William F. Li

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EDUCATION

Harvard Medical School   Boston, MA
M.D.   2024 – 2032 (expected)
Harvard/MIT M.D.-Ph.D. Program

Massachusetts Institute of Technology   Cambridge, MA
B.S. 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   2024 – present
Research Assistant

- PI: Xiaowei Zhuang
- Research topic:
  * 3D-genome imaging of the brain

Broad Institute of MIT and Harvard   2022 – 2024
Undergraduate Researcher

- PI: Manolis Kellis (Computational Biology Group)
- Research topics:
  * Genetic basis of Alzheimer's disease heterogeneity
  * Methods for enhancing polygenic score prediction

MIT Research Laboratory of Electronics   2020 – 2022
Undergraduate Researcher

- PIs: 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. doi:10.1021/acsphotonics.4c00259.

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. doi:10.1364/OE.492553. Editors' Pick.

PATENTS

1. Roques-Carmes C, Rivera N, Lin Z, **Li WF**, Soljačić M, inventors; Massachusetts Institute of Technology, assignee. Nanophotonic Scintillators for High-Energy Particles Detection, Imaging, and Spectroscopy. U.S. Provisional Application 63/257,611. October 2021.

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

- Phi Beta Kappa   2024
- Sigma Pi Sigma   2024
- Gates Cambridge Scholarship Finalist   2024
- Optics Express Editors' Pick   2023
- MIT SuperUROP Outstanding Research Award   2023
- Eric and Wendy Schmidt Center funded Research and Innovation Scholar   2022 – 2023
- USA Astronomy and Astrophysics Team   2020
- 2-time USA Mathematical Olympiad (USAMO) Qualifier   2019, 2020
- U.S. Physics Team   2019
- Sunshine State Scholar   2019

Service and Teaching

- Junior reviewer for *Nature Communications*
- MIT Department of Physics: scribe, tutor, Freshman Pre-Orientation Program research presenter
- Volunteer in patient transport and emergency department at Massachusetts General Hospital
- UPchieve tutor
- MIT Students for Open and Universal Learning course recruiter
- Combinatorics teaching assistant at AwesomeMath Summer Program

Leadership and Activities

- Undergraduate: Genomics Journal Club (founder, president), MIT Premedical Society (collegiate relations co-chair)
- 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)