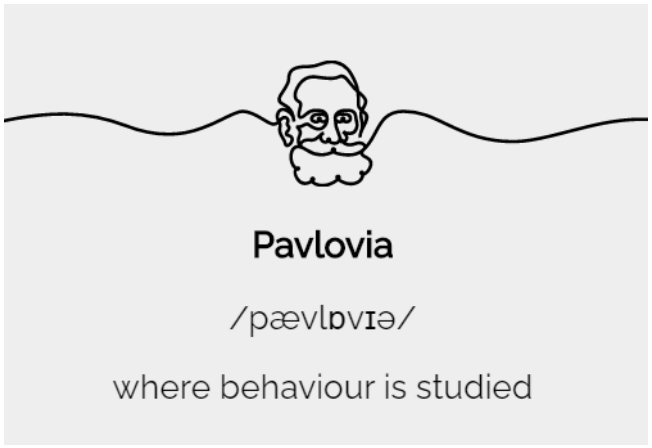
Temperature Sensor - SA9310M

Respiration Sensor - SA9311M

EKG™ Sensor - T9306M

Blood Volume Pulse (BVP) Sensor - SA9308M

Software


Pavlovia
/pævlɒvɪə/
where behaviour is studied

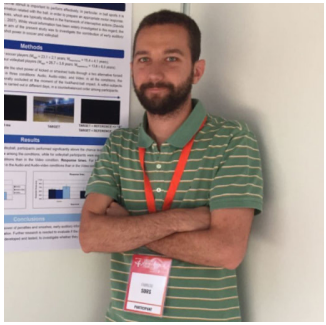

PsychoPy
Psychology software in Python


R Studio®


jamovi
Stats.
Open.
Now.

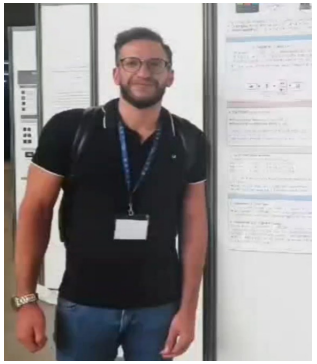
Our research team

Serena



Fabrizio

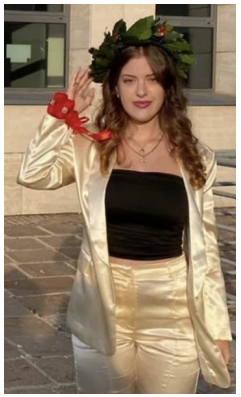
Valter



Alberto

Mauro

Tiziano



Maria

Claudia

Stefano

Angelica

UNIVERSITY OF TRIESTE

DIPARTIMENTO DI SCIENZE DELLA VITA

Thanks for your attention!

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