Download as a PDF onto your computer before you begin filling out this form;
work only on your downloaded version in order to submit your application.

2019 Wellman-HST Summer Institute for Biomedical Optics

The Harvard-MIT Program in Health Sciences & Technology and Wellman Center for Photomedicine Research Experience for undergraduates (REU) site.

Thank you for your interest in the Summer Institute.
Please complete this application form and review the last page for submission instructions.
The postmark deadline to apply for the Summer Institute in Biomedical Optics is January 12, 2019.

Personal Information

Name _____ (Last name / First name / Middle initial)

Current address _____

Phone _____ (Area code)

Permanent address _____

Emergency contact name _____

Emergency contact phone _____ (Area code)

Country of citizenship _____

Academic E-mail _____

E-mail _____

City, State, Zip _____

Cell Phone _____ (Area code)

City, State, Zip _____

Relationship _____

Your date of birth _____

Your place of birth _____

If not a U.S. citizen, do you currently have permanent residency status? ☐ Yes ☐ No

Gender: ☐ Male ☐ Female

Optional, U.S. citizens only. Please check all ethnicities that apply to you:

- ☐ African-American
- ☐ Asian-American
- ☐ Caucasian
- ☐ Native-American
- ☐ Chicano/Mexican-American
- ☐ Puerto Rican
- ☐ Other Hispanic
- ☐ Other (please specify) _____

Education

Current institution _____ City, State _____

Major _____ Minor, if applicable _____

Overall GPA _____ Institution GPA scale, i.e., 4.0, 5.0

September 2019 Status ☐ Sophomore ☐ Junior ☐ Senior ☐ Grad

Previous undergraduate institution, if any _____ Dates attended _____

Academic honors and awards with dates _____

First generation college student? ☐ Yes ☐ No

Relevant Courses

Please list the names of relevant graduate and undergraduate courses that have prepared you for the Summer Institute.

Engineering:	Chemistry:	Biology:	Physics:
Total number _____	Total number _____	Total number _____	Total number _____

2019 Wellman-HST Summer Institute for Biomedical Optics

Name_____
Last name First name Date

Summer Institute Educational Objectives Cover Sheet
In the space provided below, please describe the following:

1) Your educational and career plans
2) Your current scientific and research interests
3) Your reasons for applying to this program
4) Your qualifications to participate in the program including any research experience unrelated to coursework that you may have had, such as lab experience or data compilation. If you have had research experience, include the names of faculty or principal investigators, duration of your participation, the larger goals of the research, and your specific role.

2019 Wellman-HST Summer Institute for Biomedical Optics

Name_____
Last name First name

Biomedical Optics Laboratory Preference

For each lab listed below, please check one of the three boxes that matches your interest level in working with that lab. A complete description of each lab is listed at http://hst.mit.edu/academics/summer-institute/biomedical-optics

Very Interested	Interested	Not Interested	
			Thrust 1: Implantable/Wearable Photonic Devices
☐	☐	☐	1. Smart tethered capsule endoscopes (Prof. Gary Tearney, WCP)
☐	☐	☐	2. Implantable wireless microscope (Prof. Gary Tearney, WCP)
☐	☐	☐	3. Implantable hydrogel optical waveguides (Prof. S.H. Andy Yun, WCP)
☐	☐	☐	4. Development of mobile phone-based imaging devices (Prof. Walfre Franco, WCP; Prof. Tayabba Hassan, WCP)
☐	☐	☐	5. Wearable optical sensors (Prof. Walfre Franco; Prof S.H. Andy Yun, WCP)
☐	☐	☐	6. Biological cell lasers (Prof. S.H. Andy Yun, WCP)
			Thrust 2: Optical Imaging
☐	☐	☐	1. Intravascular polarimetry (Prof. Brett Bouma, WCP)
☐	☐	☐	2. OCT imaging of intact brains of Alzheimer's disease mouse model (Prof. Brett Bouma, WCP)
☐	☐	☐	3. Development and vaildation of OCT quantitative angiography (Prof. Brett Bouma, WCP)
☐	☐	☐	4. In vivo analysis of circulating blood cells (ASP. Charles Lin, WCP)
☐	☐	☐	5. Imaging central nervous system inflammation through the eye (ASP. Charles Lin, WCP)

A complete description of each lab is listed at
http://hst.mit.edu/go/summer/biomedicaloptics

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Name_____
Last name First name

Biomedical Optics Laboratory Preference (cont.)

Very Interested	Interested	Not Interested	
☐	☐	☐	6. Optical characterization of the bone marrow microenvironment (ASP. Charles Lin, WCP)
			Thrust 3: Optical Biomechanics - from Brillouin to crosslinking
☐	☐	☐	1. Brillouin optical microscopy for cell biomechanics (Prof. S.H. Andy Yun, WCP)
☐	☐	☐	2. Photo-crosslinking of tissues (Prof. S.H. Andy Yun, WCP)
☐	☐	☐	3. Viscocity-based optical blood coagulation sensor (Prof. Seemantini Nadkarni, WCP)
☐	☐	☐	4. Laser speckle michrorheology to evaluate the mechanical hallmarks of tumor malignancy (Prof. Seemantini Nadkarni, WCP)
			Thrust 4: Nano-technologies for light-activated therapy and diagnostics
☐	☐	☐	1. Photoactivatable nanoscale drug delivery (Prof. Tayyaba Hassan, WCP)
☐	☐	☐	2. Engineering molecular probes for multifocal imaging (Prof. Tayabba Hassan, WCP)
☐	☐	☐	3. Quantification of near single molecule level ligand binding to white blood cells (Prof. Connor Evans, WCP)
☐	☐	☐	4. Nano-enabled imaging devices (Prof. Gary Tearney, WCP)

A complete description of each lab is listed at
http://hst.mit.edu/go/summer/biomedicaloptics

2019 Wellman-HST Summer Institute for Biomedical Optics

Name_____
Last name First name

Application Checklist

Agree to the applicant statement below.

Tell us how you learned about the Summer Institute, including the URL:

_____

Save this application form on your computer as a pdf, complete the form, and then email it to Jonathan Lawson at BioOpticsSummerInstitute@mgh.harvard.edu.

Arrange for supplementary materials to be sent directly to the above email address.

Official transcripts from all undergraduate colleges or universities.

Two letters of recommendation sent separately using the provided cover sheets. Letters of recommendation should come from a current or past teacher, faculty instructor, research advisor, supervisor, or director who is familiar with your work. Please remind your references of the January 12, 2019 deadline.

The deadline to apply for the Summer Institute is January 12, 2019. Email is preferred. Supplementary materials may be mailed to the address below. They must be postmarked by this date. Only complete applications will be considered. Please send all supplementary materials to:

Wellman-HST Summer Institute for Biomedical Optics
Attention: Jonathan Lawson
Massachusetts General Hospital
Wellman Center for Photomedicine
65 Landsdowne Street, Room 528
Cambridge, MA 02139
BioOpticsSummerInstitute@mgh.harvard.edu
(617) 768-8705

Applicant Statement

I certify that I will be able to participate for the full duration of the Biomedical Optics Summer Institute, from Monday, June 3, 2019 through Thursday, August 8, 2019. Please note that program dates may be adjusted.

I certify that I am a US Citizen or Permanent Resident of the United States of America.

I certify that the information provided on this application and supplementary documents is true and complete. I understand that misrepresentation or withholding information may result in the rejection of consideration for this program or termination at any time during the program.

I hereby agree to waive my right to view letters of recommendation and release the educational institutions and related individuals from all liability in responding to inquiries regarding my application. I release the Harvard-MIT Health Sciences and Technology, the Massachusetts General Hospital, and all other program-affiliated institutions from any liability related to such inquiries.

I agree to abide by all program requirements, policies and practices.

Signature_____ Date_____