William F. Li

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Google Scholar: https://scholar.google.com/citations?user=avkQHcwAAAAJ&hl=en

Education

Harvard Medical School — Boston, MA
M.D. — 2024 – present
Harvard/MIT M.D.-Ph.D. Program

Massachusetts Institute of Technology — Cambridge, MA
S.B. Physics and Computer Science & Engineering — 2020 – 2024
GPA: 5.00/5.00, Phi Beta Kappa, minor in Biology

Research

Harvard Department of Chemistry and Chemical Biology
Research Assistant — 2024 – present

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

Broad Institute of MIT and Harvard
Undergraduate Researcher — 2022 – 2024

- Principal Investigator: Manolis Kellis
- Research topic:
  - Genetics of Alzheimer's disease heterogeneity

MIT Research Laboratory of Electronics
Undergraduate Researcher — 2020 – 2022

- Principal Investigators: Marin Soljačić, Steven Johnson
- Research topics:
  - X-ray imaging and detection with nanophotonic scintillators
  - Computational imaging with compressed sensing and end-to-end inverse design

Publications

*corresponding author

3. Liu Z, Zhang S, James BT, Galani K, Mangan RJ, Fass SB, Liang C, Wagle MM, Boix CA, Tanigawa Y, Yun S, Sung Y, Xiong X, Sun N, Hou L, Wohlwend M, Qiu M, Han X, Xiong L, Preka E, Huang L, **Li WF**, Ho LL, Grayson A, Mantero J, Kozlenkov A, Mathys H, Chen T, Dracheva S, Bennett DA, Tsai LH, Kellis M*. Single-cell multiregion epigenomic rewiring in Alzheimer's disease progression and cognitive resilience. *Cell*. 2025.

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 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 Division 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
- 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)