NATELA SHANIDZE

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EDUCATION

University Michigan, Ann Arbor, MI
Doctor of Philosophy in Neuroscience **2011**
Dissertation: "Coordination of Eye and Head Movements in *Cavia Porcellus*"
Mentor: W. Michael King, Ph.D.

University of Michigan, Ann Arbor, MI
Master of Science in Neuroscience **2008**

University of Chicago, Chicago, IL
Bachelor of Arts in Physics **2005**
Honors Thesis: "Comparison of the Absorption Spectra of Strong Gravitational Lenses with Weak Absorbers"
Mentor: Donald G. York, Ph.D.

University of Chicago, Chicago, IL
Bachelor of Arts in Psychology **2005**

PROFESSIONAL EXPERIENCE

The Smith-Kettlewell Eye Research Institute, San Francisco, CA
Scientist (Associate Professor equivalent) **October 2022 – present**
Examining effects of low vision and noise exposure on vestibular function and mobility

The Smith-Kettlewell Eye Research Institute, San Francisco, CA
Associate Scientist (Assistant Professor equivalent) **September 2018 – September 2022**
Examined visual/vestibular interactions in central visual field loss

The Smith-Kettlewell Eye Research Institute, San Francisco, CA
Postdoctoral Researcher **December 2016 – August 2018**
Studied visual-vestibular interactions in patients with central visual field loss
Mentor: Preeti Verghese, Ph.D.

The Smith-Kettlewell Eye Research Institute, San Francisco, CA
Postdoctoral Fellow **April 2014 – December 2016**
Studied pursuit and perception of moving objects in patients with central visual field loss
Mentors: Preeti Verghese, Ph.D. & Stephen J. Heinen, Ph.D.

Stanford University, Stanford, CA | Department of Neurology & Neurological Sciences
Postdoctoral Fellow **April 2012 – June 2013**
Studied behavioral and neural correlates of Parkinson's Disease
Mentor: Helen M. Brontë-Stewart, M.D.

PEER REVIEWED PUBLICATIONS

Shanidze, N.M., Velisar, A., Lotze, A., Prakash, P., Stewart, C., McCaslin, D.L. (2026). Association between lifetime noise exposure and audiometric thresholds using the noise exposure structured interview. *Scientific Reports*.

Shanidze, N.M., Agathos, C.P., Ellmers, T.J., Young, W.R. (2026). Links Between Central Visual Field Loss and Movement Processing during Walking. *Gait & Posture*, 125.

Shanidze, N.M. & Velisar, A. (2026). Cancellation of the Vestibulo-Ocular Reflex during Smooth Pursuit in Patients with Maculopathy. *Frontiers in Neurology*, 16.

Agathos, C. P., **Shanidze, N.M.**, Fletcher, D.C. (2025). Importance of screening for contrast sensitivity, falls and mobility limitations in older adults with maculopathy. *American Journal of Ophthalmology*, 280, 481.

Shanidze, N.M. & Verghese, P. (2024). Smooth pursuit deficits impact dynamic visual acuity in macular degeneration. *Optometry and Vision Science*, 101(6), 435.

Agathos, C. P. & **Shanidze, N.M.** (2024). Visual field dependence persists in age-related central visual field loss. *Investigative Ophthalmology & Vision Science*, 65(2).

Velisar, A. & **Shanidze, N.** (2023). Noise Estimation for Head-Mounted 3D Binocular Eye Tracking using Pupil Core Eye Tracking Goggles. *Behavior Research Methods*, 56, 53.

Agathos, C. P., Velisar, A., & **Shanidze, N.** (2023). A Comparison of Walking Behavior during the Instrumented TUG and Habitual Gait. *Sensors*, 23(16).

Shanidze, N., Lively, Z., Lee, R., & Verghese, P. (2022). Saccadic Contributions to Smooth Pursuit in Macular Degeneration. *Vision Research*, 200.

Lotze, A., Love, K., Velisar, A., & **Shanidze, N.** (2022). A low-cost robotic oculomotor simulator for assessing eye tracking accuracy in health and disease. *Behavior Research Methods*, 56, 80.

Verghese, P., Vullings, C., & **Shanidze, N.** (2021). Eye Movements in Macular Degeneration. *Annual Reviews of Vision Science*, *7*.

Shanidze, N. & Velisar A. (2020). Eye, Head & Gaze Contributions to Smooth Pursuit in Macular Degeneration. *Journal of Neurophysiology*, *124(1), 134*.

Shanidze, N. & Verghese, P. (2019). Motion Perception in Central Field Loss. *Journal of Vision*, *19*(14), 20.

Shanidze, N., Heinen, S., & Verghese, P. (2017). Monocular and binocular smooth pursuit in central field loss. *Vision Research, 141,* 181.

Shanidze, N., Ghahghaei, S., & Verghese, P. (2016). Accuracy of eye position for saccades and smooth pursuit. *Journal of Vision*, *16*(15), 23.

Shanidze, N., Fusco, G., Potapchuk, E., Heinen, S., & Verghese, P. (2016). Smooth pursuit eye movements in patients with macular degeneration. *Journal of Vision,* 16(3), 1*.* (Cover Article)

Shanidze, N., Lim, K., Dye, J., & King, W. M. (2012). Galvanic stimulation of the vestibular periphery in guinea pigs during passive whole body rotation and self-generated head movement. *Journal of Neurophysiology,* 107(8), 2260*.*

King, W. M., & **Shanidze, N.** (2011). Anticipatory eye movements stabilize gaze during self-generated head movements. *Annals of the New York Academy of Sciences,* 1233(1), 219.

Shanidze, N., Kim, A. H., Raphael, Y., & King, W. M. (2010). Eye-head coordination in the guinea pig I. Responses to passive whole-body rotations. *Experimental Brain Research*, *205*(3), 395.

Shanidze, N., Kim, A. H., Loewenstein, S., Raphael, Y., & King, W. M. (2010). Eye-head coordination in the guinea pig II. Responses to self-generated (voluntary) head movements. *Experimental Brain Research*, *205*(4), 445.

York, D.G., et al. (2006). "Average Extinction Curves and Relative Abundances for QSO Absorption Line Systems at $1 \leq z_{abs} < 2$", *Monthly Notices of the Royal Astronomical Society,* 367: 945.

PATENT

N.M. Shanidze, A. Velisar, A.W. Lotze, K.K. Love. (2025) "Oculomotor simulator for assessing eye-tracking accuracy" US Patent No. 12,474,771 B2. U.S. Patent and Trademark Office.

PEER REVIEWED CONFERENCE PUBLICATIONS

Love, K., Velisar, A., & **Shanidze, N.** (2021). Eye, Robot: Calibration Challenges and Potential Solutions for Wearable Eye Tracking in Individuals with Eccentric Fixation. In *ACM Symposium on Eye Tracking Research and Applications* (Adjunct). Association for Computing Machinery: New York, NY, USA.

--- Best Paper Award at ActivEye ETRA '21 Workshop awarded to K. Love

Velisar, A., & **Shanidze, N.** (2021). Noise in the Machine: Sources of Physical and Computation Error in Eye Tracking with Pupil Core Wearable Eye Tracker. In *ACM Symposium on Eye Tracking Research and Applications* (Adjunct). Association for Computing Machinery: New York, NY, USA.

D. E. Vanden Berk, et al. (2005). "Average Extinction Curves and Abundances at 1<z<2 from MgII Absorption Systems" *Bulletin of the American Astronomical Society*, 37: 1360.

Khare, P., et al. (2005). "Evidence for the presence of dust in intervening QSO absorbers from the Sloan Digital Sky Survey" *Proceedings of the International Astronomical Union*, 1: 427-429.

York, D.G., et al. (2005). "The Sloan Digital Sky Survey QSO absorption line catalogue" *Proceedings of the International Astronomical Union*, 1: 58-64.

INVITED TALKS & PRESENTATIONS

Vestibular Prostheses Session Discussion Leader
Gordon Research Conference on Eye Movements, Mt Holyoke USA 2025

Lifetime Noise Exposure is Associated with Greater Postural Sway during Quiet Stance
International Society of Posture & Gait Research World Congress, Maastricht, Netherlands 2025

Mobility in People with Central Visual Field Impairment
World Ophthalmology Congress, Vancouver, BC, Canada 2024

Beyond Sensory Loss in Macular Degeneration: Smooth Pursuit without Central Vision
Ocular Motor & Vestibular Lecture Series, Johns Hopkins University School of Medicine 2023

The effects of noise exposure on vestibular function
Hearing, Balance and Chemical Senses Seminar Series, University of Michigan, Ann Arbor 2022

The effects of noise exposure on vestibular function
Satellite of the Society for Neural Control of Movement Annual Meeting, Dublin, Ireland 2022

Head-Unrestrained Eye Movements in Macular Degeneration: a Story in 3 Parts
UC Berkeley Vision Science Oxyopia Seminar, Berkeley, CA 2021

Smooth Pursuit without Foveal Vision
Minisymposium: The Dynamic Interaction of Vision and Eye Movements, moderator: J.P. Mayo
Session 096.03, Society for Neuroscience Annual Meeting, San Diego, CA 2018

Interacting with the world without a fovea: eye, head, and body movements in AMD
Invited Seminar at Smith-Kettlewell Eye Research Institute, San Francisco, CA 2018

Interaction of Eye and Head Movements during Smooth Pursuit in Macular Degeneration
Association for Research in Vision and Ophthalmology Annual Meeting, Honolulu, HI. 2018
Abstract: **N. Shanidze**, E. Ullman, J. Badler, P. Verghese. (2018) *iOVS*, 59(9): 4412

Use and Placement of Fovea in Smooth Pursuit
Invited brown bag speaker at NASA Ames Research Center, Moffett Field, CA 2017

Relative eye position during monocular and binocular pursuit in central field loss
The Optical Society Fall Vision Meeting, San Jose, CA. 2015
Abstract: **N. Shanidze**, S. Heinen, P. Verghese. (2016) *Journal of Vision,* 16(4): 20.

Coordination of Eye and Head Movements in the Guinea Pig
Hearing, Balance and Chemical Senses Seminar Series, University of Michigan, Ann Arbor. 2011

FUNDING

Cognitive Science Society: Broadening Participation in Cognitive Science Initiative | 2024
co-PI: *J. Coughlan,* ***N. Shanidze*** | Total: $5,000
Title: "Promoting Science Participation in the Blind and Visually Impaired Worldwide"

NIH | NEI: Research Project Grant (R01 EY036172) | PI: ***N. Shanidze*** | Total: $2,505,108 2024 – 2029
Title: "Oculomotor Demands for Target Stabilization without Central Vision"

NIH | NIA: Equipment Supplement Award (R01 AG073157-AS1) | 2023
(m)PIs: *C. Stewart,* ***N. Shanidze*** | Total: $31,454

HHS | ACL | NIDILRR: Rehabilitation Engineering Research Center | PI: *J. Coughlan* 2022 - 2027

NIH | NIA: Research Project Grant (R01 AG073157) | 2021 - 2026
(m)PIs: *C. Stewart,* ***N. Shanidze*** | Total: $2,606,136
Title: "Effects of Noise Exposure Across the Lifespan on Balance and Stability in Older Adults"

NIH | NEI: Equipment Supplement Award (R00 EY026994-03S1) | PI: ***N. Shanidze*** | Total: $30,329 2019

NIH | NEI: Pathway to Independence Award (R00 EY026994) | 2018 - 2021
PI: ***N. Shanidze*** | Total: $726,725
Title: "Coordination of Eye and Head Movements in Central Field Loss"

NIH | NEI: Pathway to Independence Award (K99 EY026994) | 2016 - 2018
PI: ***N. Shanidze*** | Total: $186,332
Title: "Coordination of Eye and Head Movements in Central Field Loss"

NIH | NEI: Ruth L. Kirschstein National Research Service Award (F32 EY025151) | 2015 - 2017
PI: ***N. Shanidze*** | Total: $173,970 (terminated by PI 2016)
Title: "Oculomotor Strategies in Central Field Loss"

The Smith-Kettlewell Eye Research Institute, San Francisco, CA: 2014 - 2016
Rachel C. Atkinson & C.V. Starr Postdoctoral Fellowship (terminated by PI 2015)

Stanford University, Stanford, CA*:* Dean's Postdoctoral Fellowship 2012 - 2013
Title: "Neural Correlates of Freezing in Parkinson's Disease"

NIH | NIDCD: Ruth L. Kirschstein National Research Service Award (F31 DC010947) | 2010 - 2011
PI: ***N. Shanidze*** | Total: $25,871
Title: "Vestibular Control of Head Movements"

NIH | NIDCD: Hearing, Balance & Chemical Senses Training Fellowship (T32 DC000011) 2007 – 2010
Awarded by Kresge Hearing Research Institute, University of Michigan, Ann Arbor, MI

American College of Neuropsychopharmacology*:* Educational Outreach Grant | Total: $5,000 2008
Awarded for *Brains Rule!* | Faculty Sponsor: Huda Akil

NIH | NEI: Early-Stage Training in Neurosciences Training Fellowship (T32 EY17878) 2006 – 2007
Awarded by the Neuroscience Graduate Program, University of Michigan, Ann Arbor, MI

AWARDS/HONORS

MIT Outstanding Poster Award, *Association for Research in Vision and Ophthalmology* 2015
Title: "Characteristics of Monocular Smooth Pursuit in Central Field Loss"
Abstract: *Investigative Ophthalmology & Visual Science, 56(7): 2903.*

Travel Grant, *Association for Research in Vision and Ophthalmology* 2015

Trainee Scholarship, *Society for the Neural Control of Movement* 2011

Rackham Graduate Student Research Grant (Doctoral Candidate),
University of Michigan, Ann Arbor, MI 2009

Rackham Graduate Student Research Grant (Doctoral Pre-Candidate),
University of Michigan, Ann Arbor, MI 2008

Graduate Research Fellowship Honorable Mention, *National Science Foundation* 2007, 2008
Title: "Vestibular Processing of Gravity Versus Linear Acceleration in the Guinea Pig"

Dean's List, *University of Chicago*, Chicago, IL 2004-2005

MENTORSHIP/ADVISING ACTIVITIES

Postdoctoral Fellows: Praveen Prakash, Ph.D. (2026-current), Catherine P. Agathos, Ph.D. (2021-current), Christian Sinnott, Ph.D. (2023-2024)
Clinical Research Fellow: Mustafa Safi, M.D. (co-adviser, 2019-2020)
Interns (degree at time of internship): Ryan Bixler (2018); Sai Muktevi (co-adviser, 2018); Rachel Lee, B.A. (2020-2021); Kassia Love (2020-2021); Kyra Deams (co-adviser 2021); Ebenezer Nyanwe (2022); Hirva Patel, M.S. (2023); Lokesh Telaprolu, M.S. (2025); Bailey Rosengren (2024-current); Alta Knuff, B.A. (2026-current); Yehya Maitah, B.A. (2026-current).

SERVICE

Vice Chair Gordon Research Conference on Eye Movements (elected) 2025-2027

Qualifying Exam Committee Member for Evalie Rehor | University of California Berkeley 2026

Reviewer Ph.D. Thesis Jury of Dr. Jimmy Murari | Sorbonne University, Paris, France 2025

Federal Advisory Committee Member Scientific Merit Review Board Subcommittee on Sensory Systems & Communication Disorders, Rehabilitation Research and Development Service | VA 2023 - Present

***Ad hoc* Reviewer** Communication Disorders Review Committee, NIDCD | NIH 2022

***Ad hoc* Reviewer** Sensory Technologies: Vision, Auditory & Low Vision Panel | NIH 2021 – Present

Organizer *A fine balance: the neural control of eye and head movements in health versus disease*. Satellite of the Meeting of Society for Neural Control of Movement. Organizers: **N. Shanidze** & N. Gandhi 2022

Guest Editor Special Collection: "Practical Issues in Eye Tracking for Naturalistic Behaviors" 2022
Behavioral Research Methods, Springer

***Ad hoc* Reviewer** RR&D Subcommittee on Small Projects in Rehabilitation Research (SPiRE), VA 2021

Organizer *ActivEye: Challenges in large scale eye-tracking for active participants.* Workshop of Symposium on Eye Tracking Research and Applications (ETRA '21). Organizers: K. Binaee, A. Gibaldi, **N. Shanidze** 2021

Member, Fellowship Committee (nominated) 2020-Present
The Smith-Kettlewell Eye Research Institute

Chair, Website Committee (nominated) 2019 - 2025
Member, Website Committee (volunteer) 2016-2019
The Smith-Kettlewell Eye Research Institute

Co-Chair, Outreach Committee, **Lead** Social Media Team (volunteer) 2019 – Present
The Smith-Kettlewell Eye Research Institute

Graduate Student Forum Representative (nominated) 2007-2008 &
Rackham Graduate School, University of Michigan, Ann Arbor, MI 2009-2010

AD-HOC PEER REVIEWER

PNAS, National Academy of Sciences | *iOVS,* ARVO Press | *Behavior Research Methods*, Springer | *Peer J* | *Scientific Reports*, Nature | *Vision Research*, Elsevier | *Journal of the American Academy of Audiology* | *Behavioural Brain Research*, Elsevier | *Frontiers* | *Journal of the American Academy of Audiology* | *Current Eye Research*, Taylor & Francis | *Psychology and Neuroscience*, American Psychological Association| *Journal of International Medical Research*, SAGE

OUTREACH

N. Shanidze (July 2, 2020). After Parenthood, Sexism in Science Takes On New Meaning [Editorial]. *The Chicago Maroon*. Retrieved from www.chicagomaroon.com/article/2020/7/2/parenthood-sexism-science-takes-new-meaning/

Advisory Board Member (invited) - IGNITE Worldwide 2019 - 2020

Low Vision Support Group Member/Speaker (volunteer) 2015 - 2020
The Smith-Kettlewell Eye Research Institute

P. Verghese, L. A. Lott & **N. Shanidze** (February 8, 2017). Federal Funding and Research are Key to Addressing Age-Related Macular Degeneration. *Research America! Blog*. Retrieved from www.researchamerica.org/blog/federal-funding-and-research-are-key-addressing-age-related-macular-degeneration

***Brains Rule!* Lead Coordinator/Exhibitor** (volunteer) 2009/2006 – 2008
University of Michigan/Ann Arbor Hands-On Museum, Ann Arbor, MI

TEACHING EXPERIENCE

The Smith-Kettlewell Eye Research Institute, San Francisco, CA
Coordinator – "Ethics in Academia" Seminar Series 2014 – Present

California State University – East Bay, Hayward, CA
Lecturer/Instructor of Record – Psyc 4800 (Human Learning & Cognition Lab) 2016
Enrollment: 14 (in-person)

Stanford University, Stanford, CA
Small Group Facilitator – "Management Matters" 2013
Organizers: John C. Boothroyd, Ph.D. & Helen J. Doyle, Ph.D.

University of Michigan, Ann Arbor, MI
Graduate Student Instructor – Bio 222 (Neurobiology) 2008
Instructors: Richard Hume, Ph.D. & Jonathan Demb, Ph.D.

University of Chicago, Chicago, IL
Teaching Assistant – Math 131/132/133 (Elementary Functions & Calculus) 2004-2005

University of Chicago, Chicago, IL (Neighborhood Schools Program)
Classroom Assistant for grades 3-5 in English and Mathematics 2001

OTHER RELEVANT EXPERIENCE

Science Corporation, Alameda, CA
AMD Daily Living Advisory Board Member **June 2025 – Present**
Advise on long term rehabilitation of patients with the PRIMA retinal prosthesis

Stanford University, Stanford, CA | Department of Otolaryngology
Contractor Data Analyst **October 2013 – January 2014**
Assisted with data preparation and analysis, investigating deafness in transgenic mouse models
Investigator: Mirna Mustapha, Ph.D.

University of Michigan, Ann Arbor, MI | Kresge Hearing Research Institute
Graduate Student Research Assistant **January 2007 – June 2011**
Examined coordination of eye and head movement responses in guinea pig to vestibular stimulation
Mentor: W. Michael King, Ph.D.

University of Michigan, Ann Arbor, MI | Department of Psychology, Biopsychology Program
Graduate Student Research Rotation **August – December 2006**
Looked at β and θ rhythms in mouse hippocampus during navigation of novel environments
Mentor: Joshua Berke, Ph.D.

University of Michigan, Ann Arbor, MI | Kresge Hearing Research Institute
Research Assistant **October 2005 – August 2006**
Examined eye movements in humans and guinea pigs during vestibular and visual stimulation
Investigator: W. Michael King, Ph.D.

University of Texas, Austin, TX | Center for Perceptual Systems
Research Associate **June – August 2005**
Collected behavioral data and worked on mathematical models of monkey V1 responses to contrast stimuli
Investigator: Eyal Seidemann, Ph.D.

University of Chicago, Chicago, IL | Department of Astronomy & Astrophysics
Student Research Assistant & Senior Research Thesis ('04-'05) **February 2002 – August 2005**
Worked with quasar absorption spectra data from the Sloan Digital Sky Survey
Mentor: Donald G. York, Ph.D.

MEMBERSHIPS

Society for Neuroscience | Association for Research in Otolaryngology | Association for Research in Vision and Ophthalmology | Vision Sciences Society | Sigma Xi, the Scientific Research Society | Society for the Neural Control of Movement | International Society of Posture & Gait Research