

Gregory M. Nero

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Website: <https://gregnero.github.io>

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EDUCATION:

University of Arizona

2020 - Current | Tucson, AZ

Optical Sciences, PhD Student

Rochester Institute of Technology

2016 – 2020 | Rochester, NY

B.S. Imaging Science | Astronomy Minor | American Sign Language and Deaf Cultural Studies Immersion

RESEARCH/PROJECT EXPERIENCE:

University of Arizona College of Optical Sciences, Graduate Research Assistant

May 2022 – Current | Tucson, AZ

Synthetic aperture scatter imaging.

University of Arizona College of Optical Sciences, Graduate Research Assistant

August 2021 – Current | Tucson, AZ

Advancing augmented reality display technologies via micro-electro-mechanical systems and optical data channel multiplexing.

University of Arizona College of Optical Sciences, Graduate Research Assistant

January 2021 – August 2021 | Tucson, AZ

Synthesized, recorded, and characterized advanced volume holograms.

University of Arizona College of Optical Sciences, Graduate Research Assistant

August 2020 – December 2020 | Tucson, AZ

Contributed to an ongoing optical neural network research project.

Unaffiliated Collaborative Project, Network Scientist

May 2020 – November 2020 | Remote

Created and investigated coevolving SIR epidemic models.

RIT Center for Imaging Science, Undergraduate Student Researcher

August 2019 – May 2020 | Rochester, NY

Developed methods for optical matched filtering using computer-generated holography.

Space Telescope Science Institute, Intern

June 2018 – August 2018 | Baltimore, MD

Explored the potential applications of transfer learning for categorizing large sets of astronomical image data.

WORK EXPERIENCE:

Arizona Optical Metrology, Intern

June 2022 – Current | Tucson, AZ

Computer-generated hologram fabrication process design of experiments and application software development.

Ball Aerospace, Technical Intern – Optical Engineer

June 2019 – August 2019 | Boulder, CO

Supported and lead efforts to develop technologies, including ultra-stable bonding, picometer actuation, and wave front sensing and control, that will enable future space-based telescope mission objectives.

TEACHING EXPERIENCE:

James C. Wyant College of Optical Sciences, Graduate Teaching Assistant

January 2022 – May 2022 | Tucson, AZ

Class: OPTI 280 – Computer Programming Workshop

James C. Wyant College of Optical Sciences, Graduate Teaching Assistant

August 2021 – December 2021 | Tucson, AZ

Class: OPTI 471A – Advanced Optics Laboratory

Center for Imaging Science, Teaching Assistant
January 2019 – May 2019 | Rochester, NY
Class: Linear and Fourier Mathematics for Imaging

PUBLICATIONS:

Bandwidth optimization for the Advanced Volume Holographic Filter

Alcaraz, Pedro Enrique, Gregory Nero, and Pierre-Alexandre Blanche. "Bandwidth optimization for the Advanced Volume Holographic Filter." *Optics Express* 30.1 (2022): 576-587.

On-sky performance evaluation of RITMOS, a micromirror-based multi-object spectrometer

Anton Travinsky, Dmitry Vorobiev, Kathleen Oram, Gregory M. Nero, Zoran Ninkov
Proc. SPIE 10702, Ground-based and Airborne Instrumentation for Astronomy VII, 107021N (6 July 2018);
doi: 10.1117/12.2313690

CONFERENCE/EVENT PARTICIPATION:

National Science Foundation International Research Experience for Students (NSF IRES)

2022 - Current | USA & Taiwan

Program Participant

US- Taiwan Advanced Study Institutes (ASIs) for Science, Technology and Manufacture of Future Display Devices and Systems

University of Arizona Optics and Photonics Winter School and Workshop 2020

2020 | Tucson, AZ

Poster session.

Optical Matched Filtering with Computer-Generated Holography

233rd American Astronomical Society Meeting

2019 | Seattle, WA

Poster session.

Exploring Space with Neural Networks

Nero, Peek, Kendrew, Jones

HONORS:

University of Arizona

Joseph W. Goodman Graduate Student Endowed Scholarship in Optical Sciences | H. Angus Macleod Scholarship
Funded by VIAVI Solutions, Inc.

Rochester Institute of Technology

Summa Cum Laude | Chester Carlson Scholar | RIT Founder's Scholarship | Hughes Scholarship
Undergraduate Research Scholar | Nathaniel Rochester Society Scholar | John Wiley Jones Scholar
Goldwater Nominee

SERVICE:

The University of Arizona Student Optics Chapter, Treasurer

August 2020 – May 2022 | Tucson, AZ

Imaging Science Club, President

May 2019 – May 2020 | Rochester, NY

CLASS LIST:

University of Arizona

Electromagnetic Waves, Optical Design and Instrumentation I, Linear Systems Fourier Transforms, Diffraction and Interferometry, Optical Physics and Lasers, Imaging Physics and Devices, Computational Imaging, Probability and Statistics in Optics, Principles of Image Science

Rochester Institute of Technology

Imaging Detectors, Complex Networks, Observational Astronomy, Harmonica and the Blues, Financial Fitness, Rock Climbing, Imaging System Analysis and Modeling, Wines of the World, Cultural Anthropology, Extragalactic Astrophysics and Cosmology, Differential Equations, Image Processing and Computer Vision I and II, Interactions Between Light and Matter, Physical Optics, University Astronomy, Geometric Optics, Radiometry, Introduction to Creative Writing, Modern Physics I, STEM Education: Research and Practice, Fundamentals of Color Science, Linear and Fourier Mathematics for Imaging, Probability and Statistics for Imaging, University Physics I and II, Calculus I, II,

and III, Introduction to Computing and Control, Intermediate American Sign Language I, Beginning American Sign Language I and II, Vision and Psychophysics, Introduction to Imaging and Video Systems, Introduction to Philosophy

PERSONAL PROJECTS:

Modelling Experiences with Geometry, Emotions and Feelings

Developing a geometric model to express experiences using emotions and feelings.