Laura Hyesung Yang

Environmental Science & Engineering, Harvard University

29 Oxford St
Cambridge, MA 02138, USA
ylaura0216@gmail.com
+82-10-7653-7439

Education

Harvard University, Cambridge, MA — *September 2021 - May 2026 (expected)*
Doctor of Philosophy, Environmental Science & Engineering

Georgia Institute of Technology, Atlanta, GA — *August 2016 - December 2020*
Bachelor of Science, Environmental Engineering
GPA: 4.0/4.0 (Overall)

Spackenkill High School, Poughkeepsie, NY — *May 2016*
Valedictorian (1/145)

Research & Projects

Georgia Institute of Technology, Atlanta, GA — *Spring 2019-present*
Research Assistant, Dr. Nga Lee (Sally) Ng's Lab - Atmospheric Chemistry
• Characterized the organic aerosol compounds' degree and pathways of thermal decomposition in FIGAERO-CIMS
• Conducted a source apportionment analysis using the non-negative matrix factorization (NMF) technique on the low-cost sensor data
• Compared the performance of a nephelometer and an optical particle counter in detecting particles in the atmosphere

Yonsei University, Seoul, South Korea — *Fall 2019-Summer 2020*
Research Assistant, Dr. Jhoon Kim's Lab - Atmospheric Radiation
Global Internship Program (Fall 2019-Spring 2020)
• Prepared the North-East Asia Clean Air Partnership (NEACAP) air quality assessment report in collaboration with the UN ESCAP ENEA division
• Prepared the Handbook of Air Pollution in collaboration with the Korean Ministry of Foreign Affairs and the UN ESCAP ENEA division

Georgia Institute of Technology, Atlanta, GA — *Summer 2017-Fall 2018*
Research Assistant, Dr. Kostas Konstantinidis' Lab - Environmental Microbial Genomics
• Led the 16S genomics project of Ecologia, Desarollo, Sociedad y Salud (EcoDess)
  o Implemented bioinformatics tools to analyze the effect of remoteness on the gut microbiota composition of the northern Ecuadorean population
• Developed a protocol for retrieving genomic information of uncultivated microbes from bioaerosols

Cary Institute of Ecosystem Studies, Millbrook, NY — *2015-2016*
High School Research Intern, Dr. Babara Han's Lab - Predictive Analytics of Infectious Disease
• Predicted *Ixodes* tick species that may carry zoonotic diseases using a machine learning technique called Boosted Regression Tree (BRT)

Publications

Peer-reviewed articles

3. **Yang LH**, Takeuchi M, Ng NL. Characterization of thermal decomposition of oxygenated organic compounds in FIGAERO-CIMS. ***Aerosol Science and Technology***. 2021.

2. **Yang LH**, Han BA. Data-driven predictions and novel hypotheses about zoonotic tick vectors from the genus *Ixodes*. ***BMC Ecology***. 2018. 18(1):7. doi: 10.1186/s12898-018-0163-2.

1. Han BA, **Yang LH**. Predicting novel tick vectors of zoonotic disease. ***Proceedings of the 33rd International Conference on Machine Learning*** (ICML) Workshop on #Data4Good: Machine Learning in Social Good Applications, New York, NY, USA. 2016.

Other publications

1. **Yang LH**, Kim J, Ahn DH. Air pollution: an introduction to its causes, effects, and solutions. ***Ministry of Foreign Affairs of the Republic of Korea, National Council on Climate and Air Quality of the Republic of Korea***. 2021. Government Publications Registration Number: 11-1262000-000285-01.

Manuscript in Preparation

Yang LH, Hagan DH, Rivera-Rios JC, Shivji ZS, Cross ES, Peng CY, Kaiser J, and Ng NL. Understanding the Sources of Urban Air Quality Using Low-Cost Air Quality Sensor.

Yang LH, Kim M, Chung H, Cho Y, Nam S, Kim J. State of the air in North-East Asia: report of North-East Asia Clean Air Partnership (NEACAP).

Yang LH, Pena-Gonzalez A, Hatt JK, Soto-Giron MJ, Smith S, Lee G, Trueba G, Cevallos W, Eisenberg J, Konstantinidis KT, Levy K. A paired case-control study to assess the response of the human gut microbiome to diarrhea across a remoteness gradient in Northern Coastal Ecuador.

Poster Presentation

Yang, LH, Takeuchi, M, Ng, NL. Thermal Decomposition Characterization of Filter Inlet for Gases and AEROsols (FIGAERO) coupled with Chemical Ionization Time-of-Flight Mass Spectrometer (ToF-CIMS). ***37th AAAR Conference***, Portland, OR, USA. 2019.

Teaching Experiences

- Teaching assistant of Environmental Engineering Principles (CEE 2300) *Spring 2018,2019*
- Grader of Thermodynamics (ME 3322) *Spring 2019*

Grants & Awards

- Buck Stith Outstanding Senior Award in Civil and Environmental Engineering *Spring 2021*
- NSF Graduate Research Fellowship *Spring 2021*
- Georgia Tech Sigma Xi Best Undergraduate Research Award *Spring 2021*
  - Awarded to 2 undergraduates in the institute each year
- Civil and Environmental Engineering Best Undergraduate Research Award *Spring 2021*
- President's Undergraduate Research Awards Travel Grant *Fall 2019*
- Buck Stith Outstanding Junior Award in Civil and Environmental Engineering *Spring 2019*
- President's Undergraduate Research Awards *Summer 2017, Summer 2019*
- Faculty Honors *2017-2020*
- Georgia Tech Callaway Scholarship *Spring 2017*
- Georgia Tech Provost Scholarship *2016-2020*
  - Awarded to 40 incoming out-of-state students
- American Statistical Association special awards for tick research *Spring 2016*
- Cary Institute's Outstanding Young Environmental Scientist Award *Spring 2016*

Skills

Analytical skills: High-Resolution Time-of-Flight Chemical Ionization Mass Spectrometry (HR-ToF-CIMS)
Knowledge: I took an intensive 160 hours course on artificial intelligence offered by the Korean National IT Industry Promotion Agency in June 2020. I learned to code machine learning models such as linear regression model, logistic regression model, and convoluted neural network (CNN) using Tensorflow.
Modeling: CALINE4 Dispersion Model, EPA's MOVES Model
Programming: Unix environment, MATLAB, Python, and R