

ELIJAH H. LEE

*Passionate learner exploring the intersection
between engineering, medicine, and computer science.*

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EDUCATION

Yale University | B.S. Biomedical Engineering, Certificate in Data Science

The Yale Spizzwinks(?) (a-cappella)

Business Manager, Assistant Musical Director, Web Infrastructure - Daily group operations and manage year-to-year non-profit operational budget (\$150k). Develop and maintain relationships with clients and alumni, plan logistics of four tours per year to domestic and international destinations.

Yale Undergraduate Aerospace Association

CubeSat Project - Radio Lead, Software Developer

New Haven, CT
Expected May 2026

The Haverford School | High School Diploma

Project Lead - Haverford Materials Group (soft robotics research)

President - Haverford School Notables (a-cappella)

Team Captain & Software Lead - Haverford VRC Robotics Team

Tour Guide Captain

President - Haverford School Orchestra

Haverford, PA
Conferred June 2022

RESEARCH & EMPLOYMENT EXPERIENCE

Yale Molecular Biophysics & Biochemistry | Research Intern

P.I. Joe Howard, Ph.D in the Howard Lab, studying the dynamics of cilia-mediated cellular movement. Developing experimental and computational methods for characterization of flagellar function, with a focus on the effects of flagellar length on beating characteristics.

New Haven, CT
Since June 2023

Forte3D LLC | Co-founder & Chief of Engineering

Additive Manufacturing, Project Design & Engineering, CAD

Co-founded Forte3D, an investor-backed company designing and manufacturing low-cost 3D-printed carbon-fiber musical string instruments.

Ardmore, PA
Since May 2019

Yale University

Department of Computer Science - Undergraduate Learning Assistant

CPSC223 - Data Structures and Programming Techniques

Assist in development and evaluation of course materials, including problem sets and exams.

Hold weekly office hours to help students with comprehension, debugging, and review.

Office of Undergraduate Admissions - Head SEAS Tour Guide, Likely Representative

Work with the admissions office to determine tour content and schedules, hire and manage team of 20 guides, leading walking tours of Yale's engineering facilities. Connect with prospective families and students offered likely admission as an official ambassador of the university.

New Haven, CT
Since Aug. 2023

Since Feb. 2023

Wright Lab - Program Development Assistant

Reconciled historical and current lab data, in addition to logistical tasks enabling day-to-day laboratory operation.

Oct. - Dec. 2022

Institute of Medical Engineering and Science at MIT | Research Intern

P.I. Ellen Roche, Ph.D in the Therapeutic Technology Design & Development Lab.

Characterizing left atrial appendages in combination with dynamic soft robotic bench-top modeling, developing an accurate simulation of flow characteristics for investigation of atrial fibrillation and stroke.

Cambridge, MA
Jun. 2021 - Jan. 2022

Department of Radiology at Penn Medicine | Research Intern

P.I. Chamith Rajapakse, Ph.D in the Laboratory for Structural, Physiologic, and Functional Imaging (LSPFI). Worked to develop machine learning models in radiology, automating segmentation of lumbar CT scans.

Philadelphia, PA
Feb. 2020 - Sept. 2020

SELECT AWARDS

Yale University Awards

Yale College Dean's Research Fellowship - 2024
Yale College First-Year Summer Research Fellowship in the Sciences & Engineering - 2023
Yale Engineering and Science Scholars Program - 2022

Haverford School Awards

The Barton Sensenig Science Prize - 2022
The Music Technology Prize - 2021
Rudolph Hama Blythe, Jr. '59 Computer Award - 2021
The Williams College Book Award - 2021
Selected VEX Robotics Competition Awards
The WAVE @ WPI - Division Champion, Tournament Champion - 2021
Eastern Pennsylvania States - Tournament Champion, Think Award - 2020

Germination Project Fellowship - 2020
Soft Robotics Toolkit Design Competition (1st Place, High School Division) - 2018

PATENTS

Lee E, Goodrich A. "Wolf Stopper for Stringed Instruments" US Provisional Patent. 2023
Lee E, Goodrich A. "Stringed Instrument" US Provisional Patent. 2022
Lee E, Goodrich A. "Stringed Instrument Having A Soundpost And A Concave Top" US & International Patent Pending. 2022.
Lee E, Goodrich A. "Stringed Instrument Having A Soundpost And A Concave Top" US Provisional Patent. 2021.
Lee E, et al. "Soluble Insert Actuators" US Provisional Patent. 2019.
E.H. Lee, E.H. Lee. "Toothbrush Holder" US Patent #D825,222 S. August 14, 2018.

PUBLICATIONS

Greer A, Vauclain W, **Lee E**, Lowe A, Hoefner J, Chakraborty N, Fairorth M, Sharma N, Russell T, Esgro R, Snyder L, Golecki H. Design of a Guided Inquiry Activity to Investigate Effects of Chemistry on Physical Properties of Elastomeric Polymers for Use in STEM Education. *Journal of Chemical Education*. 21 Jan 2021. DOI: 10.1021/acs.jchemed.0c00528

A.H. Greer, E. King, **E.H. Lee**, A.N. Sardesai, Y. Chen, S.E. Obuz, Y. Graf, T. Ma, D.Y. Chow, J.Somani, B. Schork, Y. Sankuratri, T. Barnes, B. Broadus, C. Costner, H.M. Golecki, "Soluble Polymer Pneumatic Networks and a Single-Pour System for Improved Accessibility and Durability of Soft Robotic Actuators," *Soft Robotics*. 2 Jun 2020. DOI: 10.1089/soro.2019.0133

CONFERENCE PROCEEDINGS

Mendez K, Lim M, **Lee E**, Roche E. Design and development of benchtop circulatory model with interchangeable, patient-derived left atrial appendage geometries. CSI Focus LAA 2021, November 2021, Frankfurt, Germany.

Mendez K, Lim M, **Lee E**, Roche E. Functional-Domain Soft Robots (FunDo SoRo) Precisely Controlled by Quantitative Dynamic Models and Data. Emerging Frontiers in Research and Innovation Teams Workshop, National Science Foundation, August 2021.

Suri A, Tang S, Terry A, Gupta A, Fathali I, Ma C, Manion A, Kalluri A, Xu W, Feng A, Migdal E, Ji E, Fernandes C, Nwogwugwu U, Lee S, Balasubramanian V, Moyer K, Chopra D, Chen A, **Lee E**, Rajapakse CS. Automated Detection of Vertebral Deformities and Lumbar Scoliosis from Spine DXA Scans. ASBMR, 2020, Seattle, WA.

Greer A, Sardesai A, **Lee E**, Schork B, Somani J. A Simplified, Modular Fluidic Control Board Platform for Improved Accessibility in Soft Robotic Actuator Control. Robosoft 2020, Yale University, Spring 2020. Late-Breaking Results Abstract.

Neilan J, Mahlin M, Wong I, Sullivan C, Fitzpatrick J, **Lee E**, Greer A, Graf Y, Schork B, Somani J, Broadus B, Costner C, Barnes T, Golecki H. Investigating the Use of Soft Robotics in Space and Lunar Applications. Project HOME EDS (Engineering and Design Session), NASA Langley (LaRC), Hampton, VA, May 2019.

Lee E, King E, Sardesai A, Sun R, Schork B, Chen Y, Somani J, Greer A, Chow D, Costner C, Barnes T, Broadus B, DiSimone B, Obuz S, Ma T, Sankuratri Y, Esgro R, Golecki H. Development of Seamless Soft Actuators Applied as a Robotic Assistive Device and Teaching Tool in Art Studios. Materials Research Society (MRS) Fall Meeting, Boston, MA, November 2018.