

# MATT J DUNN BSc (HONS), PHD, MCOptom, FHEA

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## Cardiff University

Lecturer & Optometrist

## RESEARCH INTERESTS

PERCEPTION, NEURO-OPHTHALMOLOGY, PSYCHOPHYSICS, CLINICAL EYE TRACKING

## PUBLICATIONS

### Peer-reviewed journals

- IN REVIEW
- 23 ALMAGREN BA, **Dunn MJ** ASSESSMENT OF VISUAL FUNCTION IN INFANTILE NYSTAGMUS: A SYSTEMATIC REVIEW. *Vis Res* (**In review**)
- 22 CERONI F, OSBORNE D, CLOKIE S, BAX DA, CASSIDY EJ, **Dunn MJ**, HARRIS CM, SELF JE, RAGGE NK. ANALYSIS OF FIBROBLAST GROWTH FACTOR 14 (FGF14) STRUCTURAL VARIANTS REVEALS THE GENETIC BASIS OF THE EARLY ONSET NYSTAGMUS LOCUS NYS4 *Eur J Hum Genet* (**In review**)
- 21 PARIKH R **Dunn MJ**, SHETTY S. SUPERIOR OBLIQUE SPLIT TENDON LENGTHENING WITH INFERIOR RECTUS RECESSIONS FOR CHIN-UP NULL POINT NYSTAGMUS *J AAPOS* (**In review**)
- 2022
- 20 THOMAS N, **Dunn MJ**, WOODHOUSE JM. VOLUNTARY FLUTTER PRESENTING DURING OPHTHALMOSCOPY: A CASE REPORT. *Case Rep Ophthalmol* (**Accepted**)
- 19 JANARDHANAN A, VIJALAKSHMI P, SHETTY S, MISHRA C, **Dunn MJ**. ACQUIRED PENDULAR NYSTAGMUS IN DIFFUSE UNILATERAL SUBACUTE NEURORETINITIS: A DIAGNOSTIC DILEMMA. *Indian J Ophthalmol* 2: 503–505
- 18 HOLMQVIST K, ÖRBOM S, HOOGE TC, NIEHORSTER DC, ALEXANDER RG, ANDERSSON R, BENJAMINS JS, BLIGNAUT P, BROUWER A, CHUANG LL, DALRYMPLE KA, DRIEGHE D, **Dunn MJ**, ETTINGER U, FIEDLER S, FOULSHAM T, VAN DER GEEST JN, WITZNER HANSEN D, HUTTON S, KASNECI E, KINGSTONE A, KNOX PC, KOK E, LEE H, YEONJOO LEE J, LEPPÄNEN JM, MACKNICK S, MAJARANTA P, MARTINEZ-CONDE S, NUTHMANN A, NYSTRÖM M, ORQUIN J, OTERO-MILLAN J, YOUNG PARK S, POPELKA S, PROUDLOCK F, RENKEWITZ F, ROORDA AJ, SCHULTE-MECKLENBECK M, SHARIF B, SHIC F, SHOVMAN M, THOMAS MG, VENROOIJ W, ZEMBLYS R, HESSELS RS. EYE TRACKING: EMPIRICAL FOUNDATIONS FOR A MINIMAL REPORTING GUIDELINE. *Behav Res Methods* (**Online ahead of print**)

- 2021 17 CUTSURIDIS V, JIANG S, **Dunn MJ**, BRAWN J, ROSSER A, ERICHSEN JT. NEURAL MODELLING OF ANTISACCADE PERFORMANCE OF HEALTHY CONTROLS AND EARLY HUNTINGTON'S DISEASE PATIENTS. *Chaos* 31: 013121
- 16 WEATERTON R, TAN S, ADAM J, KAUR H, RENNIE K, **Dunn MJ**, EWINGS S, THEODOROU M, OSBORNE D, EVANS M, LEE H, SELF JE. BEYOND VISUAL ACUITY: DEVELOPMENT OF A SIMPLE TEST OF THE SLOW-TO-SEE PHENOMENON IN CHILDREN WITH NYSTAGMUS. *Curr Eye Res* 46: 263–270
- 2020 15 SELF JE, **Dunn MJ**, ERICHSEN JT, GOTTLOB I, GRIFFITHS H, HARRIS CM, LEE H, OWEN J, SANDERS J, SHAWKAT F, THEODOROU M, WHITTLE J, NYSTAGMUS UK EYE RESEARCH GROUP (NUKE). MANAGEMENT OF NYSTAGMUS IN CHILDREN: A REVIEW OF THE LITERATURE AND CURRENT PRACTICE IN UK SPECIALIST SERVICES. *Eye* 34: 1515–1534
- 2019 14 **Dunn MJ**, HARRIS CM, ENNIS FA, MARGRAIN TH, WOODHOUSE JM, MCLIREAVY L, ERICHSEN JT. AN AUTOMATED SEGMENTATION APPROACH TO CALIBRATING INFANTILE NYSTAGMUS WAVEFORMS. *Behav Res Methods* 51: 2074–2084
- 13 CLARK R, BLUNDELL J, **Dunn MJ**, ERICHSEN JT, GIARDINI ME, GOTTLOB I, HARRIS C, LEE H, MCLIREAVY L, OLSON A, SELF JE, VINUELA-NAVARRO V, WADDINGTON J, WOODHOUSE JM, GILCHRIST ID, WILLIAMS C. THE POTENTIAL AND VALUE OF OBJECTIVE EYE TRACKING IN THE OPHTHALMOLOGY CLINIC. *Eye* 33: 1200–1202
- 12 HUANG J, KINATEDER M, **Dunn MJ**, JAROSZ W, YANG X-D, COOPER EA. AN AUGMENTED REALITY SIGN-READING ASSISTANT FOR USERS WITH REDUCED VISION. *PLOS One* 14: e0210630
- 11 BOWDEN J, WHITAKER D, **Dunn MJ**. THE ROLE OF PERIPHERAL VISION IN THE FLASHED FACE DISTORTION EFFECT. *Perception* 48: 93–101
- 2018 10 ROBINSON DG, MARGRAIN TH, **Dunn MJ**, BAILEY C, BINNS AM. LOW-LEVEL NIGHT-TIME LIGHT THERAPY FOR AGE-RELATED MACULAR DEGENERATION – RESULTS OF A PHASE I/II PROOF OF CONCEPT, RANDOMISED, CLINICAL TRIAL. *Invest Ophthalmol Vis Sci* 59: 4531–4541
- 9 **Dunn MJ**, RUSHTON SK. LATERAL VISUAL OCCLUSION DOES NOT CHANGE HEADING WHEN WALKING. *J Vis* 18: 11
- 8 KINATEDER M, GUALTIERI J, **Dunn MJ**, JAROSZ W, YANG X-D, COOPER EA. USING AN AUGMENTED REALITY DEVICE AS A DISTANCE-BASED VISUAL AID – PROMISE AND LIMITATIONS. *Optom Vis Sci* 95: 727–737
- 2017 7 ZAHIDI AA, WOODHOUSE JM, ERICHSEN JT, **Dunn MJ**. INFANTILE NYSTAGMUS: AN OPTOMETRIST'S PERSPECTIVE. *Clin Optom* 9: 123–131
- 6 **Dunn MJ**, WIGGINS D, WOODHOUSE JM, MARGRAIN TH, HARRIS CM, ERICHSEN JT. THE EFFECT OF GAZE ANGLE ON VISUAL ACUITY IN INFANTILE NYSTAGMUS. *Invest Ophthalmol Vis Sci* 58: 642–650
- 2016 5 **Dunn MJ**. VISUAL PERCEPTION IN INFANTILE NYSTAGMUS. *Optometry in Practice* 17: 19–26
- 2015 4 **Dunn MJ**, MARGRAIN TH, WOODHOUSE JM, ERICHSEN JT. VISUAL PROCESSING IN INFANTILE NYSTAGMUS IS NOT SLOW. *Invest Ophthalmol Vis Sci* 56: 5094–5101

- 2014
- 3 HARRISON JJ, SUMNER P, **Dunn MJ**, ERICHSEN JT, FREEMAN TC. QUICK PHASES OF INFANTILE NYSTAGMUS SHOW THE SACCADIC INHIBITION EFFECT. *Invest Ophthalmol Vis Sci* 56: 1594–1600
  - 2 **Dunn MJ**, MARGRAIN TH, WOODHOUSE JM, ENNIS FA, HARRIS CM, ERICHSEN JT. AUTHOR RESPONSE: GRATING VISUAL ACUITY IN INFANTILE NYSTAGMUS IN THE ABSENCE OF IMAGE MOTION. *Invest Ophthalmol Vis Sci* 55: 4955–4957
  - 1 **Dunn MJ**, MARGRAIN TH, WOODHOUSE JM, ENNIS FA, HARRIS CM, ERICHSEN JT. GRATING VISUAL ACUITY IN INFANTILE NYSTAGMUS IN THE ABSENCE OF IMAGE MOTION. *Invest Ophthalmol Vis Sci* 55: 2682–2686

### Other articles

- 2019
- 4 WELLS MT, RUSHTON SK, REDMOND T, CLATWORTHY P, **Dunn MJ**. RESIDUAL VISUAL FUNCTION IN CORTICAL VISION LOSS. *Optometry Today* 59 (3): 62–65.
- 2017
- 3 **Dunn MJ**. DISORDERS OF PERCEPTION. *Optometry Today* 57 (11): 64–69.
- 2016
- 2 **Dunn MJ**, LEE H. MANAGEMENT OF NYSTAGMUS. *Optometry Today* 56 (8): 64–68.
  - 1 **Dunn MJ**. CLINICAL ASSESSMENT OF NYSTAGMUS. *Optometry Today* 56 (7): 80–85.

### Electronic

- 2012
- 2 DUNN VISION REFERENCE  
*Mobile ophthalmology text hosting a glossary of over 3500 terms related to optometry and vision science. Coded in Objective-C and Java for iOS and Android (over 7500 downloads)*
- 2010 - 2012
- 1 EYE HANDBOOK (DICTIONARY)  
*Author of dictionary for mobile ophthalmology app (over 600,000 downloads)*

## TALKS

### Invited talks

- 2020 ARAVIND EYE HOSPITAL (MADURAI, INDIA)  
*Nystagmus decoded: Eyetracking made simple (session moderator)*  
NYSTAGMUS NETWORK (UK)  
*A clinician's guide to nystagmus*
- 2018 RNIB WALES (CARDIFF, UK)  
*Understanding infantile nystagmus*
- 2017 VISION 2017 (THE HAGUE, NETHERLANDS)  
*'Time to see' in infantile nystagmus*
- 2016 RANK PRIZE FUNDS (GRASMERE, UK)  
*Visual perception in the presence of nystagmus*  
OXFORD, BRISTOL, CARDIFF & SOUTHAMPTON ALLIANCE IN VISION RESEARCH (CARDIFF, UK)  
*Seeing with nystagmus*  
100% OPTICAL (LONDON, UK)  
*A clinician's guide to nystagmus*
- 2015 LEICESTER ROYAL INFIRMARY (LEICESTER, UK)  
*Visual perception in infantile nystagmus*  
MIDLAND PERIPATETIC GROUP FOR TEACHERS OF THE VISUALLY IMPAIRED (BIRMINGHAM, UK)  
*Seeing with nystagmus*  
LV PRASAD EYE INSTITUTE (HYDERABAD, INDIA)  
*Visual perception in infantile nystagmus*  
UC BERKELEY (CALIFORNIA, US)  
*Visual perception in infantile nystagmus*  
UNIVERSITY OF HOUSTON (TEXAS, US)  
*Visual perception in infantile nystagmus*

**Conference presentations (selected/international)**

- 2019 APPLIED VISION ASSOCIATION (FARNBOROUGH, UK)  
*Visual perception in the presence of nystagmus (keynote speaker)*
- 2016 EUROPEAN ACADEMY OF OPTOMETRY AND OPTICS (BERLIN, GERMANY)  
*Monocular contributions to the nystagmus null zone*
- 2015 ORTHOPTICS DECODED (MADURAI, INDIA)  
*Orthoptic treatments for nystagmus (session moderator)*
- EUROPEAN CONFERENCE ON EYE MOVEMENTS (VIENNA, AUSTRIA)  
*Temporal visual function in infantile nystagmus*
- EUROPEAN CONFERENCE ON VISUAL PERCEPTION (LIVERPOOL, UK)  
*The effect of simulated vision loss on walking paths*
- NYSTAGMUS NETWORK INTERNATIONAL RESEARCH WORKSHOP (NEW ORLEANS, LOUISIANA)  
*Visual timing in infantile nystagmus*
- ARVO ANNUAL MEETING (DENVER, COLORADO)  
*Visual processing in infantile nystagmus is not slow*
- 2013 NYSTAGMUS NETWORK INTERNATIONAL RESEARCH WORKSHOP (ABINGDON, UK)  
*Appropriate measures of visual performance in infantile nystagmus: Acuity is not enough*
- EUROPEAN CONFERENCE ON EYE MOVEMENTS (LUND, SWEDEN)  
*Involuntary saccade initiation is related to the timing of voluntary saccades in infantile nystagmus*
- ARVO ANNUAL MEETING (SEATTLE, WASHINGTON)  
*Visual acuity in infantile nystagmus in the absence of image motion*

**Public engagement & media appearances**

- 2019 PUBLIC LECTURE (UNEARTHED FESTIVAL, UK)  
*What we miss: The neuroscience of perception*
- 2018 BBC GOOD MORNING WALES  
*Radio interview – The importance of early sight tests*
- PUBLIC LECTURE (SUNDAY ASSEMBLY, UK)  
*What we miss*
- 2017 PUBLIC LECTURE & WORKSHOP (GREEN GATHERING, UK)  
*Perception, illusions and visual neuroscience*
- 2016 TINTERN PHILOSOPHY CIRCLE (UK)  
*How much can we know from our senses?*
- PUBLIC LECTURES (BOOMTOWN FAIR & GREEN GATHERING, UK)  
*How experience shapes perception: perspectives from visual neuroscience*
- 2015 BBC POINTS WEST  
*TV news article – Mobility and vision in patients following stroke*
- BBC WALES TODAY  
*TV news article – Using virtual reality to understand visual guidance of walking*
- PUBLIC LECTURE (GREEN GATHERING, UK)  
*Neuroscience of visual perception*
- 2014 PUBLIC LECTURE (SUNRISE FESTIVAL, UK)  
*Psychophysics and perception*
- 2010 - 2016 SCIENCE IN HEALTH – LIVE!  
*Cardiff: Promoting careers in optometry to A-Level students*

## EMPLOYMENT

2016 - PRESENT	LECTURER <i>School of Optometry &amp; Vision Sciences, Cardiff University</i>
2010 - PRESENT	SELF-EMPLOYED LOCUM OPTOMETRIST <i>GOC &amp; AOP registered; EHEW accredited</i>
2014 - 2016	RESEARCH ASSOCIATE <i>School of Optometry &amp; Vision Sciences, Cardiff University</i>
2013 - 2015	TEACHER <i>School of Optometry &amp; Vision Sciences, Cardiff University</i>
2014 - 2015	OPTOMETRY LEAD <i>NHS Wales Informatics Service</i>
2014	RESEARCH ASSOCIATE <i>Department of Neuroscience, Cardiff and Vale University Local Health Board</i>
2013 - 2014	RESEARCH ASSOCIATE <i>School of Psychology, Cardiff University</i>

## EDUCATION

2014	PHD	CARDIFF UNIVERSITY	QUANTIFYING PERCEPTION AND OCULOMOTOR INSTABILITY IN INFANTILE NYSTAGMUS
2009	BSC	CARDIFF UNIVERSITY	OPTOMETRY

## TEACHING & CLINICAL SUPERVISION

	<i>Cardiff University</i>		
2021 - PRESENT	PERCEPTION		
2017 - PRESENT	EYE CARE FOR PEOPLE WITH LEARNING DISABILITIES (LECTURES)		
2017 - PRESENT	PAEDIATRIC OPHTHALMOLOGY (LECTURES)		
2013 - PRESENT	ORTHOPTICS (CLINICAL TEACHING LEAD)		
2018 - 2022	ABNORMAL OCULAR CONDITIONS (LECTURES)		
2015 - 2022	OCCUPATIONAL OPTOMETRY, LAW & BUSINESS (MODULE LEADER)		
2013 - 2022	INTRODUCTORY OPTOMETRY (LECTURES)		
2020 - 2021	RESEARCH IN OPTOMETRY AND VISION SCIENCE (LECTURES)		
2020 - 2021	CLINICAL STUDIES AND DISPENSING (CLINICAL SUPERVISION)		
2014 - 2015	COLOUR VISION & PERCEPTION (MODULE LEADER - LECTURE SERIES)		
2013 - 2015	MATLAB PROGRAMMING (STAFF & POSTGRADUATE TAUGHT COURSE)		
2010 - 2015	PRIMARY EYE CARE (CLINICAL SUPERVISION)		
2013 - 2014	VISUAL PERCEPTION (MODULE LEADER - LECTURE SERIES)		
	INVESTIGATIVE TECHNIQUES (POSTGRADUATE CLINICAL TEACHING)		
2010 - 2013	BINOCULAR VISION (CLINICAL SUPERVISION)		
	INVESTIGATIVE TECHNIQUES (CLINICAL TEACHING)		

## EXTERNAL FUNDING

2020	INVESTIGATING A PLAUSIBLE MECHANISM UNDERLYING HALLUCINATIONS IN CHARLES BONNET SYNDROME <i>Principal investigator. Fight for Sight &amp; Welsh Government, Small Grant Award</i>	£14,034
2019	INFANTILE NYSTAGMUS: EXPLORING THE CAUSES AND ESTABLISHING BETTER MEASURES OF VISUAL PERFORMANCE <i>Co-investigator. College of Optometrists, Postgraduate Scholarship</i>	£60,000
2018	THE ROLE OF ATTENTION IN PERIPHERAL VISION <i>Principal investigator. College of Optometrists, Research Fellowship</i>	£28,727
	IMPROVING VEP DIAGNOSTICS IN PEOPLE WITH NYSTAGMUS <i>Principal investigator. Fight for Sight &amp; Nystagmus Network, Small Grant Award</i>	£6201
	ADDITIONAL CLINICAL TESTING FOR RETINAL PREDICTORS OF VISUAL PERFORMANCE IN NYSTAGMUS <i>Co-investigator. Nystagmus Network, Small Grant Scheme</i>	£1387
2016	THE EFFECT OF VISUAL COGNITIVE IMPAIRMENT DUE TO CEREBROVASCULAR DISEASE ON WALKING <i>Co-investigator. North Bristol Trust, Springboard Grant</i>	£8570
	RETINAL PREDICTORS OF VISUAL PERFORMANCE IN INFANTILE NYSTAGMUS <i>Principal investigator. College of Optometrists, Postgraduate Scholarship</i>	£55,827
2014	UNDERSTANDING BINOCULAR VISION IN INFANTILE NYSTAGMUS <i>Principal investigator. College of Optometrists, Post Doctoral Research Award</i>	£19,573
	ESTABLISHING CLINICAL MEASURES OF TEMPORAL VISUAL FUNCTION IN INFANTILE NYSTAGMUS <i>Principal investigator. Nystagmus Network UK</i>	£14,552
2013	AUTOMATING THE ANALYSIS OF INFANTILE NYSTAGMUS WAVEFORMS <i>Co-investigator. Nystagmus Network UK</i>	£1500

## HONOURS & AWARDS

2018 - 2019	RESEARCH FELLOW, COLLEGE OF OPTOMETRISTS
2015	FELLOW, HIGHER EDUCATION ACADEMY
2014	ASSOCIATE FELLOW, HIGHER EDUCATION ACADEMY
2013	CAMBRIDGE RESEARCH SYSTEMS AVA TRAVEL AWARD ARVO INTERNATIONAL TRAVEL GRANT

## PHD STUDENTS

2021 - PRESENT	K WARD	INFANTILE NYSTAGMUS: EXPLORING THE CAUSES AND ESTABLISHING BETTER MEASURES OF VISUAL PERFORMANCE
2020 - PRESENT	K ALFAIFI	DEFICITS IN ACCOMMODATION AND VERGENCE IN HUMAN SUBJECTS
2017 - PRESENT	M WELLS	MAPPING RESIDUAL VISUAL FUNCTION IN HEMIANOPIA
2016 - 2021	DR N THOMAS	DEVELOPMENT OF A NOVEL GAZE-CONTINGENT PERIMETER AND ASSESSMENT OF RETINAL STRUCTURE IN INFANTILE NYSTAGMUS

## COMMUNITY

REVIEWER FOR THE FOLLOWING JOURNALS & RESEARCH COUNCILS:

- MEDICAL RESEARCH COUNCIL (MRC)

- BEHAVIOR RESEARCH METHODS
- INVESTIGATIVE OPHTHALMOLOGY AND VISION SCIENCE
- FRONTIERS IN PSYCHOLOGY
- JOURNAL OF OPHTHALMOLOGY
- PLOS ONE
- FRONTIERS IN SYSTEMS NEUROSCIENCE
- VISION RESEARCH
- EYE
- MACULAR SOCIETY
- CURRENT EYE RESEARCH
- CLINICAL OPHTHALMOLOGY
- ACTA PSYCHOLOGICA
- THERAPEUTIC ADVANCES IN RARE DISEASE
- OPTOMETRY AND VISION SCIENCE
- STRABISMUS
- JOURNAL OF EYE MOVEMENT RESEARCH
- OPTOMETRY IN PRACTICE
- NYSTAGMUS NETWORK

2018	SESSION CHAIR AT BRITISH OCULOMOTOR GROUP (CARDIFF, UK)
2016 - 2018	ISSF3 GRANT REVIEW PANEL MEMBER
2015	MEMBER OF <i>Cardiff School of Optometry and Vision Sciences Research Ethics Audit Committee</i>
2014 - PRESENT	STEM AMBASSADOR
2012 - 2017	MAINTAIN RESEARCH DATABASE FOR <i>IN-vision</i>

## INTERESTS

CAVING	MEMBER OF SOUTH & MID WALES CAVE RESCUE TEAM EXPEDITIONS TO MAP UNEXPLORED CAVES IN DACHSTEIN, AUSTRIA, 2009 & PICOS DE EUROPA, SPAIN, 2015 REGULARLY LEAD NOVICE AND EXPERIENCED GROUPS UNDERGROUND
MUSIC	WRITER, PRODUCER AND LEAD GUITARIST FOR PROGRESSIVE ROCK BAND SINCE 2005
YOGA	RYT 200 QUALIFIED SANTAN YOGA TEACHER