

# Benjamin Nussbaum

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## Education

**University of Rochester (UR)**      **Rochester, NY**      **2017 - 2021 (Expected)**

*B. S. Optics, B. A. Physics and Astronomy; Minors in Computer Science and Mathematics*

GPA: 3.91–Dean's List

### Awards and Recognitions:

★ *Dean's Citation for Broadening Participation in Research*

★ *Xerox Award for Innovation and Technology*

**Highlighted Courses:** Modern Statistics & Large Data Sets (Graduate Level) · Artificial Intelligence  
Quantum/Nano Optics Lab. (Graduate level) · Lens Design (Graduate Level) · Thermo/Stat. Mech

## Research Experience

**Research Assistant**    **Vamivakas Group**    **The Institute of Optics**    **Summer 2019-Present**

Read current literature to understand theorized result. Design the first-order layout of an optical system to test theorized results. Order necessary optical components for system. Build and align optical system on an optical table to collect experimental data. Collect image data with a CCD camera. Analyze image data in MATLAB using Fourier analysis techniques. Design and present results in poster and presentation in a way understandable to the general public.

Upcoming paper in *Optics Letters*: “Fourier Processing of Partially Coherent Fields”.

Abstract: “We extend conventional coherent Fourier processing techniques to a partially coherent field and modify its spatial coherence using a  $4f$  system.”

## Leadership/Teaching

**President**    **University of Rochester Optical Society (OSA) Student Chapter**    **2019-2020**

General club management · skilled group leadership · professional development · community outreach  
Develop engagement between students of differing class years within the department and with students in other physics/engineering departments via social events from game nights to the annual Photon Cup.

**Teaching Assistant**    **The Institute of Optics**    **University of Rochester**    **Spring 2020**

Teaching Assistant for Prof. John Bowen's course on Optical System Design and Layout, featuring prominently the optical design software Zemax. Grade and answer questions about assignments.

**Lab Teaching Assistant**    **The Institute of Optics**    **University of Rochester**    **2019-2020**

Facilitate teaching lab experiments for students in the Geometrical Optics and Physical Optics Labs as taught by Profs. Berger, Brown, Carney, Eastman, and Zavislan.

Lead small groups during pre-lab sessions for students to gain familiarity with lab equipment. Grade and answer questions about the labs, assignments, and lab reports.

## Technical/Computer Skills

Fast learner and long-time programmer with broad experience:

CODE V, Zemax, Java, MATLAB, Python, Mathematica, JavaScript, Git, vim, L<sup>A</sup>T<sub>E</sub>X, Web development