

NSF QLCI-HQAN Industry Internship Program 2021-22

Internship opportunity at [Toptica Photonics](#)

Toptica is a partner in the NSF-funded Quantum Leap Challenge Institute ([HQAN](#)), Director Brian DeMarco in Physics at the University of Illinois.



Toptica develops and manufactures high-end laser systems for scientific and industrial applications, including diode lasers, ultrafast fiber lasers, terahertz systems and frequency combs.

Projects for a bachelor's/master's student that are of interest to Toptica Photonics:

- Optical isolator packaging performance testing/redesign (Mech. or Manufacturing Eng.)
- Wavelength-meter case design (Mech. or Manufacturing Eng.)
- Wavelength-meter programming and electronics (EE or CE)
- Write software integrable laser control drivers (CE)
- High-sensitivity power monitor of certain CW lasers (EE)
- Design electronic control modules for new laser products (EE)
- Characterize and optimized fiber coupling of certain laser products
- Market study (products TBA)
- Quality assurance (Ind. Eng.)

The projects can involve optical system design and modeling, mechanical engineering and analysis, electronics and controls systems design, and pure software coding.

The internship will be 8-10 weeks in summer. Internship opportunities are also available during the school year.

In addition, the small size (30 people in the US) makes Toptica an ideal place to learn about the industrial world. Their North American operation is a complete microcosm encompassing sales, marketing, operations, logistics, R&D, engineering, and production. An intern would really be exposed to all these aspects and could get a good sense for how all these functions work in a small company while focusing on their project. Toptica will work with students to choose projects that they can be proud to include on their CV.