Gregory M. Nero

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GitHub: https://github.com/gregnero

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
Computational imaging for super-resolution imaging systems. (Advisor: Dr. David Brady)
University of Arizona College of Optical Sciences, Graduate Research Assistant
August 2021 – Current | Tucson, AZ
Beam steering and optical engineering for augmented reality displays. (Advisor: Dr. Yuzuru Takashima)
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 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:

SPIE – Photonics West & AR|VR|MR 2023
January – February 2023 | San Francisco, CA
Conference Paper and Poster Presentation
Field-of-view expansion via diffractive image steering and prism array
Optica - Frontiers in Optics 2022
October 2022 | Rochester, NY
Student Leadership Conference attendee and representative from the University of Arizona
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/VOLUNTEERING IN OPTICS:

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, Lens Design, Holography and Diffractive Optics

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