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EDUCATION

The University of Arizona	Tucson, AZ
Wyant College of Optical Sciences	
Ph.D. in Optical Sciences	August 2021 - Present
M.S. in Optical Sciences	August 2019 - Present

The XiDian University	Xi'an, China
Department of Physics and Optoelectronic Engineering	
Bachelor of Engineering in Electronic Science and Technology	August 2014 – June 2018

RESEARCH INTERESTS

Visual and Ophthalmic Optics, Biomedical Optics, Optical Metrology, Lens Design, Optomechanical Engineering

RESEARCH EXPERIENCE

Biomedical Optics and Optical Measurement Lab *May 2023 – Pres*
 Advisor: Dr. Travis Sawyer, Wyant College of Optical Sciences, The University of Arizona

Visual Optics Lab September 2019 – May 2023
 Advisor: Dr. Jim Schwiegerling, Wyant College of Optical Sciences, The University of Arizona

Remote measurement of Sphero-cylindrical Spectacle Lens Prescriptions (published)

Development of a telemedicine system, SpectRx, to remotely measure the clinical prescription of eyeglasses based on readily available technology such as cell phone cameras and computers.

Key responsibilities: Used MATLAB to develop an algorithm that automatically measures the optical properties of spectacle lenses given a photo of the lenses in front of a checkerboard pattern.

Ocular Distortion Measurement and Relationship with Refractive Error (ongoing)

An extension of a former student's dissertation work to determine the relationship between ocular distortion and the onset and progression of refractive error (mainly myopia) in human eyes.

Key responsibilities: Mounted and aligned a fundus camera with an eye model and camera; used MATLAB to design an object with four different patterns for ocular distortion measurement; used Solidworks to design several object mounts with multiple degrees of freedom; took images from the illumination path and retinal imaging path for testing and recreate the measurement algorithm.

PROCEEDINGS, AND PAPERS

Guan, Y., Miller, J. M., Harvey, E. M., & Schwiegerling, J. *Remote measurement of sphero-cylindrical spectacle lens prescriptions*. *Optical Engineering* 61(12): 121809.

<https://doi.org/10.1117/1.OE.61.12.121809>.

Guan, Y., Miller, J. M., Harvey, E. M., Ashley, S., & Schwiegerling, J. (2022). *Remote Measurement of the Clinical Prescription of Spectacle Lenses*. *Novel Optical Systems, Methods, and Applications XXV*, 12216:27–33. SPIE. <https://doi.org/10.1117/12.2632546>.

Schwiegerling, J., Guan, Y., Miller, J. M., & Harvey, E. M. (2021). *Remote measurement of spherocylindrical lens power and orientation through distortion analysis*. *Novel Optical Systems, Methods, and Applications XXIV*, 11815,1181502. SPIE. <https://doi.org/10.1117/12.2594953>

SKILLS AND EXPERTISE

Programming/Software:

MATLAB
Zemax Optic Studio
Solidworks
Code V
Image J
OptiLayer
Oslo
C
Visual Basic
Mathematica

Theory:

Geometrical Optics
Lens Design
Visual and Ophthalmic Optics
Biomedical Optics
Diffraction & Interferometry
Opto-mechanics
Electrodynamics
Classical Mechanics
Statistical Mechanics
Quantum Mechanics

HONORS AND AWARDS

2021-2022 U.S. Army Capt. John E. Tipton Graduate Student Endowed Scholarship in Optical Sciences, September 2021

EXTRACURRICULARS

Member of the Student Optics Chapter (SOck), September 2019 - Present
Member of the Women in Optics (WiO), September 2019 - Present
Member of the UA badminton club, September 2020 - 2022