

Jorge Otero-Millan

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APPOINTMENTS

- 2025- Director
Center for Innovation in Vision and Optics, University of California, Berkeley. Berkeley, CA
- 2020- Assistant Professor of Optometry & Vision Science
School of Optometry, University of California, Berkeley. Berkeley, CA
- 2020- Adjunct Assistant Professor of Neurology
School of Medicine, Johns Hopkins university

EDUCATION AND TRAINING

- 2013-2020 Postdoctoral Fellowship. Primary mentor: David S. Zee
Johns Hopkins University, Baltimore, MD
- 2007-2013 Ph.D. Signal Theory and Communications. Primary mentor: Susana Martinez-Conde
Barrow Neurological Institute, Phoenix, AZ and University of Vigo, Vigo, Spain
Dissertation: Microsaccades and Saccadic Intrusions during Normal and Pathological Vision
- 2000-2006 B.Sc. Telecommunication Engineering
University of Vigo, Vigo, Spain

RESEARCH FUNDING

- 2024-2029 Co-I: NIH/NIDCD R01: Video-oculography: A novel approach towards clinical markers of vestibular function and recovery
- 2024-2025 PI: UCB Hellman fellows. Virtual prisms to quantify and manage strabismus using mixed reality
- 2023-2025 Co-PI: Alcon INC. Research contract. Development of a chromatic vision simulator and understanding the psychophysics associated with various chromatic stimulus manipulations
- 2021-2024 PI: NSF. Collaborative Research: CHS: Medium: NSF 19-589. Deep Learning-Based Tracking of Eyes and Lens Shape from Purkinje Images for Holographic Augmented Reality Glasses
- 2021-2025 Co-I: AHA. Center for Mobile Technologies to Reduce Disparities in Cardiovascular Health
- 2021-2022 Co-I: Johns Hopkins University, Dizziness diagnostic algorithm.
- 2018-2023 PI: NIH/NEI. K99/R00 Pathway to Independence Award (K99EY027846). Perceptual stability during torsional eye movements
- 2014-2018 Trainee: Leon Levy Foundation. Postdoctoral fellowship. Study how we perceive the relationship between our sense of vertical and eye movements
- 2015-2016 Trainee: Fight for Sight Foundation. Postdoctoral Award. Study of the relationship between torsional eye movements and visual perception of upright using transcranial magnetic stimulation of the parietal cortex
- 2009-2011 Trainee: Pedro Barrie de la Maza Foundation. Graduate fellowship. Function of microsaccades in high level vision

AWARDS

- 2012 Tobii EyeTrack Award. For the article “Distinctive Features of Saccadic Intrusions and Microsaccades in Progressive Supranuclear Palsy”
- 2000 2nd Place, XXXVI Galician Mathematical Olympiad. Qualifying for Spanish Mathematical Olympiad

PUBLICATIONS

Research articles

- Under rev. Girum M, Winnick A, **Otero-Millan J**. Illusory tilt does not induce optostatic torsion. Experimental Eye Research.
- Anderson M, Cooper EA, **Otero-Millan J**. A method for measuring closed-loop latency in gaze-contingent rendering without extra equipment. Behavioral Research Methods.
- Reeves S, **Otero-Millan J**. Horizontal saccade bias results from combination of saliency anisotropies and egocentric biases. Scientific Reports.
- Tyson TL*, Perez DF*, **Otero-Millan J**. Effects of Eccentric Gaze Holding on Perceived Visual Space. Vision Research.
- Ressmeyer RA, **Otero-Millan J**, Horwitz GD, Yates JL. OpenIrisDPI: An Open-Source Digital Dual Purkinje Image Eye Tracker for Visual Neuroscience. Under review in Journal of Neuroscience Methods.
- D’Angelo J, Tiruveedhula P, Weber RJ, Arathorn DW, Otero-Millan J, Roorda A. A discontinuity in motion perception during fixational drift. Journal of Vision.

- 2025 Bastani PB, Phillips V, Rieiro H, Badihian S, **Otero-Millan J**, Zee DS, Newman-Toker D, Saber Tehrani A. Feasibility of Using Smartphone Eye-Tracking for Self-recording Positional Tests. *Digital Biomarkers* ; 8(1):111-119, 2024
- Arán-Tapia I, Pérez-Muñuzuri V, Muñuzuri AP, Soto-Varela A, **Otero-Millan J**, Roberts DC, Ward BK. Modeling of magnetic vestibular stimulation experienced during high-field clinical MRI. *Commun Med (Lond)*. 2025 Jan 21;5(1):27. doi: 10.1038/s43856-024-00667-9.
- Choi JH, Oh EH, Kim HS, Park JY, Lee SM, Choi SY, Kim HJ, Choi JY, Kim JS, **Otero-Millan J**, Choi KD. Spontaneous Nystagmus Violating the Alexander's Law: Neural Substrates and Mechanisms. *Cerebellum*. 2025 Jan 20;24(2):34. doi: 10.1007/s12311-025-01788-0.
- 2024 Sadeghi R, Ressmeyer R, Yates J, **Otero-Millan J**. Open Iris - An Open Source Framework for Video-Based Eye-Tracking Research and Development. *ETRA '24*: 17, 1-7.
- Shemesh AA, Kattah JC, Zee DS, Zuma E Maia F, **Otero-Millan J**. Amplification of vibration induced nystagmus in patients with peripheral vestibular loss by head tilt. *Front Neurol*. 2024;15:1420699. doi: 10.3389/fneur.2024.1420699. eCollection 2024.
- Bastani PB, Rieiro H, Badihian S, **Otero-Millan J**, Farrell N, Parker M, Newman-Toker D, Zhu Y, Saber Tehrani A. Quantifying Induced Nystagmus Using a Smartphone Eye Tracking Application (EyePhone). *J Am Heart Assoc*. 2024 Jan 16;13(2):e030927. doi: 10.1161/JAHA.123.030927. Epub 2024 Jan 16.
- Barahim Bastani P, Saber Tehrani AS, Badihian S, Rieiro H, Rastall D, Farrell N, Parker M, **Otero-Millan J**, Hassoon A, Newman-Toker D, Clawson LL, Uchil A, Riley K, Zeiler SR. Self-Recording of Eye Movements in Amyotrophic Lateral Sclerosis Patients Using a Smartphone Eye-Tracking App. *Digit Biomark*. 2024 Jan-Dec;8(1):111-119. doi: 10.1159/000538992. eCollection 2024 Jan-Dec.
- Dunn MJ, Alexander RG, Amiebenomo OM, Arblaster G, Atan D, Erichsen JT, Ettinger U, Giardini ME, Gilchrist ID, Hamilton R, Hessels RS, Hodgins S, Hooge ITC, Jackson BS, Lee H, Macknik SL, Martínez-Conde S, McIlreavy L, Muratori LM, Niehorster DC, Nyström M, **Otero-Millan J**, Schlüssel MM, Self JE, Singh T, Smyrnis N, Sprenger A. Minimal reporting guideline for research involving eye tracking (2023 edition). *Behav Res Methods*. 2024 Aug;56(5):4351-4357. doi: 10.3758/s13428-023-02187-1. Epub 2023 Jul 28.
- 2023 Reeves SM, **Otero-Millan J**. The influence of scene tilt on saccade directions is amplitude dependent. *J Neurol Sci*. 2023 May 15;448:120635. doi: 10.1016/j.jns.2023.120635. Epub 2023 Mar 26.
- Tian J, **Otero-Millan J**, Zee DS, Kheradmand A. Upbeat Nystagmus with an Unusual Velocity-Decreasing and Increasing Waveform: a Sign of Gaze-Holding Dysfunction in the Paramedian Tracts in the Medulla?. *Cerebellum*. 2023 Feb;22(1):148-154. doi: 10.1007/s12311-022-01376-6. Epub 2022 Feb 8.
- Yang Y, Tian J, **Otero-Millan J**, Schubert MC, Kheradmand A. Video Ocular Counter-Roll (vOCR): Otolith-Ocular Function and Compensatory Effect of the Neck Following Vestibular Loss. *Otolaryngol Head Neck Surg*. 2023 Mar 2; . doi: 10.1002/ohn.304.
- Wang C, Bai Y, Tsang A, Bian Y, Gou Y, Lin YX, Zhao M, Wei TY, Desman JM, Taylor CO, Greenstein JL, **Otero-Millan J**, Liu TYA, Kheradmand A, Zee DS, Green KE. Deep Learning Model for Static Ocular Torsion Detection Using Synthetically Generated Fundus Images. *Transl Vis Sci Technol*. 2023 Jan 3;12(1):17. doi: 10.1167/tvst.12.1.17.
- Wyssen G, Morrison M, Korda A, Wimmer W, **Otero-Millan J**, Ertl M, Szukics AA, Wyss T, Wagner F, Caversaccio MD, Mantokoudis G, Mast FW. Measuring the Influence of Magnetic Vestibular Stimulation on Nystagmus, Self-Motion Perception, and Cognitive Performance in a 7T MRT. *J Vis Exp*. 2023 Mar 3;(193). doi: 10.3791/64022. PubMed PMID: 36939227.
- 2022 Reeves SM, Cooper EA, Rodriguez R, **Otero-Millan J**. Head Orientation Influences Saccade Directions during Free Viewing. *eNeuro*. 2022 Nov-Dec;9(6). doi: 10.1523/ENEURO.0273-22.2022. Print 2022 Nov-Dec.
- Shemesh AA, Kocoglu K, Akdal G, Ala RT, Halmagyi GM, Zee DS, **Otero-Millan J**. Modeling the effect of gravity on periodic alternating nystagmus. *J Neurol Sci*. 2022 Nov 15;442:120407. doi: 10.1016/j.jns.2022.120407. Epub 2022 Sep 5.
- Parker TM, Badihian S, Hassoon A, Saber Tehrani AS, Farrell N, Newman-Toker DE, **Otero-Millan J**. Eye and Head Movement Recordings Using Smartphones for Telemedicine Applications: Measurements of Accuracy and Precision. *Front Neurol*. 2022;13:789581.
- Kim MJ, **Otero-Millan J**, Tian J, Kheradmand A. Measures of Spatial Orientation: Spatial Bias Analogs in Visual and Haptic Tasks. *eNeuro*. 2022 Jul-Aug;9(4). doi: 10.1523/ENEURO.0233-22.2022. Print 2022 Jul-Aug.
- Wagle N, Morkos J, Liu J, Reith H, Greenstein J, Gong K, Gangan I, Pakhomov D, Hira S, Komogortsev OV, Newman-Toker DE, Winslow R, Zee DS, **Otero-Millan J**, Green KE. aEYE: A deep learning system for video nystagmus detection. *Front Neurol*. 2022;13:963968. doi: 10.3389/fneur.2022.963968. eCollection 2022.
- Holmqvist K, Örbom SL, Hooge ITC, Niehorster DC, Alexander RG, Andersson R, Benjamins JS, Blignaut P, Brouwer AM, Chuang LL, Dalrymple KA, Drieghe D, Dunn MJ, Ettinger U, Fiedler S, Foulsham T, van der Geest JN, Hansen DW, Hutton SB, Kasneci E, Kingstone A, Knox PC, Kok EM, Lee H, Lee JY, Leppänen JM, Macknik S, Majaranta P, Martínez-Conde S, Nuthmann A, Nyström M, Orquin JL, **Otero-Millan J**, Park SY, Popelka S, Proudlock F, Renkewitz F, Roorda A, Schulte-Mecklenbeck M, Sharif B, Shic F, Shovman M, Thomas MG, Venrooij W, Zemblyns R, Hessels RS. Eye tracking: empirical foundations for a minimal reporting guideline. *Behav Res Methods*. 2022 Apr 6; .
- Mantokoudis G, **Otero-Millan J**, Gold DR. Current concepts in acute vestibular syndrome and video-oculography. *Curr Opin Neurol*. 2022 Feb 1;35(1):75-83.
- Kim EK, Pasquesi L, Steenerson KK, **Otero-Millan J**, Sharon JD. Vestibular Test Results in Patients With Horizontal Canal Benign Paroxysmal Positional Vertigo. *Cureus*. 2022 Jan;14(1):e21460. doi: 10.7759/cureus.21460. eCollection 2022 Jan.
- 2021 Shemesh A, Kocoglu K, Akal G, Tumay Ala R, Halmagyi GM, Zee DS & **Otero-Millan J**. Modeling the Interaction among Three Cerebellar Disorders of Eye Movements: Periodic Alternating, Gaze-evoked and Rebound Nystagmus. *Journal of Computational Neuroscience* 2021; 49, 295–307

Sadeghpour S, Fornasari F, **Otero-Millan J**, Carey J, Zee DS, Kheradmand A. Evaluation of the Video Ocular Counter-Roll (vOCR) as a New Clinical Test of Otolith Function in Peripheral Vestibulopathy. *JAMA Otolaryngology Head Neck Surg*. Published online March 25, 2021

Green KE, Pogson JM, **Otero-Millan J**, Gold DR, Tevzadze N, Saber Tehrani AS, Zee DS, Newman-Toker DE, Kheradmand A. Opinion and Special Articles: Remote Evaluation of Acute Vertigo: Strategies and Technological Considerations. *Neurology*. 2021 Jan 5;96(1):34-38.

Chang TP, Gold DR, **Otero-Millan J**, Huang BR, Zee DS. Pendular Oscillation and Ocular Bobbing After Pontine Hemorrhage. *Cerebellum*. 2021 Oct;20(5):734-743. doi: 10.1007/s12311-019-01086-6. PubMed PMID: 31883062.

2020 Parker TM, Farrel N, **Otero-Millan J**, Kheradmand A, McClenney A, Newman-Toker D. Proof of Concept for an eyePhone App to Measure Video Head Impulses. *Digital Biomarkers* 2021;5:1-8

Otero-Millan J, Langston R, Costela F, Macknik SL, Martinez-Conde S. Microsaccade generation requires a foveal anchor. *Journal of Eye Movement Research*, 2020; 12(6)

Sadeghpour S, **Otero-Millan J**. Torsional component of microsaccades during fixation and quick phases during optokinetic stimulation. *Journal of Eye Movement Research*, 2020; 13(5)

Punuganti SA, **Otero-Millan J**. Detection of Saccades and Quick-Phases in Eye Movement Recordings with Nystagmus. *ETRA '20 Short Papers: ACM Symposium on Eye Tracking Research and Applications*. 2020;8:1–5

Green K, Pogson J, **Otero-Millan J**, Gold DR, Tevzadze N, Therani A, Zee DS, Newman-Toker D, Kheradmand A. Remote evaluation of acute vertigo: Strategies and technological considerations. *Neurology* 2021; 96 (1) 34-38

Scaramuzzi M, Murray J, **Otero-Millan J**, Nucci P, Shaikh AG, Ghasia FF. Part time patching treatment outcomes in children with amblyopia with and without Fusion Maldevelopment Nystagmus: an eye movement study. *PLoS ONE* 15(8): e0237346

2019 **Otero-Millan J**, Colpak AI, Kheradmand A, Zee DS. Rebound nystagmus, a window into the oculomotor integrator. *Prog Brain Res*. 2019;249:197-209

Kheradmand A, **Otero-Millan J**. Spatial orientation: Model-based approach to multi-sensory mechanisms. *Prog Brain Res*. 2019;248:209-223

Scaramuzzi M, Murray J, **Otero-Millan J**, Nucci P, Shaikh AG, Ghasia FF. Fixation instability in amblyopia: Oculomotor disease biomarkers predictive of treatment effectiveness. *Prog Brain Res*. 2019;249:235-248

Winnick A, Sadeghpour S, Sova M, **Otero-Millan J**, Kheradmand A. No handedness effect on spatial orientation or ocular counter-roll during lateral head tilts. *Physiol Rep*. 2019 Aug;7(13):e14160

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Ward BK, Zee DS, Roberts DC, Schubert MC, Perez-Fernandez N, **Otero-Millan J**. Visual Fixation and Continuous Head Rotations have Minimal Effect on Set-Point Adaptation to Magnetic Vestibular Stimulation. *Front Neurol*. 2019 Jan 22;9:119

Ward BK, Roberts D, **Otero-Millan J**, Zee DS. A decade of magnetic vestibular stimulation (MVS): from serendipity to physics to the clinic. *J Neurophysiol*. 2019 Apr 10

Feldman D, **Otero-Millan J**, Shaikh AG. Gravity-Independent Upbeat Nystagmus in Syndrome of Anti-GAD Antibodies. *Cerebellum*. 2019 Apr;18(2):287-290

Chang TP, Gold DR, **Otero-Millan J**, Huang BR, Zee DS. Pendular Oscillation and Ocular Bobbing After Pontine Hemorrhage. *Cerebellum*. 2019 Dec 27

Tang S, Skelly P, **Otero-Millan J**, Jacobs J, Murray J, Shaikh AG, Ghasia FF. Effects of visual blur on microsaccades during visual exploration. *Journal of Eye Movement Research*, 12(6)

Kang SL, Beylergil SB, **Otero-Millan J**, Shaikh AG, Ghasia FF. Fixational eye movement waveforms in amblyopia: Characteristics of fast and slow eye movements. *Journal of Eye Movement Research*, 12(6)

2018 **Otero-Millan J**, Winnick A, Kheradmand A. Exploring the Role of Temporoparietal Cortex in Upright Perception and the Link With Torsional Eye Position. *Front Neurol*. 2018 Apr 6;9:192

Otero-Millan J, Optican LM, Macknik SL, Martinez-Conde S. Modeling the Triggering of Saccades, Microsaccades, and Saccadic Intrusions. *Front Neurol*. 2018 May 28;9:346

Ghasia FF, **Otero-Millan J**, Shaikh AG. Abnormal fixational eye movements in strabismus. *Br J Ophthalmol*. 2018 Feb;102(2):253-259

Chen D, **Otero-Millan J**, Kumar P, Shaikh AG, Ghasia FF. Visual Search in Amblyopia: Abnormal Fixational Eye Movements and Suboptimal Sampling Strategies. *Invest Ophthalmol Vis Sci*. 2018 Sep 4;59(11):4506-4517

Winnick A, Sadeghpour S, **Otero-Millan J**, Chang TP, Kheradmand A. Errors of Upright Perception in Patients With Vestibular Migraine. *Front Neurol*. 2018 Oct 30;9:892

2017 **Otero-Millan J**, Zee DS, Schubert MC, Roberts DC, Ward BK. Three-dimensional eye movement recordings during magnetic vestibular stimulation. *J Neurol*. 2017 Oct;264(Suppl 1):7-12

Otero-Millan J, Treviño C, Winnick A, Zee DS, Carey JP, Kheradmand A. The video ocular counter-roll (vOCR): a clinical test to detect loss of otolith-ocular function. *Acta Otolaryngol*. 2017 Jun;137(6):593-597

Ward BK, **Otero-Millan J**, Jareonsettasin P, Schubert MC, Roberts DC, Zee DS. Magnetic Vestibular Stimulation (MVS) As a Technique for Understanding the Normal and Diseased Labyrinth. *Front Neurol*. 2017 Apr 5;8:122

- Leal-Campanario R, Alarcon-Martinez I, Rieiro H, Martinez-Conde S, Alarcon-Martinez T, Zhao X, LaMee J, Popp PJ, Calhoun ME, Arribas JL, Schlegel AA, Stasi LL, Rho JM, Inge L, **Otero-Millan J**, Treiman DM, Macknik SL. Abnormal Capillary Vasodynamics Contribute to Ictal Neurodegeneration in Epilepsy. *Sci Rep*. 2017 Feb 27;7:43276
- Costela FM, McCamy MB, Coffelt M, **Otero-Millan J**, Macknik SL, Martinez-Conde S. Changes in visibility as a function of spatial frequency and microsaccade occurrence. *Eur J Neurosci*. 2017 Feb;45(3):433-439
- 2016 **Otero-Millan J**, Kheradmand A. Upright Perception and Ocular Torsion Change Independently during Head Tilt. *Front Hum Neurosci*. 2016 Nov 17;10:573
- Shaikh AG, **Otero-Millan J**, Kumar P, Ghasia FF. Abnormal Fixational Eye Movements in Amblyopia. *PLoS One*. 2016 Mar 1;11(3):e0149953
- Jareonsettasin P, **Otero-Millan J**, Ward BK, Roberts DC, Schubert MC, Zee DS. Multiple Time Courses of Vestibular Set-Point Adaptation Revealed by Sustained Magnetic Field Stimulation of the Labyrinth. *Curr Biol*. 2016 May 23;26(10):1359-66
- Kheradmand A, Gonzalez G, **Otero-Millan J**, Lasker A. Visual perception of upright: Head tilt, visual errors and viewing eye. *J Vestib Res*. 2016;25(5-6):201-9.
- 2015 **Otero-Millan J**, Roberts DC, Lasker A, Zee DS, Kheradmand A. Knowing what the brain is seeing in three dimensions: A novel, noninvasive, sensitive, accurate, and low-noise technique for measuring ocular torsion. *J Vis*. 2015;15(14):11.
- Otero-Millan J**, Benavides DR, Zee DS, Kheradmand A. Bilateral INO: Unusual patterns of saccadic intrusions. *Neurology*. 2015 Oct 20;85(16):1428-9
- Troncoso XG, McCamy MB, Jazi AN, Cui J, **Otero-Millan J**, Macknik SL, Costela FM, Martinez-Conde S. V1 neurons respond differently to object motion versus motion from eye movements. *Nat Commun*. 2015 Sep 15;6:8114
- Costela FM, **Otero-Millan J**, McCamy MB, Macknik SL, Di Stasi LL, Rieiro H, Leigh JR, Troncoso XG, Najafian Jazi A, Martinez-Conde S. Characteristics of Spontaneous Square-Wave Jerks in the Healthy Macaque Monkey during Visual Fixation. *PLoS One*. 2015 Jun 11;10(6):e0126485
- McCamy MB, **Otero-Millan J**, Leigh RJ, King SA, Schneider RM, Macknik SL, Martinez-Conde S. Simultaneous recordings of human microsaccades and drifts with a contemporary video eye tracker and the search coil technique. *PLoS One*. 2015 Jun 2;10(6):e0128428
- 2014 **Otero-Millan J**, Castro JL, Macknik SL, Martinez-Conde S. Unsupervised clustering method to detect microsaccades. *J Vis*. 2014 Feb 25;14(2)
- Otero-Millan J**, Macknik SL, Martinez-Conde S. Fixational eye movements and binocular vision. *Front Integr Neurosci*. 2014 Jul 7;8:52
- McCamy MB, **Otero-Millan J**, Di Stasi LL, Macknik SL, Martinez-Conde S. Highly informative natural scene regions increase microsaccade production during visual scanning. *J Neurosci*. 2014 Feb 19;34(8):2956-66
- Siegenthaler E, Costela FM, McCamy MB, Di Stasi LL, **Otero-Millan J**, Sonderegger A, Groner R, Macknik S, Martinez-Conde S. Task difficulty in mental arithmetic affects microsaccadic rates and magnitudes. *Eur J Neurosci*. 2014 Jan;39(2):287-94
- Kapoula Z, Yang Q, **Otero-Millan J**, Xiao S, Macknik SL, Lang A, Verny M, Martinez-Conde S. Distinctive features of microsaccades in Alzheimer's disease and in mild cognitive impairment. *Age*. 2014 Apr;36(2):535-43
- Costela FM, **Otero-Millan J**, McCamy MB, Macknik SL, Troncoso XG, Jazi AN, Crook SM, Martinez-Conde S. Fixational eye movement correction of blink-induced gaze position errors. *PLoS One*. 2014 Oct 21;9(10):e110889
- 2013 **Otero-Millan J**, Macknik SL, Langston RE, Martinez-Conde S. An oculomotor continuum from exploration to fixation. *Proc Natl Acad Sci USA*. 2013 Apr 9;110(15):6175-80
- Otero-Millan J**, Schneider R, Leigh RJ, Macknik SL, Martinez-Conde S. Saccades during attempted fixation in parkinsonian disorders and recessive ataxia: from microsaccades to square-wave jerks. *PLoS One*. 2013;8(3):e58535
- Martinez-Conde S, **Otero-Millan J**, Macknik SL. The impact of microsaccades on vision: towards a unified theory of saccadic function. *Nat Rev Neurosci*. 2013 Feb;14(2):83-96
- Costela FM, McCamy MB, Macknik SL, **Otero-Millan J**, Martinez-Conde S. Microsaccades restore the visibility of minute foveal targets. *PeerJ*. 2013 Aug 1;1:e119
- McCamy MB, Najafian Jazi A, **Otero-Millan J**, Macknik SL, Martinez-Conde S. The effects of fixation target size and luminance on microsaccades and square-wave jerks. *PeerJ*. 2013 Feb 12;1:e9
- McCamy MB, Collins N, **Otero-Millan J**, Al-Kalbani M, Macknik SL, Coakley D, Troncoso XG, Boyle G, Narayanan V, Wolf TR, Martinez-Conde S. Simultaneous recordings of ocular microtremor and microsaccades with a piezoelectric sensor and a video-oculography system. *PeerJ*. 2013 Feb 12;1:e14
- 2012 **Otero-Millan J**, Macknik SL, Martinez-Conde S. Microsaccades and blinks trigger illusory rotation in the "rotating snakes" illusion. *J Neurosci*. 2012 Apr 25;32(17):6043-51
- McCamy MB, **Otero-Millan J**, Macknik SL, Yang Y, Troncoso XG, Baer SM, Crook SM, Martinez-Conde S. Microsaccadic efficacy and contribution to foveal and peripheral vision. *J Neurosci*. 2012 Jul 4;32(27):9194-204
- 2011 **Otero-Millan J**, Serra A, Leigh RJ, Troncoso XG, Macknik SL, Martinez-Conde S. Distinctive features of saccadic intrusions and microsaccades in progressive supranuclear palsy. *J Neurosci*. 2011 Mar 23;31(12):4379-87
- Otero-Millan J**, Macknik SL, Serra A, Leigh RJ, Martinez-Conde S. Triggering mechanisms in microsaccade and saccade generation: a novel proposal. *Ann N Y Acad Sci*. 2011 Sep;1233:107-16

Otero-Millan J, Macknik SL, Robbins A, Martinez-Conde S. Stronger misdirection in curved than in straight motion. *Front Hum Neurosci*. 2011 Nov 21;5:133

Cui J, **Otero-Millan J**, Macknik SL, King M, Martinez-Conde S. Social misdirection fails to enhance a magic illusion. *Front Hum Neurosci*. 2011 Sep 29;5:103

2010 Chen AL, Riley DE, King SA, Joshi AC, Serra A, Liao K, Cohen ML, **Otero-Millan J**, Martinez-Conde S, Strupp M, Leigh RJ. The disturbance of gaze in progressive supranuclear palsy: implications for pathogenesis. *Front Neurol*. 2010 Dec 3;1:147

2008 **Otero-Millan J**, Troncoso XG, Macknik SL, Serrano-Pedraza I, Martinez-Conde S. Saccades and microsaccades during visual fixation, exploration, and search: foundations for a common saccadic generator. *J Vis*. 2008 Dec 18;8(14):21.1-18

Troncoso XG, Macknik SL, **Otero-Millan J**, Martinez-Conde S. Microsaccades drive illusory motion in the Enigma illusion. *Proc Natl Acad Sci USA*. 2008 Oct 14;105(41):16033-8

2007 Troncoso XG, Tse PU, Macknik SL, Caplovitz GP, Hsieh PJ, Schlegel AA, **Otero-Millan J**, Martinez-Conde S. BOLD activation varies parametrically with corner angle throughout human retinotopic cortex. *Perception*. 2007;36(6):808-20

Book Chapters

2020 **Otero-Millan J**. Fixational Eye Movements in Visual, Cognitive, and Movement Disorders. In: Shaikh A., Ghasia F. (eds) *Advances in Translational Neuroscience of Eye Movement Disorders*

INVITED TALKS

2025 UC Santa Cruz. Cognitive Science Seminar.

2025 Johns Hopkins University. David Zee Seminar.

2025 Stanford Center for Image System Engineering Seminar.

2024 Meta. Models of vestibular sensation and processing.

2024 Magic Leap. Effect of head tilt and stimulus tilt on saccade direction biases and their dependency with saccade amplitude

2024 Society for research on the cerebellum and Ataxias. International Symposium. India. Attractor models for three-dimensional rotation.

2023 Smith Kettlewell 60th Anniversary Conference. Saccade direction biases.

2022 Reunion de Invierno de Otoneurologia. Inteligencia artificial en patologia vestibular.

2022 Wilmer Low Vision Research Meeting. The third dimension of eye movements: torsion and visual-vestibular integration

2021 ETRA 2021 tutorials. The neurology of eye movements

2021 SKERI Colloquium. Smith-Kettlewell Eye Research Institute. The third dimension of eye movements: torsion and visual-vestibular integration

2020 Forum for Indian Neurology Education. Microsaccades and saccadic intrusions during normal and pathological visual fixation

2020 Stanford Vision Brunch, Stanford. The third dimension of eye movements: torsion and visual-vestibular integration

2019 Oxyopia seminar series. UC Berkeley. The third dimension of eye movements: torsion and visual-vestibular integration

2018 Neurology Grand Rounds. Case Western Reserve University, University Hospitals Cleveland Medical Center. Microsaccades and Saccadic Intrusions During Normal and Pathological Visual Fixation

2018 Mathematical Modeling in Motor Neuroscience. Pavia, Italy. Rebound Nystagmus, a Window into the Oculomotor Integrator

TEACHING

2022- UC Berkeley, VS 217 Oculomotor Functions and Neurology (Instructor)

2022- UC Berkeley, VS 260D Seeing in Time, Space, and Color (Co-instructor)

2021 UC Berkeley, VS 260D Seeing in Time, Space, and Color (guest lecturer)

2017 Vestibular testing masterclass. VOG Recording - being aware of its limitations

MENTORSHIP

2021- Michelle Kelly Pham, Optometry Student, University of California, Berkeley

2025- Evalie Rehor, Rotation Graduate Student. Vision Science Program, University of California, Berkeley

2023- Reem Almagati, Graduate Student. Vision Science Program, University of California, Berkeley

2023-2025 Roksana Sadeghi, Postdoctoral Fellow, University of California, Berkeley

2022- Terence Tyson, Graduate Student. Vision Science Program, University of California, Berkeley

2022- Denis Perez, Rotation Graduate Student. Vision Science Program, University of California, Berkeley

2021-2025 Stephanie Reeves, Graduate Student. Vision Science Program, University of California, Berkeley

2021-2021 Carter Carlos, Rotation Graduate Student. Vision Science Program, University of California, Berkeley

2021-2021 Josephine D'angelo Reeves, Rotation Graduate Student. Vision Science Program, University of California, Berkeley

2021- Mihret Girum, Optometry Student, University of California, Berkeley

2021-2025 Alisa Braun (co-mentor), Graduate Student. Vision Science Program, University of California, Berkeley

2020-2024 Raul Rodriguez, Postdoctoral Fellow, University of California, Berkeley

2018-2019 Sai Akanksha Punuganti, Master Student. Bioengineering Program, Johns Hopkins University

2017-2019 Taylor Maxwell Parker, Undergraduate Student. Health and Human Biology. Brown University

2017-2019 Nathan Farrell, Undergraduate Student. Computer/Information Sciences. Rochester Institute of Technology

2015 Ayşe İlksen Çolpak Işı kay, Visiting Scientist. Hacettepe University

2011 Priyanka Atreya, Undergraduate Student, Neuroscience program, Vanderbilt University

2010 Rachel E Langston. UBRP program at the University of Arizona

2008-2010 Michael McCamy, PhD student, Neuroscience program, Arizona State University

PATENTS AND TECHNOLOGY TRANSFER

Patents

2020 US10646723. Reich DH, Broholm CL, Zee DS, Roberts DC, Schubert MC, **Otero-Millan J**, Ward BK. Device for magnetic stimulation of the vestibular system

2018 US9962119. Macknik SL, Martinez-Conde S, Kapoula Z, **Otero-Millan J**. System and method for detecting neurological disease

2018 US9854966. **Otero-Millan J**, Macknik S, Martinez-Conde S. System and method for using microsaccade dynamics to measure attentional response to a stimulus

2016 US9301679. Macknik S, Martinez-Conde S, Troncoso X, **Otero-Millan J**. Method of detecting neurological disease

2010 US7857452. Macknik S, Martinez-Conde S, **Otero-Millan J**. Eye movements as a way to determine foci of covert attention

Licensing

2017 Nonexclusive license with Interacoustics A/S. Method to measure torsional eye movements using entire iris

2016 Nonexclusive license with Labyrinth Devices, LLC. Method to measure torsional eye movements using entire iris

OTHER ACTIVITIES

UC Berkeley

2023- School of Optometry, Governance Committee member

2023- School of Optometry, T35 Applications Review Committee member

2021- Vision Science Graduate Program, Admissions Committee Member

2021- School of Optometry, Secretary of the Faculty

External

2021 Johns Hopkins University, K award workshop. Panelist

Editorial Boards

2021- Journal of Eye Movement Research

2020- Frontiers in Systems Neuroscience

Journal Peer Review

2018- Ear and Hearing

2017- Scientific reports, Journal of Neurology, Frontiers in Neurology

2016- Journal of the Neurological Sciences, Otology & Neurotology, Displays

2015- Journal Neurophysiology, Frontiers in Behavioral Neuroscience, Frontiers in Human Neuroscience

2014- Journal of Eye Movement Research, European Journal of Neuroscience, Stroke

2013- Frontiers in Systems Neuroscience

2012- PLOS Computational Biology, PlosONE, Movement Disorders

2011- Neural Networks, Vision Research, The Journal of Neuroscience
2010- Journal of Vision, Experimental Brain Research

Other Peer Review

2022- Adhoc Grant reviewer, NIH.
2023- Grant Reviewer UK Research Institute
2018 Reviewer for the Eye Tracking Research and Applications conference (ETRA 2018)
2014 Grant reviewer, United States-Israel Binational Science Foundation (BSF)

Conference Organization

2025-2027 Chair. Gordon Research Conference on Eye Movements
2023-2025 Vice-Chair. Gordon Research Conference on Eye Movements
2019 Co-Chair. Challenge Track. Eye Tracking Research & Applications Symposium (ETRA 2019)
2009-2013 Chair of volunteer committee. Best Visual Illusion of the Year Contest
2011 Volunteer committee. Association for the Scientific Study of Consciousness (ASSC 2011)

Professional memberships

2009- Society for Neuroscience
2009- Vision Science Society
2021- Barany Society
2023- Optica Society