

Chase M. Fensore

Emory University

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<https://github.com/fensorechase>

EDUCATION

PhD Candidate, Computer Science & Informatics

2022 – Present

Emory University, Atlanta, GA

Research Advisor: Dr. Joyce C. Ho

B.S. Computer Science & Engineering

2018 – 2022

The Ohio State University, Columbus, OH

GPA: 3.66/4.00

Research Advisors: Dr. Heather C. Allen, Dr. Xia Ning

- Honors Thesis: “Analysis of Raman spectra with a machine learning approach for improved quantification of Microcystin-LR”
- Undergraduate Research Distinction with Honors

SKILLS

- Python, Java, R, C, SQL, Ruby, JavaScript, PyTorch, Git, MongoDB

RESEARCH EXPERIENCE

Graduate Research Assistant

May 2023 – Present

Emory University, Department of Computer Science

PI: Prof. Joyce C. Ho

Atlanta, GA

- Studies retrieval-augmented strategies to enhance reliability and personalization of large language model (LLM) tools for users seeking domain-specific health information
- Exploring dynamic evaluation strategies with synthetic user personas for LLMs in retrieval-augmented settings
- Leads research focused on developing novel multi-modal ML models and foundation models to understand progression of chronic diseases like heart failure and diabetes
- Leads a project using LLMs to automate continuous integration of public social determinants of health data for downstream research and clinical prediction tasks

Graduate Research Assistant

August 2022 – August 2023

Emory University, Department of Biomedical Informatics, Computer Science

PI: Prof. Rishi Kamaleswaran

Atlanta, GA

- Developed a novel IRB protocol to sample volatile organic compounds (VOCs) in from patient breath and sweat in critical care settings, and apply multimodal machine learning from disparate modalities (TD-GC-MS and biosensors) to screen for metabolic diseases

- Led authorship of a systematic review manuscript evaluating machine learning methods applied to volatile organic compound (VOC) biomarkers in clinical settings
- Mentored high school student and undergraduate student through two independent research projects applying machine learning to metabolomics, CT scans

Research Assistant

February 2020 – May 2022

Ohio State University, Department of Chemistry and Biochemistry
Columbus, OH

- Evaluated the performance of three machine learning algorithms in their ability to predict concentrations of Microcystin-LR in water from Raman spectra
- Developed an Android mobile application in Java and Kotlin with machine learning image classification and Bluetooth capabilities
- Contributed to a codebase for a CNN using TensorFlow API for object detection and image classification related to IR spectroscopy
- Designed a Java program to collect and pre-process spectral training data from the web by leveraging the Selenium web driver to interact with JavaScript elements

TEACHING EXPERIENCE

Lead Instructor

Emory University, Department of Computer Science

Atlanta, GA

- Software Engineering in Practice (Graduate)

Spring 2026

Graduate Teaching Assistant

Emory University, Department of Computer Science

Atlanta, GA

- Introduction to CS
- Introduction to Machine Learning (Graduate)
- Introduction to Machine Learning (Undergraduate)

Fall 2022

Fall 2023

Spring 2024

Undergraduate Teaching Assistant

Ohio State University, College of Engineering

Columbus, OH

- Introduction to Java

Fall 2021, Spring 2022

UNIVERSITY & PROFESSIONAL INVOLVEMENT

Vice President, Treasurer, OpenBMI

January 2023 – May 2025

Department of Biomedical Informatics, Emory University

Atlanta, GA

- Develops and presents educational content to introduce K-12 students from underrepresented backgrounds to current research challenges in biomedical informatics
- Led design of a simple web interface to demonstrate binary classification and data bias challenges, and presented workshop at the 2024 Atlanta Science Festival
- Led team of three graduate students designing a hardware and software demo explaining how pulse oximetry instrumentation works, engaging over 100 families with

the "O₂ Detectives" booth and sparking important conversations about health technology disparities; at the Atlanta Science Festival 2025

Volunteer

Can't Stop Columbus

March 2020 – May 2020

(Remote) Columbus, OH

- Engaged in a week-long design thinking sprint that yielded a project called "Curbside Concerts," where people can send their loved ones live 20-minute music performances
- Worked in an agile environment to develop a Django web app for Curbside Concerts' event scheduling of Columbus music artists
- The platform resulted in 450+ concerts, 95 paid gigs, and raised \$25,000+ in donations

INDIVIDUAL EXTERNAL RESEARCH FUNDING & FELLOWSHIPS

Shankar Fellowship

Emory University Diabetes Translational Accelerator (DTA)

Fall 2024

Emory Global Diabetes Research Center

- The Diabetes Translational Accelerator provides PhD students with full funding and health insurance for up to 5 years. The program aims to catalyze the advancement of research and technologies to tackle the toughest problems in diabetes and associated complications through start-ups and commercialization

Laney Graduate School Fellowship

Emory University, Laney Graduate School

August 2022 – May 2027

- The Laney Graduate School Fellowship is offered to exceptionally qualified applicants across the programs of the graduate school. The Laney Fellowship provides an additional \$2,500 in stipend, for a period of five years

HONORS & AWARDS

Honorable Mention, Graduate Research Fellowship Program (GRFP)

U.S. National Science Foundation (NSF)

April 2024

- The NSF accords Honorable Mention to meritorious applicants who do not receive Fellowship offers. This is considered a significant national academic achievement

RESEARCH PRESENTATIONS

Does Domain-Specific Retrieval Augmented Generation Help LLMs Answer Consumer Health Questions? *Machine Learning for Healthcare Conference*. August 15, 2025.

Evaluating Hybrid Retrieval Augmented Generation using Dynamic Test Sets: LiveRAG Challenge; *LiveRAG Workshop, SIGIR 2025*. July 17, 2025.

Social determinants improve prediction of 30-day readmission in Black and White patients hospitalized for heart failure; *American College of Cardiology 73rd Annual Scientific Session*. April 7, 2024.

SCHOLARLY WORKS

JOURNAL PAPERS

Beyond Composite Indices: Comprehensive Social Determinants Improve Heart Failure Readmission Prediction; Fensore, C., Deshpande, A., Carrillo-Larco, RM., Patel, SA., Ho, JC; *Journal of the American Heart Association (JAHA)*. DOI: 10.1161/JAHA.125.043735; (2026).

Functional group identification for FTIR spectra using image-based machine learning models; Enders, A., North, N., Fensore, C., Velez-Alvarez, J., Allen, H. *Analytical Chemistry*. DOI: 10.1021/acs.analchem.1c00867; (2021).

CONFERENCE PAPERS

Persona-Guided LLM Adaptation for Culturally Personalized Diabetes Prevention MCQs; Fan, J., Fensore, C., Shtulman, J., Pai, R., Muhammad Shoaib, D., Shah, M.K., Ho, J.C. Accepted as Short Paper to The 14th IEEE International Conference on Healthcare Informatics (ICHI); (2026).

Evaluating Hybrid Retrieval Augmented Generation using Dynamic Test Sets: LiveRAG Challenge; *Fensore, C., *Dhole, K., Ho, JC., Agichtein, E. LiveRAG Workshop SIGIR '25. arXiv:2506.22644 (2025).

Does Domain-Specific Retrieval Augmented Generation Help LLMs Answer Consumer Health Questions? Fensore, C., Carrillo-Larco, RM., Shah, M.K., Ho, J. *Proceedings. Machine Learning for Healthcare Conference*, 2025.

Evaluating Safety of Large Language Models for Patient-Facing Medical Question Answering; Diekmann, Y., Fensore, C., Carrillo-Larco, RM., Pradhan, N., Appana, B., Ho, J. *Proceedings of the 4th Machine Learning for Health Symposium*, PMLR 259:267-290, 2025.

LLMs as Medical Safety Judges: Evaluating Alignment with Human Annotation in Patient-Facing QA; Diekmann, Y., Fensore, C., Shiromani, S., Pai, R., Castejob Rosales, E., Shah, M.K., Ho, J. In *Proceedings of the 24rd Workshop on Biomedical Natural Language Processing*, Vienna, Austria. Association for Computational Linguistics, 2025.

Large Language Models for Integrating Social Determinant of Health Data: A Case Study on Heart Failure 30-Day Readmission Prediction; Fensore, C., Carrillo-Larco, RM., Patel, S., Morris, A., Ho, J. *Accepted to Findings. Machine Learning for Health Conference*, 2024.

CONFERENCE ABSTRACTS

Social determinants improve prediction of 30-day readmission in Black and White patients hospitalized for heart failure; Fensore, C., Morris, A., Patel, S., Carrillo-Larco, R., Ho, J. *J Am Coll Cardiol*. DOI: [https://doi.org/10.1016/S0735-1097\(24\)02679-2](https://doi.org/10.1016/S0735-1097(24)02679-2); (2024).

Energy demand and cholesterol catabolism intensify at least 1 day before ARDS following post-surgery ICU admission; Kobara, S., Yang, C., Fensore, C., Gaur, H., Natarajan, K., Davis, CM., Ghneim, K., Felipe ten, C., Pelletier, NP., Sharma, AA., Enriquez, AB., Lisboa, FA., Gann, E., Schobel,

SA., Tallowin, S., Chen, C., Maner-Smith, K., Dente, CJ., Ortlund, EA., Sekaly, RP., Elster, EA., Buchman, TG., Kamaleswaran, R. *Ann Am Thorac Soc.* Abstract. (2024).

An Elevated Beta Oxidation and Tryptophan Degradation Proceed Post-operative ARDS in Surgical ICU Patients with Successful Liberation from Ventilation; Yang, C., Kobara, S., Fensore, C., Gaur, H., Natarajan, K., Davis, CM., Ghneim, K., Felipe ten, C., Pelletier, NP., Sharma, AA., Enriquez, AB., Lisboa, FA., Gann, E., Schobel, SA., Tallowin, S., Chen, C., Maner-Smith, K., Dente, CJ., Ortlund, EA., Sekaly, RP., Elster, EA., Buchman, TG., Kamaleswaran, R. *Ann Am Thorac Soc.* Abstract. (2024).

Altered sphingolipid biosynthesis during ARDS was associated with physical impairment at hospital discharge in surgical ICU patients. Kobara, S., Yang, C., Fensore, C., Gaur, H., Natarajan, K., Davis, CM., Ghneim, K., Felipe ten, C., Pelletier, NP., Sharma, AA., Enriquez, AB., Lisboa, FA., Gann, E., Schobel, SA., Tallowin, S., Chen, C., Maner-Smith, K., Dente, CJ., Ortlund, EA., Sekaly, RP., Elster, EA., Buchman, TG., Kamaleswaran, R. *SHOCK Conf.* Abstract. (2024).