

# Mahesh Raj Joshi *PhD, MPhil, BOptom, FHEA, FAAO, FIACLE*

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## Research Interest

Motion Processing, Shape Processing, Perceptual Learning, Visual Fields, Glaucoma, Peripheral Vision, Amblyopia

## Education

Postgraduate Certificate in Academic Practice, University of Plymouth. 2018 - 2020

Doctor of Philosophy (Visual Neuroscience), Glasgow Caledonian University. 2012 - 2016  
*Thesis: The Psychophysical Characterization of Dorsal and Ventral Stream Functions with Equivalent Noise Paradigm in Normal and Clinical Populations*  
*Supervisors: Seong T Jeon, Anita J Simmers*

Master of Philosophy (Optometry), University of South-Eastern Norway. 2010 - 2011  
*Thesis: Development and Maturation of Global Motion Sensitivity in School aged Children*  
*Supervisor: Helle K Falkenberg*

Bachelor of Optometry, Institute of Medicine, Tribhuvan University. 1999 - 2003  
*Project: Refractive Changes in Patients Undergoing Phacoemulsification Surgery*

## Academic and Clinical Appointments

Lecturer (Optometry) 09/2018 - present  
Programme Lead (MOptom/BSC (Hons) Optometry) 08/2023 - present  
University of Plymouth, UK

Lecturer (Optometry) 03/2017 - 08/2018  
The University of the West Indies, Trinidad & Tobago

Research Associate 06/2016 - 01/2017  
*Project: Perceptual Learning in Enhanced Amblyopia Treatment (PLEAT) Study*  
Glasgow Caledonian University, UK

### Clinical Optometrist

Institute of Medicine, Nepal 01/2012 - 10/2012

Om Hospital and Research Center, Nepal 05/2005 - 12/2009

Eye Care Clinic, Republic of Maldives 08/2004 - 04/2005

## Research Grants

- 2024 **Joshi, M. R.**, Zahidi A. & Artes, P. H. *Glaucoma detection by community optometrists – improving specificity with OCT imaging*. School of Health Professions PhD Studentship, Univeristy of Plymouth. £73,592.
- 2023 Artes, P. H. & **Joshi, M. R.** *Visual fields in glaucoma - investigating the potential of “abundant testing” with virtual reality (VR) perimetry*. Glaucoma UK, £48,287.
- 2022 **Joshi, M. R.** & Zahidi A. *Perceptual Learning in Nystagmus*. Fight for Sight, £15,000.
- 2022 **Joshi, M. R.** *Speed Perception in Normal Ageing*. College of Optometrist Undergraduate Research Scholarship, £2,000.

## Publications

### Journal Articles

21. Markoulli, M., Fricke, T. R., Arvind, A., Frick, K. D., Hart, K. M., **Joshi, M. R.**, Kandel, H. et al. (2024). BCLA CLEAR Presbyopia: Epidemiology and impact. *Contact Lens and Anterior Eye*, 46:102068. [doi]
20. Vianya-Estopa, M., Ghorbani-Mojarrad, N., Huntjens, B., Garcia-Porta, N., Pinero, D. P., Nagra, M., Terry, L., Dutta, D., Wolffsohn, J., **Joshi, M. R.** et al. (2023). Current approaches to soft contact lens handling training – Global perspectives. *Contact Lens and Anterior Eye*, 46:102068. [doi]
19. Georgeson, M.A., Barhoom, H., **Joshi, M. R.**, Artes, P. H., Schmidtman G. (2023). Revealing the influence of bias in a letter acuity identification task: a noisy template model. *Vision Research*. [doi]
18. Zeri, F., Eperjesi, F., Woods, C., Bandlitz, S., Bhootra, A. K., **Joshi, M. R.**, et al. (2023). Evidence-based teaching in contact lenses education: Teaching and learning strategies. *Contact Lens and Anterior Eye*, 101822. [doi]
17. **Joshi, M. R.**, Voison, K. J., Piano, M., Farnon, N., Bex, P. J. (2022). A novel tool for quantitative measurement of distortion in keratoconus. *Eye*. [doi]
16. Khanal, S., Paudel, N., Adhikary, R., & **Joshi, M. R.** (2022). Optometry in Nepal: Clinical Practice, Research Advances, and Challenges. *Optometry and Vision Science*, [doi]
15. Barhoom, H., **Joshi, M. R.**, Schmidtman G. (2021). The effect of response biases on resolution thresholds of Sloan letters in central and paracentral vision. *Vision Research*, 187, 110-119. [doi]
14. Khanal, S., Paudel, N., & **Joshi, M. R.** (2021). Optometry in Nepal: a historical perspective. *Clinical and Experimental Optometry*, 1-4. [doi]
13. Wolffsohn, J.S., Ghorbani-Mojarrad, N., Vianya-Estopa, M., Nagra, M., Huntjens, B., Terry, L., Sweeney, L.E., Dutta, D., **Joshi, M. R.**, Wright, D. et al. (2021). Fast versus gradual adaptation of soft monthly contact lenses in neophyte wearers. *Contact Lens and Anterior Eye*, 101469. [doi]
12. **Joshi, M. R.**, Simmers A. J., Jeon S. T. (2021). The interaction of global motion and global form processing on the perception of implied motion: an equivalent noise approach. *Vision Research*, 186, 34-40. [doi]
11. **Joshi, M. R.**, Persad V., Farnon N. (2021). A retrospective study of causes of visual impairment and use of low vision devices in the low vision clinic in Trinidad and Tobago. *Journal of Optometry*, 14, 335-341. [doi]
10. **Joshi, M. R.**, Simmers A. J., Jeon S. T. (2020). Implied motion from form shows motion aids the perception of global form in amblyopia.” *Investigative Ophthalmology and Visual Science*, 61(5):58. [doi]

9. **Joshi, M. R.**, Simmers A. J., Jeon S. T. (2016). Concurrent investigation of global motion and form processing in amblyopia: an equivalent noise approach. *Investigative Ophthalmology and Visual Science*, 57(11), 5015-5022. [doi]
8. **Joshi, M. R.**, Falkenberg, H. K. (2015). Development of radial optic flow pattern sensitivity at different speeds. *Vision Research*, 110, 68-75. [doi]
7. Sah, R.P., Gautam, P., Shrestha J. B., **Joshi, M. R.** (2015). Usher syndrome: case reports of two siblings. *Optometry and Visual Performance*, 3(3),7-10. [url]
6. Khanal, S., Thapa, M., Racette, L., Johnson, R., Davey, P. G., **Joshi, M. R.**, Shrestha, G. S. (2014). Retinal nerve fiber layer thickness in glaucomatous Nepalese eyes and its relation with visual field sensitivity. *Journal of Optometry*, 7(4), 217-224. [doi]
5. Shrestha, R. K., **Joshi, M. R.**, Ghising, R., & Rizyal, A. (2011). Ocular morbidity among children attending government and private schools of Kathmandu valley. *Journal of Nepal Medical Association*, 51(184), 182-188. [doi]
4. Shrestha, R. K., **Joshi, M. R.**, Shakya, S., & Ghising, R. (2010). Color vision defects in school going children. *Journal of Nepal Medical Association*, 50(180), 264-266. [doi]
3. **Joshi, M. R.**, & Shakya, S. (2009). Change in refractive status of the patients undergoing phacoemulsification surgery. *Nepal Medical College Journal*, 11(1), 19-22. [url]
2. **Joshi, M. R.**, Yamagata, Y., Akura, J., & Shakya, S. (2008). The efficacy of low vision devices for students in specialized schools for students who are blind in Kathmandu valley, Nepal. *Journal of Visual Impairment & Blindness*, 102(7), 430-435. [doi]
1. Shrestha, R. K., **Joshi, M. R.**, Ghising, R., Pradhan, P., Shakya, S., & Rizyal, A. (2006). Ocular morbidity among children studying in private schools of Kathmandu valley: A prospective cross sectional study. *Nepal Medical College Journal*, 8(1), 43-46. [url]

### Preprints

1. Barhoom, H., **Joshi, M. R.**, & Schimdtmann, G. (2020). The effect of response biases on resolution thresholds of Sloan letters in central and paracentral vision. *BioRxiv*, 283119. [doi]. Published in *Vision Research*, Barhoom et al. (2021) [doi]

### Selected Conference Proceedings

16. **Joshi M.R.**, Subedi, A., Basnet G.B., Zahidi, A.A.A, Adhikari, H.B. (2024). Motion and shape perception in infantile nystagmus syndrome. International Nystagmus Network Symposium. [Talk]
15. **Joshi, M. R.**, Jennings, B. J., Schimdtmann, G. (2023). Spatial summation within static and dynamic Glass patterns. *Perception*, 53(7), 470-497. Applied Vision Association Meeting, London, UK. [Poster] [doi].
14. Barhoom, H., Artes, P. H., **Joshi, M. R.**, Schimdtmann, G. (2023). The resolution perimetry to monitor macular damage in glaucoma: An exploratory study of a new approach. *Investigative Ophthalmology & Visual Science*, 64:5494-5494. ARVO, New Orleans, USA. [Poster] [doi]
13. **Joshi, M. R.**, Barsdell, C., Simmers A. J., Jeon S. T. (2023). Higher internal noise is associated with lower sensitivity to slower speed. Applied Vision Association Meeting, Plymouth, UK. [Poster]
12. Barhoom, H., Schimdtmann, G., **Joshi, M. R.**, Artes, P. H., Georgeson, M. A. (2022). The role of similarity and bias in letter acuity measurements: a noisy template model. 44th European Congress of Visual Perception. [Poster]

11. Barhoom, H., Schimdtmann, G., **Joshi, M. R.**, Artes, P. H., Georgeson, M. A. (2021). The role of bias in a letter acuity identification task: a noisy template model. *Perception*, 50: 83. 43rd European Congress of Visual Perception. [Poster] [doi].
10. Barhoom, H., **Joshi, M. R.**, Schimdtmann, G. (2020). The effect of response bias on resolution thresholds of Sloan letters in central and paracentral vision. *Ophthalmic & Physiological Optics*, 41: 636-657. British Congress of Optometry and Vision Science. [Talk] [doi].
9. **Joshi, M. R.**, Simmers A. J., Jeon S. T. (2019). Sensitivity to global form in presence of noise is stimuli dependent. *Perception*, 49 (6), 700 -26. Applied Vision Association Meeting, Cardiff, UK. [Poster] [doi]
8. Voison, K. J., **Joshi, M. R.**, Farnon, N., Coleman, M., Bex, P. (2019). Quantitative measurement of perceptual distortion in keratoconus. American Academy of Optometry Meeting, Florida, USA. [Talk] [url]
7. **Joshi, M. R.**, Simmers A. J., Jeon S. T. (2018). Motion cues aids perception of implied motion in amblyopia. *Journal of Vision*, 18(10):544. at 18th Annual Vision Sciences Society Meeting, Florida, USA. [Talk] [doi]
6. Jeon S. T., **Joshi, M. R.**, Simmers A. J. (2015). Noise reveals abnormal global integration of motion and form in strabismic amblyopia. *Perception*, 44 (S1), 338. 38th European Congress of Visual Perception, Liverpool, UK. [Poster] [doi]
5. **Joshi, M. R.**, Simmers A. J., Jeon S. T. (2015). Deficits in integration of global motion and form in noise is associated with the severity and type of amblyopia. *Journal of Vision*, 15, 193. 15th Annual Vision Sciences Society Meeting, Florida, USA. [Talk] [doi]
4. **Joshi, M. R.**, Simmers A. J., Jeon S. T. (2014). Limiting factors in form and motion perception: shared locally, differentiated globally. *Journal of Vision*, 14, 1418. 14th Annual Vision Sciences Society Meeting, Florida, USA. [Poster] [doi]
3. **Joshi, M. R.**, Simmers A. J., Jeon S. T. (2013). Concurrent characterization of dorsal & ventral pathway with equivalent noise paradigm. *Perception*, 42 (S1), 210. 36th European Congress of Visual Perception, Bremen, Germany. [Poster] [doi]
2. **Joshi, M. R.**, & Falkenberg, H. K. (2012) Development of optic flow sensitivity in school-aged children of Kathmandu. *Perception*, 41 (S1), 119. 35th European Congress of Visual Perception, Italy. [Poster] [doi]
1. **Joshi, M. R.**, Yamagata, Y., Akura, J., & Shakya, S. (2009). The efficacy of low vision devices for students in specialized schools for students who are blind in Kathmandu valley, Nepal. 17th Asia Pacific Optometry Congress, Hong Kong. [Poster]

## Research Supervision & External Examination

Oct '24 - present: Esi Aggrey, *Glaucoma detection by community optometrists – improving specificity with OCT imaging*, PhD, DoS (with Paul Artes & Asma Zahidi)

Mar '22 - present: Joao Lourenco, *Stimuli development to measure parafoveal contrast sensitivity in Age-related Macular Degeneration at varying luminance levels*, PhD, Co-Supervisor (with Stephanie Mroczkowska)

Feb '19 - **completed (Jul '23)**: Hatem Barhoom, *Investigating letter identification for visual acuity measurements in the paracentral visual field*, PhD, Second Supervisor (with Gunnar Schmidtman)

Aug '22 - Aug '23: Masters project supervision: 3 students.

**External Examination:**

Mar '24: Murtuza E Madraswala, *Development of an Occupation-Based Optical Dispensing (OBOD) Model for selected occupations in Salem district of Tamil Nadu State of India*, PhD, University of KwaZulu-Natal, South Africa.

Feb '23: PMW Nkoana, *A district-based model for keratoconus management in the Capricorn district of Limpopo province, South Africa*, PhD, University of KwaZulu-Natal, South Africa.

**Ad hoc - Journal contribution****Editorial Board Member:**

Scientific Reports

**Journal Reviewer**

Vision Research, Investigative Ophthalmology & Vision Science (IOVS)

Translational Vision Science & Technology (TVST), Scientific Reports, Perception

Royal Society Open Science, PeerJ, Journal of Optometry

Optometry & Vision Science (OVS)

**Competitive Grant Reviewer**

Biotechnology and Biological Sciences Research Council (BBSRC)

**Conference Organised**

Applied Vision Association Spring Meeting (2023). [url]

British Congress of Optometry & Vision Science (2021). [doi]

**Teaching Experience***University of Plymouth (09/2018 – Present)*

Specialist Optometry Practice (OPT 602, CL, BV, LV) - **Module lead**

Specialist Optometry Skills (OPT 506 CL,LV), - **Teacher**

Paediatric and Binocular Vision (OPT 503) – **Teacher**

Project Studies (SOHP 501 & 601) – **Teacher**

*The University of the West Indies (03/2017 – 08/2018)*

Visual Perception (OPTM 1051, 1052, 2051) - **Module lead**

Binocular Vision (OPTM 2061, 3051, 4022), - **Module lead**

Clinical Supervisor

### *Glasgow Caledonian University (2012 - 2016), Teaching Assistant*

Refraction & Binocular Vision 1 - Tutorials and Labs

Foundations of Optics - Tutorials and Labs

Diagnostic Techniques - Clinical Labs

Refraction & Binocular Vision 2 - Tutorials and Labs

Clinical Research Methods - Tutorials and Labs

## External Examining

Visual Perception and Binocular Vision, Year I - IV, BSc Optometry, The University of the West Indies (2018 -present)

## Administrative Experience

Pogramme Lead - MOptom/ BSc (Hons) Optometry, University of Plymouth (08/2023 - 10/2024)

Deputy Admission Tutor - BSc Optometry, University of Plymouth (2020 - 08/2023)

Senate member, Univeristy of Plymouth (2022 - present)

Peer Assisted Learning Scheme (PALS) - Coordinator BSc Optometry , University of Plymouth (2020 - present)

Year Tutor - Year I, BSc Optometry, The University of the West Indies (2017 -18)

## Awards

Fellow of International Association of Contact Lens Educators (FIACLE): 2022 - present

Fellow of American Academy of Optometry (FAAO): 2021 - present

Fellow of Higher Education Academy (FHEA): 2020 - present

Publication Grant - IOVS Journal, 2019

PhD studentship by Glasgow Caledonian University, 2012

Travel grant for 35th European Congress of Visual Perception, Italy,2012

The Quota scholarship by Norwegian State Education Loan Fund (Lånekassen) for Master of Philosophy (2010- 2011)

Travel grant for 17th Asia Pacific Optometry Congress, Hong Kong, 2009

Medal for highest overall marks in Bachelor of Optometry stream, Nepalese Association of Optometrists, 2003

## Membership

Co-opted committe member, Applied Vision Association (AVA): 2021 - present

British & Irish University Contact Lens Educators: 2018 - present

Trinidad and Tobago Opticians Registration Council: 2018 - present

Vision Sciences Society: 2014 - present

Norwegian Directorate for Health (Optometrist): 2012 - 2013

Nepal Health Professions Council (Optometrist): 2006 - present

## Media & Outreach

BBC Hereford and Worcester radio interview- Tammy Gooding Show (Colour Vision deficiency, 31.03.2022)  
[Link]

Last updated: November 1, 2024

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