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## BIOGRAPHICAL SKETCH

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NAME: Martelli, Marialuisa

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POSITION TITLE: Associate Professor, full-time with tenure

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### EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Rome "La Sapienza", Rome	MA	07/1996	Experimental psychology
University of Rome "La Sapienza", Rome, Italy	PHD	11/2001	Visual Neuroscience
Research and Rehabilitation Centre, IRCCS Santa Lucia, Rome	Fellow	1997	Post-graduate training in neuropsychology
University of Virginia, Michael Kubovy's laboratory	Fellow	1998	Post-graduate training on visual perception
New York University, Denis Pelli's laboratory, New York City, NY	Postdoctoral Fellow	2004	Post-graduate training in Visual Psychophysics

### A. Personal Statement

I'm trained in neuropsychology and visual psychophysics. In my lab we investigate the cognitive mechanisms involved in expert automatized tasks. We record behavioural measures, such as reaction times and thresholds, during objects and words recognition tasks, while measuring eye movement's parameters. Based on the psychophysical evidences, we try to understand the core of the deficits in diverse populations. The underlying research interest focuses on the possibility to account for the population variability drawing from the current available models. In this vein I've been working with elderly individuals, vascular brain damaged patients, patients with traumatic brain injury, as well as with developmental populations with learning disabilities. The core junction is the understanding of the processing slowness. I believe the novelty in the approach is the combination of across-fields knowledge. We are filling the gaps and in doing so we have explained some important conditions, such as neglect dyslexia, with findings that point to focussed rehabilitation protocols,

### B. Positions and Honors

#### Positions and Employment

Dates	Positions
1994 - 1995	Research assistant in Neuropsychology, University of Rome, Psychology Department, Rome
1997 - 1998	Research Scholarship CUN, UVA, Graduate School of Arts and Science, Cognitive Department, Auditory and Visual Perception Laboratory, Specialization with Dr. Michael Kubovy
1999 - 2000	Instructor in Research techniques, University of Rome "La Sapienza", Rome
2000 - 2001	Doctoral Scholarship University of Rome to complete a specialization with Dr. Denis Pelli, New York University
2000 - 2004	Research Scientist, New York University, New York, NY
2001 - 2003	TA in Psychology, New York University, New York, NY
2003 - 2004	Research Contract, Spatial Orientation, Aeronautica Militare Pratica di Mare, Sezione Disorientamento Spaziale
2004 - 2005	Research Scientist, University of Rome "La Sapienza", Rome
2004 - 2006	Teaching contract, Perception, New York University Florence, Florence
2004 - 2007	Teaching Position, University of Rome "La Sapienza", Psychophysics, Rome
2005 -	Adjunct Professor, University of Rome "La Sapienza", Rome
2005-	Member of the Sapienza Doctoral Program in Behavioural Neuroscience
2005-	Member of the Specializing School in Neuropsychology, IRCCS Santa Lucia and Sapienza
2009 - 2015	Tenure full time Research Scholar, Università degli studi di Roma La Sapienza, Rome
2010 - 2011	International consultant, The World Bank (International Bank for Reconstruction and Development)
2012 -	International consultant, The World Bank (International Bank for Reconstruction and Development)
2014 -	International consultant , Qatar Foundation , WISE (World Innovation Summit for Education)
2015 -	Tenure full time Associate Professor, Università degli studi di Roma La Sapienza, Rome
2017-	Director of the Master degree in Cognitive Neuroscience, Psychology Department, Sapienza
2017-2021	Member of the Department Didactic Committee
2017-2021	Member of the Department Research Committee
2018	National habilitation for Full Professor
2021-2022	Sapienza co-representative for the European network CIVIS
2022-2024	Professor at the University of Tor Vergata (50%, Art. 6)

## **Other Experience and Professional Memberships**

- 2014            Invited speaker, II World Dyslexia Forum - 17-20 Agosto 2014 – Belo Horizonte – Brasil
- 2014            Invited speaker, WISE Summit "Imagine-Create-Learn: Creativity at the Heart of Education" 3-6 Novembre 2014, Doha, Qatar

## **C. Contribution to Science**

1. Object recognition: Basic visual mechanisms involved in objects and faces recognition: studies involve brain imaging and eye movements' recordings.
  - a. Strappini, F., Couch, M., Carcione, A., & Martelli, M. (Eds.). (2024). Evidence for Reductionist or Anti-Reductionist Approaches of Mental Processing. Frontiers Media SA.
  - b. Strappini, F., Martelli, M., Cozzo, C., & di Pace, E. (2020). Empirical evidence for intraspecific multiple realization?. *Frontiers in Psychology*, 11.
  - c. Moreau, Q., Parrotta, E., Era, V., Martelli, M. L., & Candidi, M. (2020). Role of the occipito-temporal Theta rhythm in hand visual identification. *Journal of neurophysiology*, 123(1), 167-177.
  - d. Sand, K., Robotham, R. J., Martelli, M., & Starrfelt, R. (2018). Visual crowding in pure alexia and acquired prosopagnosia. *Cognitive Neuropsychology*, 1-10.
  - e. Albonico, A., Martelli, M., Bricolo, E., Frasson, E., & Daini, R. (2018). Focusing and orienting spatial attention differently modulate crowding in central and peripheral vision. *Journal of Vision*, 18(3):4, 1–17, <https://doi.org/10.1167/18.3.4>.
  - f. Strappini F, Galati G, Martelli M, Di Pace E, Pitzalis S (2017) Perceptual integration and attention in human extrastriate cortex *Scientific Reports* 7, Article number: 14848.
  - g. Zeri F, Calcatelli P, Funaro E, Martelli M, Naroo SA (2017) How accurate is an LCD screen version of the Pelli-Robson test? *Int Ophthalmol*. 1-12. doi: 10.1007/s10792-017-0609-0.
  - h. Strappini, F., Pelli, D. G., Di Pace, E., & Martelli, M. (2017). Agnosic vision is like peripheral vision, which is limited by crowding. *Cortex*, 89, 135-155.
  - i. Albonico, A., Malaspina, M., Bricolo, E., Martelli, M., & Daini, R. Temporal dissociation between the focal and orientation components of spatial attention in central and peripheral vision. *Acta Psychologica* 2016, 171, 85-92. PubMed PMID: [27743522](https://pubmed.ncbi.nlm.nih.gov/27743522/)
  - j. Pelli DG, Waugh SJ, Martelli M *et al.* (2016) A clinical test for visual crowding. *F1000Research* 2016, 5:81.
  - k. Bricolo E, Salvi C, Martelli M, Arduino LS, Daini R. The effects of crowding on eye movement patterns in reading. *Acta Psychol (Amst)*. 2015 Sep;160:23-34. PubMed PMID: [26143298](https://pubmed.ncbi.nlm.nih.gov/26143298/).
  - l. Lucertini M, De Angelis C, Martelli M, Zolesi V, Tomao E. Subjective visual vertical in erect/supine subjects and under microgravity: effects of lower body negative pressure. *Eur Arch Otorhinolaryngol*. 2011 Jul;268(7):1067-75. PubMed PMID: [21293964](https://pubmed.ncbi.nlm.nih.gov/21293964/).
2. Reading: Models of reading acquisition across languages; studies involve psychophysical modeling and eye movement studies of reading.
  - a. Mauti, M., Marinelli, C. V., O'Connor, R. J., Zoccolotti, P., & Martelli, M. (2023). Decision times in orthographic processing: a cross-linguistic study. *Experimental Brain Research*, 1-15.
  - b. Marinelli, C. V., Angelelli, P., Martelli, M., & Zoccolotti, P. (2023). It's time for a change: Reflections on useful paradigms in the study of learning disorders from the RDoC perspective. *RICERCHE DI PSICOLOGIA*, 45, 99-142,

- c. Primativo, S., Rusich, D., Martelli, M., & Arduino, L. S. (2022). The Timing of Semantic Processing in the Parafovea: Evidence from a Rapid Parallel Visual Presentation Study. *Brain Sciences*, 12(11), 1535.
  - d. Primativo, S., Rusich, D., Mauti, M., Martelli, M., & Arduino, L. S. (2022). Movimenti oculari durante la lettura di frasi anomale: il ruolo di variabili lessicali, semantiche e del tipo di compito. *Giornale italiano di psicologia*, 49(3), 573-594.
  - e. Rusich, D., Arduino, L. S., Mauti, M., Martelli, M., & Primativo, S. (2021). Evidence of Semantic Processing in Parafoveal Reading: A Rapid Parallel Visual Presentation (Rpvv) Study. *Brain Sciences*, 11(1), 28.
  - f. Daini, R., Primativo, S., Albonico, A., Veronelli, L., Malaspina, M., Corbo, M., ... & Arduino, L. S. (2021). The Focal Attention Window Size Explains Letter Substitution Errors in Reading. *Brain Sciences*, 11(2), 247.
  - g. Facchin, A., Maffioletti, S., Martelli, M., & Daini, R. (2019). Different trajectories in the development of visual acuity with different levels of crowding: The Milan Eye Chart (MEC). *Vision research*, 156, 10-16.
  - h. Primativo S, Spinelli D, Zoccolotti P, De Luca M, Martelli M. Perceptual and Cognitive Factors Imposing "Speed Limits" on Reading Rate: A Study with the Rapid Serial Visual Presentation. *PLoS One*. 2016;11(4):e0153786. PubMed PMID: [27088226](#); PubMed Central PMCID: [PMC4835101](#).
  - i. Marinelli CV, Horne JK, McGeown SP, Zoccolotti P, Martelli M. Does the mean adequately represent reading performance? Evidence from a cross-linguistic study. *Front Psychol*. 2014;5:903. PubMed PMID: [25191289](#); PubMed Central PMCID: [PMC4137238](#).
  - j. Marinelli, Chiara Valeria; Martelli, Marialuisa; Praphamontipong, Prachayani; Zoccolotti, Pierluigi; Abadzi, Helen. 2013. Visual and Linguistic Factors in Literacy Acquisition : Instructional Implications for Beginning Readers in Low-income Countries. Global Partnership for Education (GPE) working paper series on learning;no. 2. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/16244>
3. Developmental dyslexia: Perceptual integration as a factor in determining slow reading in developmental dyslexia: studies involve mathematical modeling of psychophysical measures.
    - a. Conforti, S., Marinelli, C. V., Zoccolotti, P., & Martelli, M. (2024). The metrics of reading speed: understanding developmental dyslexia. *Scientific Reports*, 14(1), 4109,
    - b. Marinelli, C. V., Angelelli, P., & Martelli, M. (2023). E' tempo di cambiare: riflessioni sui paradigmi utili nello studio dei disturbi dell'apprendimento nella prospettiva RDoC. *Ricerche di Psicologia*, (2022/4).
    - c. Marinelli, C. V., Angelelli, P., Martelli, M., Trenta, M., & Zoccolotti, P. (2021). Ability to Consolidate Instances as a Proxy for the Association Among Reading, Spelling, and Math Learning Skill. *Frontiers in Psychology*, 12, 761696.
    - d. Martelli M, De Luca M, Lami L, Pizzoli C, Pontillo M, Spinelli D, Zoccolotti P. Bridging the gap between different measures of the reading speed deficit in developmental dyslexia. *Exp Brain Res*. 2014 Jan;232(1):237-52. PubMed PMID: [24132528](#).
    - e. Martelli M, Burani C, Zoccolotti P. Visual perceptual limitations on letter position uncertainty in reading. *Behav Brain Sci*. 2012 Oct;35(5):294-5. PubMed PMID: [22929297](#).
  4. Acquired dyslexia: The role of eye movements and perceptual limitation in vascular patients with an acquired reading deficit.
    - a. Daini, R., Primativo, S., Albonico, A., Veronelli, L., Malaspina, M., Corbo, M., ... & Arduino, L. S. (2021). The Focal Attention Window Size Explains Letter Substitution Errors in Reading. *Brain Sciences*, 11(2), 247.
    - b. Daini R, Albonico A, Malaspina M, Martelli M, Primativo S, Arduino LS. Dissociation in Optokinetic Stimulation Sensitivity between Omission and Substitution Reading Errors in Neglect Dyslexia. *Front Hum Neurosci*. 2013;7:581. PubMed PMID: [24062678](#); PubMed Central PMCID: [PMC3775017](#).
    - c. Martelli M, Arduino LS, Daini R. Two different mechanisms for omission and substitution errors in neglect dyslexia. *Neurocase*. 2011;17(2):122-32. PubMed PMID: [20812140](#).

- d. Primativo S, Arduino LS, Daini R, De Luca M, Toneatto C, Martelli M. Impaired oculo-motor behaviour affects both reading and scene perception in neglect patients. *Neuropsychologia*. 2015 Apr;70:90-106. PubMed PMID: [25698638](#).
  - e. Primativo S, Arduino LS, De Luca M, Daini R, Martelli M. Neglect dyslexia: a matter of "good looking". *Neuropsychologia*. 2013 Sep;51(11):2109-19. PubMed PMID: [23850599](#).
5. Perceptual and motor components in decision-making: Modeling the slowing of information processing by psychophysical measures.
- a. Schettino, M., Mauti, M., Parrillo, C., Ceccarelli, I., Giove, F., Napolitano, A., ... & Orsini, C. (2023). Resting-state brain activation patterns and network topology distinguish human sign and goal trackers.
  - b. Cuomo, G., Maglianella, V., Ghanbari Ghooshchy, S., Zoccolotti, P., Martelli, M., Paolucci, S., ... & Iosa, M. (2022). Motor imagery and gait control in Parkinson's disease: Techniques and new perspectives in neurorehabilitation. *Expert Review of Neurotherapeutics*, 22(1), 43-51.
  - c. Morone, G., Ghanbari Ghooshchy, S., Pulcini, C., Spangu, E., Zoccolotti, P., Martelli, M., ... & Iosa, M. (2022). Motor Imagery and Sport Performance: A Systematic Review on the PETTLEP Model. *Applied Sciences*, 12(19), 9753.
  - d. Cappa A, Ciccarelli N, Baldonero E, Martelli M, Silveri MC. Posterior AD-type pathology: cognitive subtypes emerging from a cluster analysis. *Behav Neurol*. 2014;2014:259358. PubMed PMID: [24994944](#); PubMed Central PMCID: [PMC4068066](#).
  - e. Puopolo C, Martelli M, Zoccolotti P. Role of sensory modality and motor planning in the slowing of patients with traumatic brain injury: a meta-analysis. *Neurosci Biobehav Rev*. 2013 Dec;37(10 Pt 2):2638-48. PubMed PMID: [24025160](#).
  - f. Martelli, M., Barban, F., Zoccolotti, P., and Silveri, M.C. Slowing of information processing may depend upon execution (not cognitive) components in Alzheimer's disease. *Cognitive and Behavioural Neurology* 2012, 25, 175–185. PubMed PMID: [23277138](#)

## D. Additional Information: Research Support

### 2012-2013

#### Project 'Ateneo Federato'

Marialuisa Martelli (PI)

Project title "Cognitive and motor slowing in traumatic brain damaged patients." C26A13LRHS.

### 2014

#### Qatar Foundation

WISE (World Innovation Summit for Education)

Marialuisa Martelli (PI)

Project title "customized research review on creativity for policy advice".

### 2013-2014

#### Bank Foundation 'Ente Cassa di Risparmio di Firenze'

Marialuisa Martelli (PI)

Project title "Reading acquisition deficits: a research-intervention on learning disabilities' (n. 2013.0892)

### 2015

#### C26H15CZX4, Project 'Ateneo Federato'

Marialuisa Martelli (PI)

Project title "Testing different treatments for developmental dyslexia: an eye movement study".

### 2016

#### Project 'Ateneo'

Matteo Candidi (PI)

ElectroEncephaloGraphic correlates of body and action visual perception, their functional role and modulation through non-invasive brain stimulation

### 2017-2021

**NIH**

Denis Pelli (PI)

Project Title: Studying crowding as a window into object recognition and development and health of visual cortex

**2018-2020****Project 'Ateneo'**

Marialuisa Martelli (PI)

Visual deficits in stroke patients: the back of the brain

**2020-2022****Project 'Ateneo'**

Mariella Leggio (PI)

Cerebro-cerebellar predictive systems for interpersonal interactions: integrating motion kinematics, autonomic monitoring, fMRI and lesions approaches in virtual reality

**PRIN 2022**

Marialuisa Martelli (unit PI)

Parallel Semantic Reading of Multiple Words during Life-Span