

FRANCESCO RUOTOLO, Ph.D.

University of Utrecht
Department of Experimental Psychology
Heidelberglaan 1,
Utrecht, 3584 CS, The Netherlands

Tel Lab: +31-302533356
Mobile: +39-3209480141
E-mail: f.ruotolo@uu.nl

ACTUAL POSITION:

Post-Doc Researcher at Utrecht University, Department of Experimental Psychology, with a Marie Curie Individual Intraeuropean Fellowship (MARIE CURIE IEF FELLOW- PROJECT MAP-SPACE)

EDUCATION

Second University of Naples, Italy

- Ph.D., Mind Science. Grade: Excellent January 10, 2009

Second University of Naples, Italy

- M.Sc., Psychology. Grade: 110/110 cum laude December 14, 2005

RESEARCH EXPERIENCE

UNIVERSITY OF UTRECHT (The Netherlands)

June 2014- current

Department of Experimental Psychology

Project 1: “MapSpace— How humans encode, represent and use basic spatial information in perception and action: behavioral and neural evidence”.

- *Co-authors:* Albert Postma (full professor); Ineke van der Ham (associate professor, University of Leiden); Mathijs Raemaekers (Post-Doc, Utrecht Medical Center UMCU)

Project 2: “The influence of emotions on spatial memory”

- *Co-authors:* Ineke van der Ham (associate professor, Leiden University); Michael Claessen (Ph.D. student, University of Utrecht)

Project 3: “The weight of auditory events on visual reachability judgments”

- *Co-authors:* Nathan van der Stoep (assistant professor, University of Utrecht); Manasa Kandula (Ph.D. student, University of Utrecht)

SECOND UNIVERSITY OF NAPLES (Italy)

Department of Psychology

January 2012-current

Project 1: “Peripersonal space: the boundary between body, objects and events”.

- *Co-authors:* Tina Iachini (associate professor); Gennaro Ruggiero (researcher)

Project 2: “Egocentric and allocentric spatial representations: the role of familiarity, ageing, and vision”.

- Co-authors: Tina Iachini (associate professor); Gennaro Ruggiero (researcher);

Project 3: “Egocentric/Allocentric frames of references and Categorical/Coordinate Spatial relations”.

- Co-authors: Tina Iachini (associate professor); Albert Postma (full professor); Ineke van der Ham (associate professor, University of Leiden)

UNIVERSITY OF BOLOGNA (Italy)

September 2012- September 2014

Project 1: “Who is speaking? Implicit and explicit self and other voice recognition”.

- Co-authors: Francesca Frassinetti (associate professor); Tina Iachini (associate professor); Michela Candini (PhD student); Elisa Zamagni (Post-Doc)

UNIVERSITY PARTHENOPE (Italy)

January 2013- June2013

Project 1: “Toward a teaching embodied-centered: perspectives of research and intervention”

- Co-authors: Maria Luisa Iavarone (associate professor); Tina Iachini (associate professor)

SECOND UNIVERSITY OF NAPLES (Italy)

October, 2010- October, 2011

Department of Architecture

Project 1: “New Audio-Visual methods for the assessment of noise on people’s annoyance and cognitive performance”

- Co-authors: Luigi Maffei (full professor); Tina Iachini (associate professor); Massimiliano Masullo (researcher); Gennaro Ruggiero (researcher); Vincenzo Paolo Senese (researcher); Maria Di Gabriele (Post-Doc); Francesco Aletta (Ph.D. student).

UNIVERSITY OF PLYMOUTH (UK)

September, 2005 – October, 2005

Project: “Spatial memory in large-scale outdoor environments”

- Visiting undergraduate student. Role: data collection.
- Supervisors: Prf. Angelo Cangelosi and Prof. Kenny Coventry.

PUBLICATIONS

Peer reviewed international journal articles

- 1) **Ruotolo, F.**, Iachini, T., Ruggiero, G., van der Ham, I.C.M., & Postma, A. (2016). The role of frames of reference and spatial relations in a “WHAT WAS WHERE” task. *Experimental Brain research*. DOI: 10.1007/s00221-016-4672-y
- 2) Iachini, T., Ruggiero, G., **Ruotolo, F.**, Schiano di Cola, A., & Senese, V.P. (2015). The influence of anxiety and personality factors on comfort and reachability space: A correlational study. *Cognitive Processing*, 16 Suppl 1:255-8. doi: 10.1007/s10339-015-0717-6.
- 3) **Ruotolo, F.**, van der Ham, I., Postma, A., Ruggiero, G., Iachini, T. (2015). How coordinate and categorical spatial relations combine with egocentric and allocentric reference frames in a motor task: effects of delay and stimuli characteristics. *Behavioral Brain Research*, 284:167-78. doi: 10.1016/j.bbr.2015.02.021.
- 4) Iachini, T., Iavarone, M.L., & **Ruotolo, F.** (2015). Toward a teaching embodied-centered: perspectives of research and intervention. *REM-Research on education and media*, 5(1), 57-68.
- 5) Candini, M., Zamagni, E., Nuzzo, A., **Ruotolo, F.**, Iachini, T., Frassinetti, F. (2014). Who is speaking? Implicit and explicit self and other voice recognition. *Brain and Cognition*, 92C:112-117. doi: 10.1016/j.bandc.2014.10.001.
- 6) Iachini, T., Ruggiero, G., **Ruotolo, F.**, Vinciguerra, M. (2014). Motor resources in peripersonal space are intrinsic to spatial encoding: evidence from motor interference. *Acta Psychologica*, 153:20-7. doi: 10.1016/j.actpsy.2014.09.001.
- 7) Iachini, T., Ruggiero, G., **Ruotolo, F.** (2014). Does blindness affect egocentric and allocentric frames of reference in small and large scale spaces? *Behavioral Brain Research*, 273:73-81. doi: 10.1016/j.bbr.2014.07.032.
- 8) Maffei, L., Iachini, T., Masullo, M., Aletta, F., Sorrentino, F., Senese, V.P., **Ruotolo, F.** (2013). The Effects of Vision-Related Aspects on Noise Perception of Wind Turbines in Quiet Areas. *International Journal of Environmental Research and Public Health*, 10(5), 1681-1697. DOI:10.3390/ijerph10051681.
- 9) **Ruotolo, F.**, Maffei, L., Di Gabriele, M., Iachini, T., Masullo, M., Ruggiero, G., Senese, V.P. (2013). Immersive Virtual Reality and Environmental Noise Assessment: an innovative audio- visual approach. *Environmental Impact Assessment Review*, 41, 10-20. DOI:10.1016/j.eiar.2013.01.007.
- 10) **Ruotolo, F.**, Senese, V.P., Ruggiero, G., Maffei, L., Masullo, M., & Iachini, T. (2012). Individual reactions to a multisensory immersive virtual environment: the impact of a wind farm on individuals. *Cognitive processing*, 13(1), 319-323. DOI: 10.1007/s10339-012-0492-6.

- 11) Ruggiero, G., **Ruotolo, F.**, Iachini, T. (2012). Egocentric/allocentric and coordinate/categorical haptic encoding in blind people. *Cognitive processing*, 13(1), 313-7, DOI:10.1007/s10339-012-0504-6.
- 12) Iachini, T., Maffei, L., **Ruotolo, F.**, Senese, V.P., Ruggiero, G., Masullo, M., Alekseeva, N. (2012). Multisensory Assessment of Acoustic Comfort Aboard Metros: a Virtual Reality Study. *Applied Cognitive Psychology*, 26(5), 757–767, DOI: 10.1002/acp.2856.
- 13) **Ruotolo, F.**, Ruggiero, G., Vinciguerra, M., & Iachini, T. (2012). Sequential vs. simultaneous encoding of spatial information: a comparison between the blind and the sighted. *Acta Psychologica*, 139(2), 382 - 389. DOI: 10.1016/j.actpsy.2011.11.011.
- 14) Senese, V. P., **Ruotolo, F.**, Ruggiero, G., & Iachini, T. (2012). The Italian version of the Weinstein Noise Sensitivity Scale: Measurement Invariance Across Age, Gender, and Context. *European Journal of Psychological Assessment*, 28(2), 118-124. DOI: 10.1027/1015-5759/a000099.
- 15) **Ruotolo, F.**, Iachini, T., Postma, A., & van der Ham, I.J.M. (2011, b). Frames of reference and categorical and coordinate spatial relations: a hierarchical organization. *Experimental Brain Research*, 214(4), 587-595. DOI: 10.1007/s00221-011-2857-y.
- 16) **Ruotolo, F.**, van der Ham, I. J. M., Iachini, T., & Postma, A. (2011, a). The relationship between allocentric and egocentric frames of reference and categorical and coordinate spatial relations. *The Quarterly Journal of Experimental Psychology*, 64(6), 1138 – 1156.
- 17) Iachini, T., Ruggiero, G., & **Ruotolo, F.** (2011). Blind people’s mental spatial maps. *Acta Acustica united with Acustica*, Supp. 1, vol. 97, p S 91
- 18) Maffei, L., Masullo, M., Alexeeva, N., **Ruotolo, F.**, & Senese, V. P. (2010). Evaluation of acoustic discomfort aboard metros based on immersive virtual reality approach. *InterNoise Proc.* Volume 221, Issue 1, pp. 2481-2490.
- 19) Ruggiero, G., **Ruotolo, F.**, & Iachini, T. (2009). The role of vision in egocentric and allocentric spatial frames of reference. *Cognitive Processing*, 10, 283-285. DOI: 10.1007/s10339-009-0320-9.
- 20) Iachini T., Ruggiero G., & **Ruotolo, F.** (2009). The effect of age on egocentric and allocentric spatial frames of reference. *Cognitive Processing*, 10, 222-224. DOI: 10.1007/s10339-009-0276-9.
- 21) Iachini, T., Iavarone, A., Senese, V.P., **Ruotolo, F.**, & Ruggiero, G. (2009). Visuospatial memory in healthy elderly, AD and MCI: a review. *Current Aging Science*, 2, 43-59.
- 22) Iachini, T., **Ruotolo, F.**, & Ruggiero, G. (2009). The effects of familiarity and gender on spatial representation. *Journal of Environmental Psychology*, 29, 227-234.

Chapters in International Books

- 1) van der Ham, I., & **Ruotolo, F.** (in press). Visuospatial perception and lateralization. In I.C.M. van der Ham & A. Postma (Eds.), *Neuropsychology of Space: Spatial functions of the human brain*. Elsevier Inc.
- 2) Ruggiero, G., Iachini, T., **Ruotolo, F.**, & Senese, V.P. (2009). *Spatial memory: the role of egocentric and allocentric frames of reference*. In J.B. Thomas (Ed.), *Spatial Memory: Visuospatial Processes, Cognitive Performance and Developmental Effects* (chapter 2). NY: Nova Science Publishers. ISBN: 978-1-61668-139-5
- 3) Iachini, T., Ruggiero, G., & **Ruotolo, F.** (2009). *Spatial memory and large-scale ecological environments*. In L. C. Eklund & A. S. Nyman (Eds.), *Learning and Memory Developments and Intellectual Disabilities* (chapter 8). NY: Nova Science Publishers. ISBN: 978-1-60876-397-9
- 4) Iachini, T., Ruggiero, G., **Ruotolo, F.**, & Pizza, R. (2008). *Age and gender differences in some components of spatial cognition*. In H.T. Benninghouse & A.G. Rosset (Eds.), *Women and Aging: New Research* (chapter 6). Nova Science Publishers: NY. ISBN: 978-1-60456-575-1

International Conference proceedings, Abstracts

- 1) Ruggiero, G., Senese, V.P., **Ruotolo, F.**, Schiano di Cola, A., Iachini, T. (2015). I feel like you when you come close to me: Motor simulation and inter-bodies distances. *Cognitive Processing* (2015) 16 (Suppl 1):S77. 6th International Conference on Spatial Cognition: Space and Situated Cognition. Rome, Italy, 7-11 September 2015.
- 2) Ruggiero, G., **Ruotolo, F.**, Iachini, T. (2015). Switching frames of reference: Congenital blindness limits the allocentric to egocentric translation. *Cognitive Processing* (2015) 16 (Suppl 1):S99. 6th International Conference on Spatial Cognition: Space and Situated Cognition. Rome, Italy, 7-11 September 2015.
- 3) **Ruotolo, F.**, Van der Ham, I., Postma, A., Iachini, T., Ruggiero, G. (2015). The way people represent spatial information depends on the characteristics of the task: Effects of delay and stimuli manipulability. *Cognitive Processing* (2015) 16 (Suppl 1):S99. 6th International Conference on Spatial Cognition: Space and Situated Cognition. Rome, Italy, 7-11 September 2015.
- 4) **Ruotolo, F.**, Iachini, T., Ruggiero, G., Vinciguerra, M. (2014). Motor resources in peripersonal space: evidence from a motor interference task. In the XIV European Workshop on Imagery and Cognition – EWIC 2014. Paphos, Cyprus, 18 – 20 June 2014.

- 5) Iachini, T., Coello, Y., Frassinetti, F., **Ruotolo, F.**, Senese, V.P., Ruggiero, G. (2012). Peripersonal space and interpersonal space in the interaction with virtual humans, robots and objects: what do they have in common? In the XIV European Workshop on Imagery and Cognition– EWIC 2014. Paphos, Cyprus, 18 – 20 June 2014.
- 6) Zamagni, E., **Ruotolo, F.**, Candini, M., Iachini, T., & Frassinetti, F. (2013). A study on implicit and explicit self-voice recognition. 4th Scientific Meeting of the ESN Federation of European Societies of Neuropsychology, 12-14 September 2013, Berlin, Germany.
- 7) Candini, M., **Ruotolo, F.**, Zamagni, E., Iachini, T., & Frassinetti F. (2013). A study on Implicit and Explicit self-voice recognition. Summer School on “Embodied Inter-subjectivity : the 1st person and the 2nd person perspective” – from June 9-15th 2013, in Aegina, Greece.
- 8) Iachini, T., Vinciguerra, M., **Ruotolo, F.**, Ruggiero, G. (2012). Ready to act and react: hands in peripersonal space. *Cognitive processing*, 13, Suppl(1): S19. 5th International Conference on Spatial Cognition: Space and Embodied Cognition. Rome, Italy, 4-8 September.
- 9) Ruggiero, G., **Ruotolo, F.**, Iachini, T. (2012). Egocentric/Allocentric and coordinate/categorical haptic encoding in blind people. *Cognitive processing*, 13, Suppl(1): S68-S69. 5th International Conference on Spatial Cognition: Space and Embodied Cognition. Rome, Italy, 4-8 September.
- 10) **Ruotolo, F.**, Senese, V.P., Ruggiero, G., Maffei, L., Masullo, M., Iachini, T. (2012). Individual reactions to a multisensory immersive virtual environment: the impact of a windfarm on individuals. *Cognitive processing*, 13, Suppl(1): S69. 5th International Conference on Spatial Cognition: Space and Embodied Cognition. Rome, Italy, 4-8 September.
- 11) **Ruotolo, F.**, D’Errico, O., Ruggiero, G. (2012). Egocentric and allocentric frames of reference from childhood to elderly age. In the XIII European Workshop on Imagery and Cognition– EWIC 2012. Ruhr-University, Bochum, Germany, 20 – 22 June 2012, pp. 49.
- 12) Iachini, T., Vinciguerra, M., **Ruotolo, F.** (2012). Predicting collisions in peripersonal and extrapersonal space in virtual reality. In the XIII European Workshop on Imagery and Cognition – EWIC 2012. Ruhr-University, Bochum, Germany, 20 – 22 June 2012, pp. 49.
- 13) **Ruotolo, F.**, Iachini, T., Postma, A., & van der Ham, I. (2010). Frames of reference and categorical and coordinate spatial relations: a hierarchical organization. In the XII European Workshop on Imagery and Cognition – EWIC 2010. Majvik Conference and Congress Hotel, Kirkkonummi, Finland, 16 – 19 June 2010, pp. 41.

- 14) Ruggiero, G., **Ruotolo, F.**, & Senese, V.P. (2010). The effect of response modality on 2D and 3D stimuli. In the XII European Workshop on Imagery and Cognition – EWIC 2010. Majvik Conference and Congress Hotel, Kirkkonummi, Finland, 16 – 19 June 2010, pp. 78-79.
- 15) **Ruotolo, F.**, Ruggiero, G., & Senese, V.P. (2009). Interaction between egocentric and allocentric frames of reference. *Cognitive processing*, 10, Suppl(2): S171-S172. 4th International Conference on Spatial Cognition: Space and Embodied Cognition. Rome, Italy, 4-8 September.
- 16) **Ruotolo, F.**, Iachini, T., & Ruggiero, G. (2007). The influence of familiarity and gender on mental spatial representations of a real environment. In the Eleventh European Workshop on Imagery and Cognition – EWIC 2007. Utrecht, The Netherlands, 27 – 29 June 2007.
- 17) Ruggiero, G., Iachini, T., & **Ruotolo, F.** (2007). Serial-spatial temporary memory span in congenital and adventitious blind people: an adaptation of the Corsi Tapping Test. In the Eleventh European Workshop on Imagery and Cognition – EWIC 2007. Utrecht, The Netherlands, 27 – 29 June 2007.

International Conference proceedings, Papers:

- 1) Alexeeva, N., Masullo, M., Senese, V.P., & **Ruotolo, F.** (2011). Comparison of Audio-only and Audio-Video approaches to acoustic discomfort assessment in public transportation systems. *Acta Acustica united with Acustica*, Supp. 1, vol. 97, p. S 89.
- 2) Masullo, M., Iannace, G., Basturk, S., **Ruotolo, F.**, Senese, V.P., & Maffei, L. (2011). The influence of vision on noise annoyance evaluation of wind farms. Fourth International Meeting on Wind Turbine Noise, 12-14 April 2011, Rome, Italy.
- 3) **Ruotolo, F.**, Iachini, T., Maffei, L., Basturk, S., & Di Gabriele, M. (2010). Subjective and objective psychological measures of environmental noise assessment. *Acta Acustica united with Acustica*, Supp. 1, vol. 96, p S 81.
- 4) Senese, V.P., **Ruotolo, F.**, Ruggiero, G., & Iachini, T. (2010). Measurement In-variance of the Italian Weinstein Noise Sensitivity Scale Across Age, Gender, and Context noise. *Acta Acustica united with Acustica*, Supp. 1, vol. 96, pp S 84.

Papers submitted and in preparation:

- 1) Iachini T., Ruotolo F., Vinciguerra M., & Ruggiero G. (*submitted*). Dissociating time and space in collision prediction: Temporal factors reflect adaptive functions of peripersonal space. *Cognition*

- 2) Ruotolo, Claessen, van der Ham (*in preparation*). The influence of emotions on spatial memory.
- 3) Ruggiero, Iachini, Ruotolo (*in preparation*). The influence of age on four basic spatial representations.
- 4) Ruggiero, Ruotolo, Iachini (*in preparation*). Switching frames of reference: Congenital blindness limits the allocentric to egocentric translation.
- 5) Ruotolo, Iachini, Raemaekers, Fracasso, Postma (*in preparation*). Neural bases of frames of reference and spatial relations: an fMRI study.

HONORS

Awards

- 1) 2010 AIA (Italian Association of Acoustic) Award for supporting the participation at “EAA Summer School held at the EAA Euroregio 2010 in Ljubljana, Slovenia, from 13 to 18 September 2010”, published on: *Acta Acustica united with Acustica*, Supp. 1, vol. 96 (2010), pp S10.
- 2) 2010 EAA (European Association of Acoustic) Award for the “Best paper and presentation” for the paper "Subjective and objective psychological measures of environmental noise assessment". Award sponsored by the Head Genuit Foundation.
- 3) Winner of the selection procedure at EPSO/CAST/S/5/2013 (CALL FOR EXPRESSIONS OF INTEREST FOR CONTRACT AGENTS). Category: “Researchers” (FG IV). Selection procedure by European Community to set up a database of successful candidates from which to recruit research contract staff.

Fellowships

- 1) UMCU (University Medical Center Utrecht) free scanning hours (for a total of 10.000 euros) to carry out excellent 7-Tesla research proposals (January 2016)
- 2) Marie Curie Individual Intraeuropean Fellowship (2013/2014; FP7-PEOPLE-2013-IEF; proposal n° 625788) (189.000 euro). Project acronym: MAP-SPACE. June 2014- current
- 3) Research Grant from Second University of Naples, D.R. 1158/2010 (150.000 euro). October 2010-2011
- 4) Second University of Naples- support Grant for Ph.D. student (60.000 euro). May 2006- December 2008

Scholarships

- 1) Second University of Naples- support Grant for undergraduate students (6.000 euros) for 5 years from September 2001 to December 2005.

TEACHING

University College of Utrecht, UCU (The Netherlands)

- Guest Lecture: Advanced Cognitive Neuroscience: Spatial Cognition. Professor Albert Postma. March 2015
- Guest Lecture: Advanced Cognitive Neuroscience: Spatial Cognition. Professor Albert Postma. March 2016

Second University of Naples (Italy)

- Guest Lecture: Immersive Virtual Reality Laboratory. Prof. Gennaro Ruggiero. December 2012
- Guest Lecture: Cognitive Science. Professor Tina Iachini November 2012.
- Laboratory Instructor: Immersive Virtual Reality. Professor Tina Iachini. Spring 2013
- Laboratory Instructor: Immersive Virtual Reality. Professor Tina Iachini. Fall 2012
- Teaching Assistant: Cognitive Science. Professor Tina Iachini. Fall-Winter 2011
- Teaching Assistant: Industrial and organizational psychology. Professor Alessandro Lo Presti. Academic year: 2011-2012
- Teaching Assistant: Industrial and organizational psychology. Professor Alessandro Lo Presti. Academic year: 2010-2011
- Teaching Assistant: Industrial and organizational psychology. Professor Alessandra delle Fratte. Academic year: 2006-2007

University Suor Orsola Benincasa (Italy)

- Laboratory Instructor: Psychometrics. Professor Andrea Bosco. Academic year: 2009-2010

MENTORING and SUPERVISORY EXPERIENCE

	Promotor (formal supervisor)	Student	Role as mentor or (co-) supervisor
PhDs Ongoing			
Successfully completed	1	Michela Vinciguerra	Co-supervisor
Subtotal PhDs	1		
Postdocs	0		
Subtotal postdocs	0		
Master students	10		Supervisor
Subtotal master students	10		
Other Part-time project researchers	Clara Kornblad (Internship) Julia Locherer (bachelor) Esther Alles (bachelor)	Keri Mans (Honor student) Antuan Broekman (Honor student) Naomi Nota (bachelor) Lavinia Przyborowski (bachelor)	Mentor Mentor Co-supervisor Co-supervisor
Subtotal other	3	4	

AD-HOC REFEREE FOR

Brain & Behavior (Wiley);
Memory & Cognition (Springer);
Attention, Perception & Psychophysics (Springer);
Psychonomic Bulletin and Review (Springer);
Scientific Research and Essays (Academic journals);
Journal of Cognitive Psychology (Taylor & Francis);
Journal of Low Frequency Noise, Vibration and Active Control;
Frontiers in Integrative Neuroscience;
Current Alzheimer Research (Bentham Science).

References

Tina Iachini, Ph.D.

Viale Ellittico 33, 81100
Caserta, Italy
Phone: +39 0823-274770
e-mail: santa.iachini@unina2.it

Albert Postma, Ph.D.

Heidelberglaan 1
NL-3584 CS Utrecht
The Netherlands
Phone: +31 30 - 253 3657
E-mail: a.postma@fss.uu.nl

Luigi Maffei, Eng., P

Via San Lorenzo - Abazia di
San Lorenzo
81031 - Aversa (CE)
Phone: +39 081 5010840
E-mail: luigi.maffei@unina2.it

During the years I have used different experimental methodologies and dealt with different kinds of participants. I have carried out:

- Field Experiments (see publication list, paper num. 20 and book chapter num. 3)
- Laboratory Experiments
- Experiments with Blind (congenital and adventitious) people (papers num. 5, 10, 12, & 17)
- Experiments with elderly people (papers num. 18, 19, book chapter num. 4)
- Experiments with children (paper in preparation)
- Laboratory Experiments reproducing Real environments with the Immersive Virtual Reality technology (papers num. 1, 4, 7, 8, 9, 11)
- Experiment with the 7tesla functional magnetic resonance imaging (research in progress)

Experience with different methodological approaches allowed me to acquire different:

COMPUTER SKILLS

- Ms Office: Excel, Word, Power Point
- Data analysis: Statistica, SPSS, SPM8 (for fMRI)
- Stimulus presentation: E-prime, Superlab, Open SESAME, Presentation
- Programming: Python (basic level), MatLab
- Video editing: Photoshop, 3DGoogle sketch-up
- Setting up of Immersive Virtual Reality scenarios and experimental procedures (advanced level)

And:

RESEARCH-RELATED SKILLS

- devising experimental paradigms;
- analyzing large complex data sets;
- interpreting results and writing scientific papers;
- presenting results to conferences and seminars;
- managing the Immersive Virtual Reality technology;
- ability to design 3-D stimuli by means of dedicated software;
- considering both qualitative and quantitative measures and taking large amounts of data and turning it into meaningful information;
- enabling the research to stay within a set budget and timelines;
- collaborating with interdisciplinary teams during research projects;
- theoretical knowledge about the most relevant cognitive and neuroscientific models in the field of spatial encoding.

Here you can find a summary of my last research achievements, organized for research interest:

Spatial memory: the opportunity to actively participate in the research group of Spatial Cognition of the Laboratory of Cognitive Science & Immersive Virtual Reality (headed by T. Iachini) allowed me to take part in thinking, devising and carrying out several outstanding behavioral experiments about spatial memory with both sighted and blind people. The most relevant results are: a) people who are unfamiliar with a real environment form an egocentric representation of it (i.e. based on their learning perspective), whereas people who are familiar with the same environment have an allocentric representation of it (i.e. like a map) accessible on the basis of their sensorimotor experience with the environment (i.e. egocentrically) (Iachini et al., 2009); b) Allocentric representations tend to decline with ageing (i.e. Ruggiero et al., 2009; Iachini et al., 2009 CAS); c) congenitally blind people have more difficulties in processing allocentric relationships with respect to the sighted and blindfolded people (Ruggiero et al., 2009), and this seems to be due to their modality for acquiring spatial information that is in a sequential rather than simultaneous way (Ruotolo et al., 2012); this difficulty seems specially linked to large-scale environments (Iachini et al., 2014).

Multisensory perception and Immersive Virtual Reality (IVR): interdisciplinary research project (Psychology, Architecture, and Engineer) about the use of IVR for the evaluation of the impact of auditory and visual features of new infrastructures on people. Three experiments were carried out where, for the first time: a) people could experience environments in IVR in a realistic manner b) auditory components of the scenarios were evaluated with the co-occurrent visual scenario; c) both subjective (e.g. pleasantness; noise annoyance) and objective (e.g. cognitive performance) measures were taken. The main results are: - the presence of a visual scenario as compared to the only availability of auditory stimuli may exert a negative effect on resource-demanding cognitive tasks but a positive effect on perceived noise annoyance (Iachini et al., 2012; Ruotolo et al., 2012); - audio-visual immersive virtual reality simulations represent a valid and reliable tool to assess the impact of new infrastructures on people before they are effectively built up (Ruotolo et al., 2013; Maffei et al., 2013).

Spatial encoding: during the PhD period, the applicant performed some experiments on two topics: - interaction between egocentric and allocentric frames of reference; - interaction between frames of reference and coordinate/categorical spatial relations. Participants saw simple 2D stimuli on a computer screen and had to judge their spatial relations with respect to another stimulus (allocentric) or with respect to their body midline (egocentric). The most important result are a) there is a bidirectional influence between egocentric and allocentric frames of reference during the encoding of spatial information (Ruotolo et al., 2011); b) spatial information processing has a hierarchical structure where reference frames play a primary role with respect to spatial relations (Ruotolo et al., 2011).

Main results from other projects:

- **Voice recognition:** people seem to have no implicit recognition advantage and an explicit recognition disadvantage of their own voice (contrary to what has been found with visual body parts) (Candini et al., 2014)

- **Peripersonal Space:** the encoding of peripersonal space requires motor resources independently from the kinds of elements contained in it (manipulable or non-manipulable objects) (Iachini et al, 2014). Comparison peripersonal-interpersonal space and anxiety: (Iachini et al 2015).

Here you can find a summary of my current interest research and findings, organized for research interest:

Visuo-Spatial processing: I'm investigating the influence of response modality (action vs. recognition), spatial relations (abstract vs. metric), temporal parameters of the response modality (on-line vs. memory), and characteristics of stimuli (manipulable vs. non manipulable elements) on the use of egocentric (i.e. body-based) and allocentric (i.e. scene/object based) frames of reference. Main results: 1) Egocentric representations are favored with an immediate motor response towards manipulable objects, in particular when the information to be processed is metric (i.e. distance comparison); 2) Allocentric representations are favored when more abstract (i.e. right/left) spatial information is processed, particularly when non-manipulable images are used; 3) Memory-based response favors allocentric representations (Ruotolo et al., 2015; Ruotolo et al., under revision).

Neural bases of spatial representations: with the use of the 7 tesla fMRI, I'm trying to identify the neural bases of four kinds of spatial representations: Egocentric Coordinate (i.e. distance with respect to the body), Egocentric Categorical (i.e. right/left of the body), Allocentric Coordinate (i.e. distances with respect to elements in the environment), Allocentric Categorical (i.e. right/left with respect to element in the environment). Main results: *work in progress....*

Spatial memory and Emotions: I'm exploring the influence of emotions on the way humans memorize routes within virtual environments. Main results: 1) Positive landmarks are remembered in a more accurate way than neutral or negative ones; 2) sequential information about landmarks improves when they are positive; 3) map drawing is more accurate after having explored positive than negative and neutral routes; 4) Negative routes are perceived as longer than positive and neutral ones.

Peripersonal space: I'm exploring the influence of auditory stimuli on defining the boundary of the peripersonal space (i.e. the space immediately surrounding our bodies). Specifically, the peripersonal space is measured by using reachability (i.e. can you reach for the object or not?) judgments. The idea is that when auditory information is salient, then reachability judgments towards visual stimuli are shifted towards auditory location. Main results: *work in progress....*

TEACHING EXPERIENCE

Teaching Assistant. I have experience as teaching assistant in different fields of psychology. At Second University of Naples I was a teaching assistant for three semesters (from 2011-2013) of Cognitive Science (MPSI-01). For this course I also developed several homework problems. Further, I have been teaching assistant of Industrial and organizational psychology at Second University of Naples for 3 semesters from 2009 till 2011, and of Psychometrics (2009-2010) at University Suor Orsola Benincasa (Italy).

Guest Lectures. At Second University of Naples I have continued to hone my teaching skills by giving guest lectures in audio-visual perception in Immersive Virtual Reality environments (Cognitive Science Laboratory), and Spatial Cognition (MPSI-01). Further, I have been guest lecturer also at University College of Utrecht Advanced Cognitive Neuroscience. These invited lectures afforded me the opportunity to teach classes ranging in size from 5 to 100 students using different media such as traditional lecture notes, overhead transparencies, and Power Point presentations.

Instructor. I have been an instructor at Second University of Naples (Italy) for a laboratory section of Cognitive Science (MPSI-01). The course is designed for students enrolled in the Psychology (Doctor of Psychology) degree program. The lab section contained 20 graduate level students. Prior to each lab, I gave a 30 minute lecture describing the theory and mechanics of the day's experiment. The experiments covered the different methodologies used to study different aspect of spatial cognition. For the remainder of each class, I provided assistance by guiding the students through the data analysis necessary to answer specific questions about the experiment.

Mentoring. As a postdoctoral fellow at Utrecht University, I had the opportunity to advise an internship student, Clara Kornblad, a visiting student from Amsterdam University. Further, I'm supervising two honor students of Utrecht University, Keri Mans and Antuan Broekman, who are conducting minor research within the spatial cognition field. These mentoring duties include giving informational lectures on topics of interest related to spatial cognition field, providing one-on-one tutorials for the setup, analysis of behavioral experiments, directing software usage, and overseeing manuscript layout and revision.

TEACHING PHILOSOPHY

My previous roles as a teaching assistant, instructor, guest lecturer, and mentor have been overwhelmingly positive. These teaching roles, coupled with my undergraduate, graduate, and postdoctoral experiences in which I was a student have formed my teaching philosophy. In short, my philosophy is to foster an environment that promotes: (1) enthusiasm, (2) life-long learning, (3) connection to the real world, (4) organized study, (5) student and teacher accountability, and (6) confidence building. I have great enthusiasm for science and I look forward to teaching both traditional courses in Cognitive Science. Knowing through experience the profound impact that one good teacher can have toward a student's overall development, I will strive to incorporate my teaching beliefs, principles and interests, into day-to-day routines and my overall teaching plan. I am committed to becoming the best teacher I can be.