

EDUCATION

Massachusetts Institute of Technology	Cambridge, MA
<i>Ph.D. Student, Department of Electrical Engineering and Computer Science</i>	Expected 2026
Research Focus: Multimodal Representation Learning for Cardiovascular Health Monitoring	
Johns Hopkins University	Baltimore, MD
<i>M.S.E. in Biomedical Engineering, Computational Medicine</i>	May 2020
<i>B.S. in Applied Mathematics and Statistics, Optimization; Biomedical Engineering, Data Science</i>	May 2020

RESEARCH EXPERIENCE

Massachusetts Institute of Technology	Cambridge, MA
<i>Research Assistant, Computational Cardiology Research Group</i>	August 2021 – Present
- Designed representation learning methods for enhanced phenotyping and risk stratification of heart failure patients. - Built and actively maintain a pip-installable software package for efficient tabularization and XGBoost training of time series data, including regular updates and issue resolution on GitHub. - Created a self-supervised model for ECG heart block detection, achieving high diagnostic performance on large-scale datasets with minimal labeled data.	

Mayo Clinic	Remote
<i>Intern, Computational Pathology and Artificial Intelligence</i>	May 2025 – August 2025
- Built a robust clinical data extraction pipeline to transform raw breast cancer pathology reports into a structured validation set, facilitating the benchmarking of 7 leading large language models (LLMs) against 229 discrete medical fields. - Evaluated state-of-the-art LLMs on pathology report extraction. Developed novel agentic system to improve extraction performance.	

Johns Hopkins University	Baltimore, MD
<i>Data Assistant, Trayanova Lab – Computational Cardiology</i>	May 2020 – March 2021
- Modeled action potential duration restitution curves in patients with ischemic cardiomyopathy and structurally normal hearts to understand electrophysical remodeling. - Executed OPTIMA (Optimal Target Identification via Modeling of Arrhythmogenesis) pipeline in clinical trial to generate clinician recommendations for atrial ablation procedures in patients.	

<i>Team Member, Delirium Team, Laboratory of Computational Intensive Care Medicine</i>	August 2018 – May 2021
- Built early prediction models surpassing the PRE-DELIRIC gold standard. - Developed real-time ICU intervention prediction models to improve patient outcomes.	

Kennedy Krieger Institute & Johns Hopkins University	Baltimore, MD
<i>Data Analysis and Outreach Lead, PediaCORE Design Team</i>	August 2018 – April 2021
- Awarded over \$250,000 for exploratory research, product development, and clinical studies. - Developed hardware and software prototypes for a physical therapy device. - Collaboratively developed IRB approved clinical study protocol and observed therapy sessions for the study.	

Boston Scientific Neuromodulation Division	Valencia, CA
<i>Research and Development Intern, Embedded Software Team</i>	May 2018 – August 2018
- Developed smart watch apps to track biometric data and interface with implanted neuromodulation devices. - Tested firmware for the current spinal cord stimulation device to support ongoing improvements to the device.	

TEACHING & MENTORING EXPERIENCE

Harvard Medical School	Boston, MA & Cambridge, MA
<i>Graduate Teaching Fellow, Artificial Intelligence in HealthCare I & II</i>	January 2025, August 2025, January 2026
- Developed course materials and iterated based on student feedback and course success criteria. Led lectures and review sessions, held office hours, and managed course logistics. - Mentored student teams in designing, training, and evaluating AI models, and provided technical guidance and advice. - Led project reviews, and offered constructive feedback on methodology, results interpretation, and clinical relevance.	

Massachusetts Institute of Technology	Cambridge, MA
<i>Graduate Teaching Assistant, Quantitative Methods for Natural Language Processing</i>	August – December 2023
Assisted in grading assignments and exams, providing constructive feedback to support student learning and improvement.	

- Held office hours to address student questions on course material, assignments, and projects, fostering a deeper understanding of natural language processing methods and applications.

UROP Mentor, Computational Cardiology Research Group August 2022 – Present

- Mentored six students in the Undergraduate Research Opportunities Program (UROP).
- Designed impactful research projects; provided support to ensure student success and meaningful project outcomes.

Mentor, Graduate Application Assistance Program 2023 – 2025

Peer Mentor, MIT-Sloan University Center for Exemplary Mentoring 2024 – Present

LEADERSHIP & SERVICE

Machine Learning for Health Symposium

Outreach Chair & Outreach Subchair July 2025 – January 2026, May 2026 – Present

- Directed community mentorship initiatives for over 120 participants, facilitating senior-junior research and career connections and improving peer-review standards within the ML for Healthcare community.

Demonstrations and Perspectives Subchair July 2024 – January 2025

- Engaged with experts and practitioners in the field to bring diverse perspectives to the conference, promoting insightful discussions on the impact of machine learning in healthcare.
- Coordinated presentations showcasing innovative methodologies.

Science Club for Girls Somerville, MA & Cambridge, MA

Mentor, East Somerville Community School & Amigos School February 2025 – Present

- Lead hands-on science clubs for elementary school students that provided weekly mentorship and delivered interactive lessons designed to build confidence and technical literacy in a supportive, collaborative environment.

Tufts Medical Center Boston, MA

Infusion Clinic Ambassador, Tuft Medical Center Infusion Clinic June 2025 – Present

- Supported oncology patients undergoing intensive infusion therapies by providing proactive comfort care, while assisting nursing staff with room preparation, inventory management, and clinic workflows to optimize patient volume and care delivery.

Johns Hopkins University Baltimore, MD

Volunteer Management Intern, Center for Social Concern August 2019 – May 2020

- Oversaw the Civic Engagement Recognition and Allocation Commission, including hiring commission members, assessing civic engagement organizations twice annually, and leading monthly commission meetings to ensure ethical community service.
- Collaboratively planned President's Day of Service for over 800 student volunteers across over 40 service sites in Baltimore.

Residential Advisor, Office of Residential Life August 2018 – May 2020

- Built a strong community among 55 residents by organizing programs focused on personal growth, academic success, college adjustment, and diversity; led monthly events for over 500 residents, promoting an inclusive and supportive environment.
- Served on the Residential Advisor (RA) Council to advocate for fellow RAs, ensuring safety for residents and RAs, fair treatment and hiring practices, and accountability and transparency within the department.

Conference Reviewing – *Machine Learning for Health (2022-2024)*, *Machine Learning for Healthcare (2025-2026)*, *NeurIPS Workshop on Time Series for Health (2025)*, *MICCAI Workshop on MLLMs in Clinical Practice (2025)*.

AWARDS & CERTIFICATES

Massachusetts Institute of Technology, *awarded the Research Mentoring Certificate* June 2025

Massachusetts Institute of Technology, *Lemelson Presidential Scholar* August 2021

Massachusetts Institute of Technology, *MIT-Sloan University Center for Exemplary Mentoring Scholar* August 2021

Society of Critical Care Medicine, *Star Research Achievement Award for excellent submission* February 2021

Johns Hopkins University, *General Honors* May 2020

Johns Hopkins University, *Biomedical Engineering Departmental Honors* May 2020

Johns Hopkins University, *Linda Trinh Memorial Award* May 2020

Johns Hopkins University, *Office of Residential Life Above and Beyond Award* May 2019

Kappa Kappa Gamma Foundation, *Academic Scholarship* May 2018

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

- Bergamaschi, T.**, Yau, T., Chandak, P., Kyereme-Tuah, A., Hung, J., Gaggin, H., Kohane, I. S., & Stultz, C. M. (2026). Forecasting left ventricular systolic dysfunction in heart failure with artificial intelligence. *eClinicalMedicine*, 92.
- McDermott, M. B. A., Steinberg, E., Fries, J. A., van de Water, R. P., Pang, C., Rockenschaub, P. E., Renc, P., Oh, J., Stankevičiūtė, K., Xu, J., ..., **Bergamaschi, T. S.**, ... (2026). MEDS—An Emerging Data Standard and Ecosystem for Health AI Research. *NEJM AI*, 3(6), Alra2501253.
- Hart, S. N., & **Bergamaschi, T. S.** (2026). Agent-based large language model system for extracting structured data from breast cancer synoptic reports: a dual-validation study. *JAMIA Open*, 9(1), ooag016.
- Gong, K. D., Lu, R., **Bergamaschi, T. S.**, Sanyal, A., Guo, J., Kim, H. B., Nguyen, H. T., Greenstein, J. L., Winslow, R. L., & Stevens, R. D. (2023). Predicting intensive care delirium with machine learning: model development and external validation. *Anesthesiology*, 138(3), 299–311.
- Parise, S., Lee, K., Park, J., Sullivan, C., Schlesinger, R., Li, M., Ramesh, S., Maritato, N., **Bergamaschi, T.**, Sanyal, A., & others. (2023). Customized gaming system engages young children in reaching and balance training. *Journal of Rehabilitation and Assistive Technologies Engineering*, 10, 20556683231160675.
- Aronis, K. N., Prakosa, A., **Bergamaschi, T.**, Berger, R. D., Boyle, P. M., Chrispin, J., Ju, S., Marine, J. E., Sinha, S., Tandri, H., & others. (2021). Characterization of the electrophysiologic remodeling of patients with ischemic cardiomyopathy by clinical measurements and computer simulations coupled with machine learning. *Frontiers in Physiology*, 12, 684149.

FULL-LENGTH PEER-REVIEWED CONFERENCE PAPERS

(Note: In computer science and machine learning, highly selective, peer-reviewed conference proceedings are primary, top-tier venues for presenting original research, equivalent to journal publications in other scientific fields.)

- McDermott, M. B. A., Xu, J., **Bergamaschi, T. S.**, Jeong, H., Lee, S. A., Oufattole, N., Rockenschaub, P., Stankevičiūtė, K., Steinberg, E., Sun, J., & others. (2025). Meds: Building models and tools in a reproducible health ai ecosystem. In *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, Vol. 2, 6243–6244.
- Bergamaschi, T. S.**, Stultz, C. M., & Alam, R. (2024). Continuity Contrastive Representations of ECG for Heart Block Detection from Only Lead-I. In *Machine Learning for Health (ML4H) @ NeurIPS*, 130–142.
- Bergamaschi, T. S.**, Stultz, C. M., & Alam, R. (2024). Heart block identification from 12-lead ecg: Exploring the generalizability of self-supervised ai. In *2024 IEEE 20th International Conference on Body Sensor Networks (BSN)*, 1–4.
- Oufattole, N., **Bergamaschi, T.**, Renc, P., Kolo, A., McDermott, M. B. A., & Stultz, C. (2024). MEDS-torch: An ML Pipeline for Inductive Experiments for EHR Medical Foundation Models. In *NeurIPS Workshop on Time Series in the Age of Large Models*.
- Kolo, A., Pang, C., Choi, E., Steinberg, E., Jeong, H., Gallifant, J., Fries, J. A., Chiang, J. N., Oh, J., Xu, J., ..., **Bergamaschi, T.**, ... (2024). Meds decentralized, extensible validation (meds-dev) benchmark: Establishing reproducibility and comparability in ml for health. In *Machine Learning For Health (ML4H)*.

FULL-LENGTH PREPRINTS UNDER REVIEW

- Bergamaschi, T. S.**, Gourabathina, A., & Stultz, C. M. (2026). Subtyping with ConCEPT: Contrastive clinical embeddings from patient trajectories. Under review.
- Jeong, H.*, Prasad, P.*, O'Neill-Dee, M., Rosen, A., Srivastava, S., Kim, K., **Bergamaschi, T.**, Ghassemi, M., Brown, K., Parulkar, A., Tekeian, Z., Lee, G., Ruesch, N. J., Cuddy, S., Bersell, K., Dorbala, S., Januzzi, J., Stultz, C., & Gaggin, H. K. (2026). Bridging the Diagnostic Gap in Transthyretin Cardiac Amyloidosis (ATTR-CM): Enhancing ATTR-CM Detection at the time of heart failure diagnosis in Women Through Sex-Specific ATTR Models (SS-ATTR-CMs). Under review (Note to CMS: not currently... but will be later this summer).
- Gourabathina, A., Jeong, H., **Bergamaschi, T.**, Ghassemi, M., & Stultz, C. (2026). Robustness Beyond Known Groups with Low-rank Adaptation. Under review.
- Oufattole*, N., **Bergamaschi*, T.**, Kolo, A., Jeong, H., Gaggin, H., Stultz, C. M., & McDermott, M. (2024). MEDS-Tab: Automated tabularization and baseline methods for MEDS datasets. Under review.

PEER-REVIEWED CLINICAL ABSTRACTS & POSTERS

Abstracts selected for presentation at clinical congresses and scientific sessions.

- Bergamaschi, T.**, O'Neill-Dee, M., Jeong, H., Parulkar, A., Brown, K., Lee, G., & Gaggin, H. K. (2026). Longitudinal changes in amyloid burden as assessed by extracellular volume (ECV) on cardiac magnetic resonance (CMR) for patients with

transthyretin amyloidosis with cardiomyopathy (ATTR-CM) on tafamidis and contemporary guideline-directed medical therapy. European Society of Cardiology (ESC) Congress.

Lantero-Rodriguez, J., Tekeian, Z., Kim, K., Ryaboshapkina, M., Cavallin, A., **Bergamaschi, T.**, Parulkar, A., Healy, M., Liu, Y., Stultz, C., Januzzi, J. L., Gaggin, H., & Whatling, C. (2026). Novel blood-based biomarkers for transthyretin amyloidosis with cardiomyopathy (ATTR-CM) in patients heart failure with preserved ejection fraction. European Society of Cardiology (ESC) Congress.

Gong, K., Lu, R., Guo, J., **Bergamaschi, T.**, Sanyal, A., Kim, H., & Stevens, R. (2021). 743: Computational Endotypes of ICU Delirium. Critical Care Medicine, 49(1), 368. Society of Critical Care Medicine (SCCM) Congress.

Gong, K., Lu, R., **Bergamaschi, T.**, Sanyal, A., Guo, J. G., Kim, H., & Stevens, R. (2021). 27: Machine Learning Prediction of Intensive Care Unit Delirium. Critical Care Medicine, 49(1), 14. Society of Critical Care Medicine (SCCM) Congress.

SELECTED ORAL PRESENTATIONS & INVITED LECTURES (4/9)

Deep Learning for Diagnostics. MIT Course 6.S043/6.S983: AI and Decision Making in Medicine - From Disease to Therapy, Cambridge, MA. *Invited lecture.*

MEDS-DEV: Baselineing MEDS datasets. Machine Learning for Health Symposium (ML4H), Vancouver, BC.

Heart Block Identification from 12-Lead ECG: Exploring the Generalizability of Self-Supervised AI. IEEE Body Sensor Networks, Chicago, IL.

27: Machine Learning Prediction of Intensive Care Unit Delirium. Congress of the Society of Critical Care Medicine, Virtual.

SKILLS & INTERESTS

Programming: Python, Pytorch, Pytorch Lightning, Hydra, Weights & Biases, Linux, Git, Slurm, Podman.

Research Interests: Machine learning, deep learning, artificial intelligence, healthcare, data science.

Data Modalities: Tabular and time series (electronic health record), waveform (electrocardiogram), image (MRI), video (echocardiogram), text (clinical notes, pathology reports).

Interests: Hiking/backpacking – completed the Pacific Crest Trail, visited 34/63 US National Parks; baking; reading.