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Matteo Lisi

Education

2013 **Ph.D Cognitive Science**, *University of Padova, Italy*.
Supervisor: Marco Zorzi

2009 **M.Sc. Neuroscience**, *University of Padova, Italy*.

2007 **B.Sc. Psychology**, *University of Padova, Italy*.

Academic positions

2022–present **Department of Psychology**, *Royal Holloway University of London, UK*.
Lecturer

2020–2021 **Department of Psychology**, *University of Essex, UK*.
Lecturer

2019–2020 **Department of Biological and Experimental Psychology**, *Queen Mary, University of London, UK*.
Postdoc. Advisor: Isabelle Mareschal

2017–2018 **Centre for Applied Vision Research**, *City, University of London, UK*.
Research Fellow. Advisors: Michael J. Morgan and Joshua A. Solomon

2013–2017 **Laboratoire Psychologie de la Perception**, *Université Paris Descartes & CNRS, France*.
Postdoc. Advisors: Patrick Cavanagh (2013-2015, 2016-2017), Andrei Gorea(2015-2016)

Publications

Journal articles

Cavanagh, P., Anstis, S., **Lisi, M.**, Wexler, M., Maechler, M. R., 't Hart, B. M., Shams-Ahmar, M. and Saleki, S. (2022). Exploring the frame effect. *Journal of Vision*, 22(12):5–5. `https://doi.org/10.1167/jov.22.12.5`.

Lisi, M., Morgan, M. M., and Solomon, J. A.(2022). Perceptual decisions and oculomotor responses rely on temporally distinct streams of evidence. *Nature Communications Biology*,5, 189, `https://doi.org/10.1038/s42003-022-03141-1`.

Michalek, J., **Lisi, M.**, Binetti, N., Ozkaya, S. Hadfield, K., Rajani, D., and Mareschal, I. (2022). War-related trauma linked to increased sustained attention to threat in children. *Child Development*, 93, 900–909, `https://doi.org/10.1111/cdev.13739`.

Felisatti, A., Ranzini, M., Blini, E. **Lisi, M.**, and Zorzi, M. (2022). Effects of attentional shifts along the vertical axis on number processing: An eye-tracking study with optokinetic stimulation. *Cognition*, 221, `https://doi.org/10.1016/j.cognition.2021.104991`.

Maechler, M. R., Heller, N. H., **Lisi, M.**, Cavanagh, P., and Tse, P. U. (2021). Smooth pursuit operates over perceived not physical positions of the double-drift stimulus. *Journal of Vision*, 21(11):6, `https://doi.org/10.1167/jov.21.11.6`.

Neil, L., Viding, E., Armbruster-Genc, D., **Lisi, M.**, Mareschal, I., Rankin, G., Phillips, H., Martin, P., and McCrory, E. (2021) Trust and childhood maltreatment: Evidence of bias in appraisal of unfamiliar faces. *Journal of Child Psychology and Psychiatry*, `https://doi.org/10.1111/jcpp.13503`.

Michalek, J., **Lisi, M.**, Hadfield, K., Mareschal, I., and Dajani, R. (2021) The Effects of a Reading-Based Intervention on Emotion Processing in Children Who Have Suffered Early Adversity and War Related Trauma. *Frontiers in Psychology*, `https://doi.org/10.3389/fpsyg.2021.613754`.

Crossland, M. D., Dekker, T., Hancox, J., **Lisi, M.**, Wemyss, T. A., and Thomas, P. B. M. (2021) Remote vision testing: Validation of a simple home-printable vision screening test for telemedicine. *JAMA Ophthalmology*, https://doi.org/10.1001/jamaophthalmol.2020.5972.

Lisi, M., Mongillo, G., Milne, G., Dekker, T., and Gorea, A. (2020) Discrete confidence levels revealed by sequential decisions. *Nature Human Behaviour*, https://doi.org/10.1038/s41562-020-00953-1.

Maus, G. W., Goh, H. L., and **Lisi, M.** (2020) Perceiving Locations of moving objects across eyeblinks . *Psychological Science*, 31(9):1117–1128.

Lisi, M. (2020) Uncertainty and spatial updating in posterior parietal cortex. *Cortex*, 130:441-443.

Dekker, T., and **Lisi, M.** (2020) Sensory development: integration develops before calibration. *Current Biology*, 30(9):PR409–R412.

Lisi, M., Solomon, J. A., and Morgan, M. M. (2019) Gain control of saccadic eye movements is probabilistic. *PNAS*, 116(32): 16137-16142, https://doi.org/10.1073/pnas.1901963116.

Haladjian, H. H., **Lisi, M.**, and Cavanagh, P. (2018). Motion and position shifts induced by the double-drift stimulus are unaffected by attentional load. *Attention, Perception, & Psychophysics*, 80(4):884–893.

Bonato*, M., **Lisi*, M.**, Pegoraro, S., and Pourtois, G. (2018). Cue-target contingencies modulate voluntary orienting of spatial attention: dissociable effects for speed and accuracy. *Psychological Research*, 82(2):272–283. * *equal contribution*.

Massendari, D., **Lisi, M.**, Collins, T., and Cavanagh, P. (2018). Memory-guided saccades show effect of a perceptual illusion whereas visually guided saccades do not. *Journal of Neurophysiology*, 119(1):62–72.

Maus, G. W., Duyck, M., **Lisi, M.**, Collins, T., Whitney, D., and Cavanagh, P. (2017). Target Displacements during Eye Blinks Trigger Automatic Recalibration of Gaze Direction. *Current Biology*, 27(3):445–450.

Lisi, M. and Cavanagh, P. (2017). Different spatial representations guide eye and hand movements. *Journal of Vision*, 17(2):12.

Lisi, M. and Gorea, A. (2016). Time constancy in human perception. *Journal of Vision*, 16(4):1–12.

Ranzini, M., **Lisi, M.**, and Zorzi, M. (2016). Voluntary eye movements direct attention on the mental number space. *Psychological Research*, 80(3):389–398.

Lisi, M. and Cavanagh, P. (2015). Dissociation between the Perceptual and Saccadic Localization of Moving Objects. *Current Biology*, 25(19):2535–2540.

Lisi, M., Cavanagh, P., and Zorzi, M. (2015). Spatial constancy of attention across eye movements is mediated by the presence of visual objects. *Attention, Perception, & Psychophysics*, 77(4):1159–1169.

Lisi, M., Bonato, M., and Zorzi, M. (2015). Pupil dilation reveals top–down attentional load during spatial monitoring. *Biological Psychology*, 112:39–45.

Bonato, M., Spironelli, C., **Lisi, M.**, Priftis, K., and Zorzi, M. (2015). Effects of multimodal load on spatial monitoring as revealed by ERPs. *Plos ONE*, 10(9):e0136719.

Ranzini*, M., **Lisi*, M.**, Blini, E., Pitteri, M., Treccani, B., Priftis, K., and Zorzi, M. (2015). Larger, smaller, odd or even? Task-specific effects of optokinetic stimulation on the mental number space. *Journal of Cognitive Psychology*, 27(4):459–470. **equal contribution*.

Desantis, A., Mamassian, P., **Lisi, M.**, and Waszak, F. (2014). The prediction of visual stimuli influences auditory loudness discrimination. *Experimental Brain Research*, 232(10):3317–3324.

Casarotti*, M., **Lisi*, M.**, Umiltà, C., and Zorzi, M. (2012). Paying attention through eye movements: a computational investigation of the premotor theory of spatial attention. *Journal of Cognitive Neuroscience*, 24(7):1519–31. **equal contribution*.

De Filippo De Grazia, M., Cutini, S., **Lisi, M.**, and Zorzi, M. (2012). Space coding for sensorimotor transformations can emerge through unsupervised learning. *Cognitive Processing*, 13 Suppl 1:S141–6.

Pre-prints

Rimsky-Robert, D., **Lisi, M.**, and Sergent, C. Consciously recognizing a stimulus without knowing what it looks like. Preprint: https://doi.org/10.1101/2021.02.02.429359.

Lisi, M. (2022) Metacognitive insight into COVID-19 knowledge reflects misinformation and predicts protective behaviours. Preprint: https://doi.org/10.31234/osf.io/hx4r3.

Milne, G. A., **Lisi, M.**, McLean, A., Zheng, R., Groen, I.I.A. and Dekker, T. M. Emergence of perceptual reorganisation from prior knowledge in human development and Convolutional Neural Networks. Preprint: https://www.biorxiv.org/content/early/2022/11/22/2022.11.21.517321.

Grant and Awards

2022 MRC NIRG (≈ £600K). Title: *Sex differences in interoception and mental health: an investigation across the menstrual cycle* (Co-PI; the PI is Jennifer Murphy).

2021 BA/Leverhulme Small Research Grant (£9960). Title: *A signal-detection theory analysis of public beliefs around COVID-19* (PI.).

2018 Research Fellowship from von Humboldt Foundation (≈ 250K€). Title: *Confidence in perceptual decision-making: testing the Bayesian hypothesis*. *Declined to stay in the UK*.

2016 National French qualification for the position of *Maître de Conférencé*, section 69, Neuroscience.

2011 Student Award (200€) at Rovereto Attention Workshop (RAW), Rovereto, Italy.

2011 Competitive funding award (McDonnell Foundation) for attending the Visceral Mind Summer School 2011 (course director: Bob Rafal), Bangor, UK.

2010 Competitive studentship from the Italian Ministry of Education to pursue a PhD (≈ 60K€).

Teaching

2022 **Applied Neuroscience Methods(PS5210)**, Department of Psychology, Royal Holloway, University of London.
Lectures on coding, eyetracking, numerical and mathematical skills (calculus, linear algebra).

2021 **Seeing and Hearing (PS414)**, Department of Psychology, University of Essex.
Lectures on color vision, spatial vision, psychophysics.

2021 **Theory and methods in Cognitive Neuroscience and Neuropsychology (PS949)**, Department of Psychology, University of Essex.
Neural foundation; sensory physiology.

2020-2021 **Statistics for psychologists (PS212)**, Department of Psychology, University of Essex.
2nd year BSc module; lectures on linear models and logistic regression.

2020-2021 **The science of uncertainty (PS509)**, Department of Psychology, University of Essex.
3rd year BSc module on Bayesian statistic (using R and Stan).

2021 **Github 101**, 5 May, Open Science Working Group, University of Essex.

2019 **Tutorial course on multilevel modelling**, 22 May, UCL Institute of Ophthalmology, London.

2018 **Multilevel modeling: frequentist and Bayesian approaches**, Invited tutorial at the conference GDR Vision 2018, 4-5 October, Paris, France.
Course materials: https://mlisi.xyz/#misc

2015 **Linear & generalized linear multilevel models in R**, Université Paris Descartes.
Statistical classes on hierarchical models for graduate and post-graduate students.

2011–2012 **Artificial Intelligence**, University of Padua.
I co-organized practical workshops where students could get hands-on experience in training and simulating connectionist models.

Supervision

2020– Andriana Theodoropoulou, PhD Student, University of Essex (second supervisor); risk perception and medical decision making.

– I supervised numerous (>15) undergraduate internships, student research projects (both BSc and MSc level) in Padua, Paris, London and Essex.

Invited talks and research visits

2022 *Quantifying confidence in perception and knowledge* Center for Cognitive Science, TU Darmstadt

2022 *Confidence biases in perceptual decision-making: how to measure them and a possible explanation in terms of efficient coding* École Normale Supérieure, Paris, France.

2022 *A signal-detection theory approach for measuring the impact of misinformation around Covid-19* University of Essex, UK.

2021 *Uncertainty monitoring in vision and eye movements* Keynote lecture at Understanding Vision 2021.

2020 *Probing confidence with sequential decisions* Département d'Études Cognitives, École Normale Supérieure, Paris, France.

2019 *Time constancy in human perception* Workshop in honor of Andrei Gorea, at the Université Paris Descartes, Paris, France.

2017 *Visual location in perception and action* CerCo (Centre de Recherche Cerveau & Cognition), CNRS UMR 5549, Tolouse, France.

2016 *Object localization in perception and action* Justus Liebig University, Giessen, Germany.

2016 *Perceptual constancy in interval timing* Laboratoire des Systèmes Perceptifs, École Normale Superieure, Paris France.

July 2014 Visiting researcher at the INVIBE (Inference in Visual Behavior) team of the Institute de Neurosciences de la Timone (Marseille, France). Invited by Laurent Goffart.

2012 *Paying attention across eye movements: A computational investigation of the premotor theory of spatial attention* Laboratoire Psychologie de la Perception, Paris France.

2011 *Role of landmark objects in the orienting of attention across eye movements* Center for Mind/Brain Sciences (CIMeC), University of Trento.

Service

Reviewing Ad-hoc reviewer for *Psychological Review, Nature Human Behaviour, Nature Communications Biology, Cortex, Current Biology, Sensors, PLOS One, Journal of Neurophysiology, Biological Psychology, Journal of Vision, Vision, Perception, i-Perception, Attention, Perception & Psychophysics, Cognitive, Affective, & Behavioral Neuroscience, Frontiers in Psychology, iScience, Neuroimage*.

Affiliations Vision Science Society (VSS), Applied Vision Association (AVA).

Pro bono Volunteer data scientist at DataKind UK, a charity that helps other charities in using their data to operate more effectively.

2022– Statistics consultant at the Department of Psychology of Royal Holloway, University of London. I provide advice and support to colleagues and students on topics such as statistical and computational modelling, power analyses and sample size determination, and write-up of statistical analyses section of grant proposals. I also organize workshops and training sessions and maintain a website containing statistical advice and tutorials (link).

2021– Member of the UKRI Early Career Researcher Forum.

2020-2022 Organizer of the Departmental Research Seminars, University of Essex.

2020-2022 Psychology Volunteers Pool Administrator, University of Essex.

2015-2017 Organizer of the Perception Club meetings at the Université Paris Descartes.

2014 Co-organized with Patrick Cavanagh two one-week workshops at the Université Paris Descartes, each involving one main invited lab plus additional international visitors.
- *ERC Berkeley workshop* (October), with participation of David Whitney's lab from University of California, Berkeley.
- *Real Time Rolling Experimental Workshop* (January-February) with participation of Rich Krauszlis' lab from the National Eye Institue (Bethesda, Maryland).

2011-2012 Elected representative of PhD students (2011-2012) at the Department of General Psychology, University of Padua.

Skills

Languages	Italian (native), English, French.
Courses/ certificates	French, CEFRL B2 certification obtained in 2015; Summer School in Cognitive Neurodynamics, CINN, University of Reading, UK , 2010; Visceral Mind Summer School, Bangor University, UK, 2011; Tobii Eye-tracking methodology course, Katholieke Universiteit Leuven, Belgium, 2012.
Coding	R, Matlab, Stan, Markdown, LaTeX, Bash, Python, Javascript (basic).
Research methods	Psychophysics, Computer-based behavioral testing, eye-tracking, computational modelling (probabilistic models of decision-making; neural network models), pupillometry, basic experience with EEG.
Data analysis	Linear, generalized linear, multivariate and multilevel models, Bayesian statistics, Monte Carlo methods, Generalized additive models (GAM), Circular statistics. Extensive experience with psychophysical modelling; e.g. maximum likelihood conjoint measurements (MLCM), maximum likelihood difference scaling (MLDS).
Other software	Experience with Unix/Linux environments; graphics and video editing with Inkscape, Gimp, Adobe Photoshop, OBS Studio, Adobe Premiere.

Chapters, proceedings and other writings

Book chapters

Lisi, M. (2017). L'analisi dei movimenti oculari come strumento di indagine dei processi cognitivi. In Bisiacchi, P. and Vallesi, A., editors, *Il cervello al lavoro. Nuove prospettive in neuropsicologia*, pages 35–52. il Mulino, Padova. *(Chapter about the study of eye movements in cognitive sciences. The book is currently adopted as textbook at the School of Psychology of the University of Padova)*.

Miscellaneous

Lisi, M. A compressed representation of confidence guides choices in sequential decisions. *Behavioural and Social Sciences at Nature Research, Sep 21, 2020*. `https://go.nature.com/32NvwZD`.

Conference proceedings (incomplete list)

Lisi, M. and Sagan Chang, E. (2021). Sequential decisions reveal systematic under-confidence biases in judgments of absence. *(Oral presentation, 43rd European Conference on Visual Perception)*.

Maechler, M. R., Heller, H. H., **Lisi, M.**, Cavanagh, P., and Tse, P. U. (2021). Smooth pursuit stabilize objects in perceptual and not retinal coordinates. *(Vision Science Society annual meeting)*.

Lisi, M., Cleanthis, M., and Dekker, T. (2020). The integration of position and motion signals for object tracking in childhood. In *Journal of Vision*. volume 20, page 1784. *(Vision Science Society annual meeting)*.

Lisi, M., Solomon, J., and Morgan, M. (2018). Signatures of a probabilistic strategy in the control of saccadic eye movement. In *Journal of Vision*. volume 18, page 373. *(Oral presentation, Vision Science Society annual meeting)*.

Lisi, M. and Cavanagh, P. (2017). Cooperative interactions between saccadic and pursuit planning when targeting a moving object. In *Journal of Vision*, volume 17, page 1278. *(Oral presentation, Vision Science Society annual meeting)*.

Massendari, D., **Lisi, M.**, Cavanagh, P., and Collins, T. (2017). Is the efference copy of a saccade influenced by a perceptual illusion? In *Journal of Vision*, volume 17, page 879.

Lisi, M., Mongillo, G., and Gorea, A. (2016). Humans exhibit discrete confidence levels in perceptual decision-making. In *Cosyne Abstracts*, Salt Lake City, USA.

Haladjian, H., **Lisi, M.**, and Cavanagh, P. (2016). Multiple object tracking is immune from a strong perceptual illusion. In *Journal of Vision*, volume 16, page 1260.

Massendari, D., **Lisi, M.**, Collins, T., and Cavanagh, P. (2016). A dissociation between the perceptual and saccadic localization of moving objects for reactive saccades but not for memory-guided saccades. In *Journal of Vision*, volume 16, page 934.

Lisi, M. and Cavanagh, P. (2015). A dissociation of motion processing for saccades, smooth pursuit, and perception measured for the same target. volume 15, page 746. *(Oral presentation, Vision Science Society annual meeting)*.

Maus, G., Cavanagh, P., Collins, T., Duyck, M., **Lisi, M.**, Wexler, M., and Whitney, D. (2015). Target displacements during blinks trigger corrective gaze adaptation. volume 15, page 1308.

Lisi, M. and Cavanagh, P. (2014a). Saccades are not affected by the infinite regress illusion. In *Perception. Proceedings of the AVA Christmas Meeting, Leuven, Belgium 19–20 December 2013*, volume 43, pages 1114–1134.

Lisi, M. and Cavanagh, P. (2014b). The infinite regression illusion reveals dissociation between perception and action. In *Journal of Vision*, volume 14, pages 1221–1221.

Bonato, M., Lara, B., **Lisi, M.**, Pegoraro, S., Gilles, P., and Wim, F. (2014). Attend to the left, attend to the right: How to modulate voluntary orienting of attention. In *Front. Hum. Neurosci. Conference Abstract: Belgian Brain Council 2014 Modulating the brain: facts, fiction, future.*.

Spironelli, C., Bonato, M., **Lisi, M.**, Priftis, K., and Zorzi, M. (2013). Spatial monitoring under dual task conditions: Evidence from evoked potentials. In *Psychophysiology 50 (Suppl. 1), s108*, volume 50, page 108.

Bonato, M., **Lisi, M.**, Spironelli, C., Priftis, K., and Zorzi, M. (2012). Visuospatial awareness is modulated by dual-task demands: evidence from healthy participants and right hemisphere damaged patients. In *Perception, 41 (Suppl. 1)*, pages 143–144.

Lisi, M., Cavanagh, P., and Zorzi, M. (2012). Role of landmark objects in the orienting of attention across saccades. In *Perception ECVP Abstract Supplement*, page 138.

Bonato, M., Priftis, K., Spironelli, C., **Lisi, M.**, Umiltà, C., and Zorzi, M. (2012). Dual-Tasks induce awareness deficits for the contralesional hemispace. In *Front. Hum. Neurosci. Conference Abstract: Belgian Brain Council.*

Ranzini, M., **Lisi, M.**, Pitteri, M., Treccani, B., Priftis, K., and Zorzi, M. (2012). Bidirectional link between numbers and space: an investigation with optokinetic stimulation. In *Proceedings of the 5th International Conference on Spatial Cognition (ICSC): Space and Embodied Cognition*.

References

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