

William F. Li

Email: william_li@hms.harvard.edu
Personal Website: <https://williamfli.github.io>
Google Scholar: <https://scholar.google.com/citations?user=avkQHcwAAAAJ&hl=en>

EDUCATION

Harvard Medical School

M.D.

Harvard/MIT M.D.-Ph.D. Program

Boston, MA

2024 – 2032 (expected)

Massachusetts Institute of Technology

S.B. Physics and Computer Science & Engineering

GPA: 5.00/5.00, Phi Beta Kappa, minor in Biology

Cambridge, MA

2020 – 2024

RESEARCH

Harvard Department of Chemistry and Chemical Biology

Research Assistant

2024 – present

- Principal Investigator: Xiaowei Zhuang
- Research topics:
 - * 3D-genome imaging of the human brain

Broad Institute of MIT and Harvard

Undergraduate Researcher

2022 – 2024

- Principal Investigator: Manolis Kellis (Computational Biology Group)
- Research topic:
 - * Genetic basis of Alzheimer's disease heterogeneity

MIT Research Laboratory of Electronics

Undergraduate Researcher

2020 – 2022

- Principal Investigators: Marin Soljačić (Photonics and Modern Electro-Magnetics Group), Steven Johnson (Nanostructures and Computation Group)
- Research topics:
 - * X-ray imaging and detection with nanophotonic scintillators
 - * Computational imaging with compressed sensing and end-to-end inverse design

PUBLICATIONS

2. Arya G, **Li WF**, Roques-Carmes C, Soljačić M, Johnson SG, Lin Z. End-to-End Optimization of Metasurfaces for Imaging with Compressed Sensing. *ACS Photonics*. 2024;11(5):2077–2087.
1. **Li WF**, Arya G, Roques-Carmes C, Lin Z, Johnson SG, Soljačić M. Transcending shift-invariance in the paraxial regime via end-to-end inverse design of freeform nanophotonics. *Optics Express*. 2023;31(15):24260–24272. Editors' Pick.

PATENTS

1. Soljačić M, Roques-Carmes C, Rivera N, Lin Z, **Li WF**, inventors; Massachusetts Institute of Technology, assignee. Nanophotonic Scintillators for High-Energy Particles Detection, Imaging, and Spectroscopy. U.S. Patent Application 18/701,792. May 2025.

PRESENTATIONS

3. **Li WF**, Roques-Carmes C, Lin Z, Johnson SG, Soljačić M. X-Ray Spectroscopy With End-to-End Optimized Nanophotonic Scintillators. Extended abstract presented at: Conference of Lasers and Electro-Optics; May 10, 2023; San Jose, CA
2. **Li WF**, Tanigawa Y, Kellis M. Polygenic dissection of phenotypic heterogeneity in Alzheimer's disease. Poster presented at: Broad Institute Scientific Retreat; December 13, 2022; Boston, MA.
1. **Li WF**, Arya G, Roques-Carmes C, Lin Z, Johnson SG, Soljačić M. Angular and Spectral Sparse Sensing With End-to-End Optimized Nanophotonics. Extended abstract presented at: Conference of Lasers and Electro-Optics; May 18, 2022; San Jose, CA.

AWARDS

- HMS Summer Research Fellow 2025
- Phi Beta Kappa Liberal Arts and Sciences Honor Society 2024
- Sigma Pi Sigma Physics and Astronomy Honor Society 2024
- Medical College Admission Test (MCAT) Perfect Score (528/528) 2023
- MIT SuperUROP Outstanding Research Award, awarded to 2 in cohort 2023
- *Optics Express* Editors' Pick 2023
- Eric and Wendy Schmidt Center funded Research and Innovation Scholar, 2 semesters research funding 2022
- USA Astronomy and Astrophysics National Team, ranked 8th nationally 2020
- US Physics Team, USA Physics Olympiad Gold, top 20 nationally 2019
- 2-time US National Chemistry Olympiad National Exam Qualifier, 1-time Tampa Bay 1st place 2019, 2020
- Sunshine Scholar (Florida top STEM students) 2019
- 2-time National AP Scholar (5/5 on 19 of 19 AP exams taken) 2018, 2019
- USA Computing Olympiad Gold 2018
- 3-time AMC 12 Distinguished Honor Roll (top 1%), 1-time Florida 1st place 2018, 2019, 2020
- 2-time USA Math Olympiad Qualifier, 1-time Junior Math Olympiad Qualifier 2017, 2019, 2020
- National Mathcounts Qualifier, Florida 3rd place, Tampa Bay 1st place 2016

SERVICE AND TEACHING

- Junior reviewer for *Nature Communications*
- MIT: graduate resident advisor
- Harvard College: premedical tutor
- MIT Department of Physics: scribe, tutor, freshman pre-orientation program research presenter
- MIT Department of Electrical Engineering and Computer Science: associate advisor
- Massachusetts General Hospital: volunteer in patient transport and emergency department
- UPchieve: volunteer tutor
- MIT Students for Open and Universal Learning: course recruiter
- AwesomeMath Summer Program: teaching assistant for combinatorics
- Byrd Alzheimer's Institute: research volunteer with Prof. Laura Blair's lab
- Melodies for Life Assisted Living Music Group: volunteer cello, coordinator

LEADERSHIP AND ACTIVITIES

- Medical/Graduate School: Interventional Radiology Interest Group (mentorship & event chair), Radiology Interest Group, HSDM/HMS Run Club, American Society of Human Genetics, American Medical Association/Massachusetts Medical Society
- Undergraduate: MIT Premedical Society (collegiate relations co-chair), Journal club in genomics (organizer), Institute of Electrical and Electronics Engineers
- High School: Florida Student Association of Mathematics (state co-president), Mu Alpha Theta (president), Science National Honor Society (president), Orchestra (all-county principal cello), Swim (varsity team)