

## Publications

### Journal articles currently under review

Mather, G., Parsons, T. Adaptation reveals sensory and decision components in the visual estimation of locomotion speed. Under review at *Scientific Reports*.

Mather, G. Visual image statistics in the history of Western Art. Under review at *Art and Perception*.

Ghin, P., Pavan, A., Contillo, A., Mather, G. The effects of high-frequency transcranial random noise stimulation (hf-tRNS) on global motion processing: an equivalent noise approach. Under review at *Brain stimulation*.

Pavan, A., Ghin, F., Foxwell, J., Contillo, A., Mather, G. Limited attention diminishes spatial suppression from large field Glass patterns. Under review at *Attention, Perception, & Psychophysics*.

### Journal articles previously published

Mather, G., Sharman, R.J., Parsons, T. (2017) Visual adaptation alters the apparent speed of real-world actions. *Scientific Reports*, 7, 6738.

Pavan, A., Gall, M.G., Bimson, L.M., Ghin, F., Mather, G. (2017) The interaction between orientation and motion signals in moving oriented Glass patterns. *Visual Neuroscience*, 34, E010.

Pavan, A., Ghin, F., Donato, R., Campana, G., Mather, G. (2017) The neural basis of form and form-motion integration from static and dynamic translational Glass patterns: A rTMS investigation. *NeuroImage*, 157, 555-560.

Mather, G., & Lee, R. (2017) Turbine Blade Illusion. *i-Perception*, 8 (3), 1-5.

Mather, G., Battaglini, L., & Campana, G. (2016) TMS reveals flexible use of form and motion cues in biological motion perception. *Neuropsychologia*, 83, 193-197.

Mather, G., Sharman, R.J. (2015) Decision-level adaptation in motion perception. *Royal Society Open Science*, 2 (12), 150418.

Mather, G. (2014) Artistic adjustment of image spectral slope. *Art & Perception*, 2 (1-2), 11-22.

Pavan, A., Contillo, A., Mather, G. (2014) Modelling fast forms of visual neural plasticity using a modified second-order motion energy model. *Journal of Computational Neuroscience*, 37, 493-504.

Pavan, A., Marotti, R. B., & Mather, G. (2013). Motion-form interactions beyond the motion integration level: Evidence for interactions between orientation and optic flow signals. *Journal of Vision*, 13(6).

Mather, G., Pavan, A., Belloccosa Marotti, R., Campana, G., & Casco, C. (2013) Interactions between motion and form processing in the human visual system. *Frontiers in Computational Neuroscience*, 7, 65.

Pavan, A., Contillo, A., & Mather, G. (2013). Modelling adaptation to directional motion using the Adelson-Bergen energy sensor. *PLoS One*, 8(3), e59298.

Mather, G., Pavan, A., Bellacosa, R., Casco, C. (2012) Psychophysical evidence for interactions between visual motion and form processing at the level of motion integrating receptive fields. *Neuropsychologia*, 50(1), 153-159.

Mather, G. (2012) Aesthetic judgement of orientation in modern art. *i-Perception*, 3, 18-24.

Pavan, A., Casco, C., Mather, G., Bellacosa, R., Cuturi, L.F., Campana, G. (2011) The effect of spatial orientation on detecting motion trajectories in noise. *Vision Research*, 51, 2077-2084.

Challinor, K.L., Mather, G. (2010) A motion-energy model predicts the direction discrimination and MAE duration of two-stroke apparent motion at high and low retinal illuminance. *Vision Research*, 50, 1109-1116.

Mather, G. (2010). Head – body ratio as a visual cue for stature in people and sculptural art. *Perception*, 39(10), 1390-1395.

Mather, G. Challinor, K. L. (2009). Psychophysical properties of two-stroke apparent motion. *Journal of Vision*, 9(1):28, 1-6.

Mather, G., Pavan, A. (2009) Motion-induced position shifts occur after motion integration. *Vision Research*, 49, 2741-2746.

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Mather G, Pavan A, Campana G, Casco C (2008) The motion after-effect reloaded. *Trends in Cognitive Sciences*, 12, 481-487.

Mather G (2006) Two-stroke: a new illusion of visual motion based on the time course of neural responses in the human visual system. *Vision Research*, 46, 2015-2018.

- Mather G, Daniell AK (2005) No effect of spatial phase randomisation on direction discrimination in dense random element patterns. *Vision Research*, 45, 759-764.
- Mather G, Smith DRR (2004) Combining depth cues: effects upon speed of performance in a depth-ordering task. *Vision Research*, 44, 557-562.
- Mosimann UP, Mather G, Wesnes KA, O'Brien DM, Burn DJ, McKeith IG (2004) Visual perception in Parkinson disease dementia and dementia with Lewy bodies. *Neurology*, 63, 2091-2096.
- Mather G, Smith DRR (2002) Blur discrimination and its relation to blur-mediated depth perception. *Perception*, 31, 1211-1219.
- Mather G (2001) Object-oriented models of cognitive processing. *Trends in Cognitive Sciences*, 5, 182-184.
- Anstis S, Smith DRR, Mather G. (2000) Luminance processing in apparent motion, vernier offset, and stereoscopic depth. *Vision Research*, 40, 657-675.
- Mather G. (2000) Integration biases in the Ouchi and other visual illusions. *Perception*, 29, 721-727.
- Mather G, Smith DRR. (2000) Depth cue integration: stereopsis and image blur. *Vision Research*, 40, 3501-3506.
- Brooks K, Mather G. (2000) Perceived speed of motion in depth is reduced in the periphery. *Vision Research*, 40, 3507-3516.
- Mather G, Murdoch L (1999) Second-order processing of four-stroke apparent motion. *Vision Research*, 39, 1795-1802.
- Anstis S, Verstraten F, Mather G (1998) The motion after-effect. *Trends in Cognitive Sciences*, 2, 111-117.
- Mather G, Murdoch L (1998) Evidence for global motion interactions between first-order and second-order stimuli. *Perception*, 27, 761-767.
- Mather G, Murdoch L. (1997) Order-specific and non-specific motion responses in the human visual system. *Vision Research*, 37, 605-611.
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- Mather G (1996) Image blur as a pictorial depth cue. *Proceedings of the Royal Society, Series B*, 263, 169-171.
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Mather G, Morgan M J. (1986) Irradiation: implications for theories of edge localization. *Vision Research*, 26, 1007-1015.

Anstis S, Mather G (1985) Effects of luminance and contrast on direction of ambiguous apparent motion. *Perception*, 14, 167-179.

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### **Conference abstracts**

Lee, R., Mather, G. (2017) After-effects from implied colours of natural objects. *Perception* (1 Suppl), 46.

- Mather, G., Parsons, T. (2017) Adaptation to the locomotion speed of point-light walkers. *Perception* (1 Suppl), 46.
- Ghin, F., Pavan, A., Mather, G. (2017) Investigation of high-frequency transcranial random noise stimulation (hf-tRNS) mechanism on visual motion perception: A stochastic resonance approach. *Perception* (1 Suppl), 46.
- Mather, G. (2017) Visual statistics of large samples of Western artworks. *Art & Perception*, 5, 368.
- Mather, G., Miller, M., Pepperell, R. (2016) Discrimination of blur and local disorder in photographic and artistic images. *Visual Science of Art Conference*, Barcelona, Spain, 26-27th August 2016.
- Ghin, F., Mather, G. Pavan, A. (2016) Effects of different electrical brain stimulations over V5/MT on global motion processing. *Perception* (1 suppl), 45, S243.
- Pavan, S., Foxwell, M., Mather, G. (2016) Effects of attention on form perception and form-motion integration from static and dynamic Glass patterns. *Perception* (1 suppl), 45, S103.
- Mather, G., Sharman, R.J., Parsons, T. (2016) Norm-based coding of human movement speed? *Perception* (1 suppl), 45, S369.
- Mather, G., Sharman, R.J. (2016). Adaptation to human locomotion speed. *Journal of Vision*, 16(12), 397.
- Mather, G., Battaglini, L., Campana, G. (2015) TMS reveals dual processing routes for biological motion processing. *Applied Vision Association Christmas meeting*, London, December 2015.
- Sharman, R.J., Mather, G. (2015) Is adaptation to human motion necessary to change the apparent speed of locomotion? *Perception* (1 suppl), 44, 235.
- Mather, G., Sharman, R.J. (2015) Changes in the apparent speed of human locomotion: Norm-based coding of speed. *Perception* (1 suppl), 44, 231.
- Mather, G. (2015) The depiction of visual space in Canaletto's Venetian vedute. *Visual Science of Art Conference*, Liverpool, UK, 22-23rd August 2015.
- Mather, G., Sharman, R.J. (2014) The effect of implied motion on the motion after-effect. *Perception* (1 suppl), 43, 65.
- Mather, G. (2014) Fractal properties and attractiveness ratings of generative abstract art. *Visual Science of Art Conference*, Belgrade, Serbia, August 2014.

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Mather, G., Battaglini, L. (2011). A simple model of position effects in apparent motion perception. *Perception* (1 suppl), 40, 176.

Pavan, A., Mather, G., Bellacosa, R., Casco, (2011) Psychophysical evidence for interactions between visual form and motion signals during motion integration in cortical area MT. *Perception* (1 suppl), 40, 26.

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Mather, G., Pavan, A. (2008) Motion-induced position shifts occur after motion integration. *Perception*, 37 (1 suppl), 83.

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Rogers, J., Hamilton, R., Mather, G. (2005) Motion perception in art and design research. *Perception*, 34 (1 suppl), 90.

Mather, G., Hamilton, R., Rogers, J. (2005) Perception of phase wave motion. *Perception*, 34 (1 suppl), 12.

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Anstis, S., Smith, D., Mather, G. (1998) Linear luminance processing in motion and flicker. *Perception*, 27 (1 suppl), 51.



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Mather, G. (1984) What primitive features are used to detect motion? *Perception*, 13 (1 suppl), 18.

Mather, G., Cavanagh, P., Anstis, S. (1983) Screening for colour-blindness by making use of optokinetic nystagmus. *Perception*, 12 (1 suppl), 10.

Anstis, S., Mather, G. (1983) Effects of luminance and contrast on direction of ambiguous apparent motion. *Ophthalm. Vis. Sci. Supp.* 24, 277.

## **Books**

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Mather, G. (2014) *Eye, Brain, and Art: The Psychology of Visual Art*. Cambridge University Press, Cambridge.

Mather, G. (2011) *Essentials of Sensation and Perception*. Routledge, Hove.

Mather, G. (2009) *Foundations of Sensation and Perception*. 2nd ed. Psychology Press, Hove.

Mather G, Verstraten F, Anstis S. (1998) Eds. *The Motion Aftereffect: A Modern Perspective*. MIT Press, Cambridge Mass.

### **Book chapters**

Mather, G. (2017) Two-stroke apparent motion. In: Shapiro, A.G., & Todorovic, D. (Eds) *The Oxford Compendium of Visual Illusions*. (p. 531-535) Oxford University Press, Oxford.

Mather, G. (2015) Computational approaches to perception: Beyond Marr's (1982) computational approach to vision. In: Eysenck, M. & Groome, D. (Eds). *Cognitive Psychology: Revisiting the Classic Studies*. Sage.

Mather, G. (2010). Motion perception: Behavior and neural substrate. *Wiley Interdisciplinary Reviews: Cognitive Science*.

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Mather G (2004) Perceptual and cognitive limits on driver information processing. In: PRN Childs, RK Stobart (Eds) *Total Vehicle Technology*. Professional Engineering Publishing, Bury St Edmunds.

Mather G. (1994) Motion detector models: psychophysical evidence. In: AT Smith, RJ Snowden (Eds) *Visual Detection of Motion*. Academic Press, London.