Hye Sun **Yun**

COMPUTER SCIENCE PHD STUDENT

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Computer Science PhD student at Northeastern University. Passionate about Natural Language Processing (NLP) and Human-Computer Interactions (HCI), mainly on applications in health. Research focuses on applying HCI methods to the design and development of NLP models that meets the needs, interests, preferences, and requirements of the users in clinical and healthcare domain.

Education

Northeastern University   *Boston, MA*

PH.D. IN COMPUTER SCIENCE   *September 2020 - Present*

- Advised by Byron Wallace and Timothy Bickmore

Wellesley College   *Wellesley, MA*

B.A. IN COMPUTER SCIENCE AND AFRICANA STUDIES, MAGNA CUM LAUDE   *September 2013 - May 2017*

Research Experience

Northeastern University, NLP Research Group   *Boston, MA*

RESEARCH ASSISTANT   *May 2021 - Present*

- Conducted research in the field of NLP and biomedical/clinical text advised by Byron Wallace.
- Worked on NLP multi-document summarization research to improve and update systematic reviews of biomedical literature to help medical professionals make better clinical and policy decisions.
- Explored ways to utilize large generative language models to assist producing medical systematic reviews through user surveys and to summarize clinical notes.

Northeastern University, Relational Agents Group   *Boston, MA*

RESEARCH ASSISTANT   *September 2020 - Present*

- Conducted research in the field of HCI and healthcare advised by Timothy Bickmore.
- Assisted in developing a research mHealth app with a conversational virtual agent to promote healthy behaviors for historically Black church members by exploring ways to increase engagement and use through notifications and storytelling.
- Developed a conversational agent system to enhance patient-reported outcomes for individual use.
- Conducted research on using large language models to generate clinical depression survey item variants and testing their validity and reliability.

University of Houston, Computational Biomedicine Lab   *Houston, TX*

REU UNDERGRADUATE RESEARCHER   *June 2016 - August 2016*

- Successfully completed a 10-week research program at the University of Houston, funded by the National Science Foundation (NSF), working under the guidance of Professor Ioannis A. Kakadiaris.
- Co-authored a comprehensive literature review on anti-spoofing techniques specifically applied to face recognition in computer vision systems.
- Conducted comparative analysis to evaluate the impact of spoofing on the accuracy of various face recognition systems.

Publication

CONFERENCES

Improving Multiparty Interactions with a Robot Using Large Language Models
Prasanth Murali, Ian Steenstra, **Hye Sun Yun**, Ameneh Shamekhi, Timothy Bickmore
Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems, 2023

Motivating Health Behavior Change with a Storytelling Virtual Agent
Hye Sun Yun, Matias Volonte, Timothy Bickmore
Proceedings of the 22nd ACM International Conference on Intelligent Virtual Agents, 2022, Faro, Portugal

Techno-Spiritual Engagement: Mechanisms for Improving Uptake of mHealth Apps Designed for Church Members
Hye Sun Yun, Shou Zhou, Everlyne Kimani, Stefan Olafsson, Teresa K. O'Leary, Dhaval Parmar, Jessica A. Hoffman, Stephen S. Intille, Michael K. Paasche-Orlow, Timothy W. Bickmore
Joint Proceedings of the IUI 2022 Workshops: APEx-UI, HAI-GEN, HEALTHI, HUMANIZE, TExSS, SOCIALIZE co-located with the ACM International Conference on Intelligent User Interfaces (IUI 2022), Virtual Event, Helsinki, Finland, March 21-22, 2022, 2022

Journals

In a pilot study, automated real-time systematic review updates were feasible, accurate, and work-saving

Iain J. Marshall, Thomas A. Trikalinos, Frank Soboczenski, **Hye Sun Yun**, Gregory Kell, Rachel Marshall, Byron C. Wallace

Journal of Clinical Epidemiology 153 (2023) pp. 26–33. 2023

Media

Church after Sunday: supporting everyday well-being through techno-spiritual health interventions

Teresa K O'Leary, Elizabeth Stowell, Darley Sackitey, **Hye Sun Yun**, David Wright, Michael Paasche-Orlow, Timothy Bickmore, Andrea G. Parker

Interactions 29.4 (2022) pp. 90–93. ACM New York, NY, USA, 2022

Presentations and Talks

Research Talks

2023 CRA-WP Grad Cohort for Women — *San Francisco, CA*

Poster Presenter - "Appraising the Potential Uses and Harms of LLMs for Medical Systematic Reviews" — *April 21, 2023*

Northeastern University, Khoury College PhD Open House — *Boston, MA*

Poster Presenter - "Motivating Health Behavior Change with a Storytelling Virtual Agent" — *March 17, 2023*

ACM International Conference on Intelligent Virtual Agents — *Faro, Portugal*

Poster Presenter - "Motivating Health Behavior Change with a Storytelling Virtual Agent" — *September 8, 2022*

ACM IUI HEALTHI Workshop — *Remote*

Presenter - "Techno-spiritual Engagement: Mechanisms for Improving Uptake of mHealth Apps Designed for Church Members" — *March 22, 2022*

PRISM Health Symposium — *San Francisco, CA*

Presenter - "Longitudinal Analysis of the Attitudes and Conversations Surrounding Vaccines by African Americans on Social Media" — *December 3, 2021*

Invited Talks

CS3950 Intro to CS Research — *Boston, MA*

Guest Speaker - "Motivating Health Behavior Change with a Storytelling Virtual Agent" — *October 14, 2022*

Panels

Northeastern University - Pathway to PhD Workshop — *Boston, MA*

Workshop Panelist — *August 23, 2022*

Northeastern University - Wellesley College Research Students' Visit — *Boston, MA*

PhD Student Panelist — *July 18, 2022*

Northeastern University PhD Open House: Graduate Student Panel — *Boston, MA*

PhD Student Panelist — *March 8, 2021*

Teaching Experience

Wayfair — *Boston, MA*

Teaching Assistant — *January 2019 - August 2020*

- Provided hands-on assistance to new engineers during Wayfair's quarterly onboarding MVC framework class
- Offered guidance and answered inquiries, both online and in-person, to new engineers, helping them navigate the MVC framework.

Wayfair — *Boston, MA*

Quality Assurance to Quality Engineer Program Instructor — *September 2019 - October 2019*

- Led and delivered four one-hour department-wide sessions, providing comprehensive instruction on SQL and Introduction to Programming in PHP to individuals with beginner-level coding knowledge.

Wayfair — *Boston, MA*

Labs Mentor — *August 2019*

- Co-mentored a group of 30 entry-level engineers participating in the Labs program, guiding them through their first month's full-stack project.
- Offered consistent technical feedback by conducting thorough code reviews and engaging in regular conversations during weekly drop-in hours.

Wellesley College, Pforzheimer Learning and Teaching Center *Wellesley, MA*

PEER TUTOR AND GRADER *September 2014 - May 2016*

- Spring 2016 | CS 231 Algorithms | Held weekly group tutoring sessions and graded homework. Contributed to weekly calibration meetings and teaching pedagogy discussions with the professor and fellow tutors & graders.
- Fall 2016 | CS 320 Tangible User Interface | Held 2-hour weekly drop-in hours.
- Fall 2016 | CS 235 Languages & Automata | Held 1-1 tutoring and review sessions for CS235
- Fall 2014 & Spring 2015 | JPN 101 & 102 Beginning Japanese | Held weekly 2-hour drop-in sessions to help students with their oral exercises and written homework.

Professional Experience

Wayfair *Boston, MA*

FULL-STACK SOFTWARE ENGINEER/ENGINEERING MANAGER *July 2017 - August 2020*

- Developed and implemented features for a supplier-facing web tool, enabling efficient bulk addition of new products to the catalog.
- Successfully spearheaded two major, multi-phase refactoring initiatives: frontend migration from Tungsten to React and Redux and completely rewriting the team's Excel sheet import service.
- Provided guidance and mentorship during rapid team growth, facilitating the onboarding of 10+ new hires.
- Led team-wide adoption of pair programming to foster collaboration and knowledge sharing and established a program to train new code reviewers.
- Delivered impactful presentations on best practices for reusable Redux components and efficient Jest testing to department and team.
- Managed and led a team of three software engineers, cultivating a collaborative and productive work environment, and ensuring successful project delivery.

Advising

Mentor Nikita Salkar - MS @ Northeastern (2022); now Software Engineer at Amazon Web Services

Tech Lead and Manager Cory Knopp, Michael Ko, Julie Aichinger, Amanda Marcal, Hari Kishore Gurram, Alyssa Kim, Dishon Davis at Wayfair

Grants & Awards

GRANTS

2015 **Global Engagement Internship/Grant,** Wellesley College's Center for Work and Service Summer Internship *Wellesley, MA*
Grant

AWARDS

2019 **1st Place,** Wayfair Supplier DIY Innovation Day *Boston, MA*

2018 **Runner Up,** Wayfair Challenge Day *Boston, MA*

Service and Volunteer

2023 **Reviewer,** 22nd IEEE International Symposium on Mixed and Augmented Reality (ISMAR 2023)

2023 **Reviewer,** 23rd ACM International Conference on Intelligent Virtual Agents (IVA 2023)

2022 **Sub-reviewer,** Conference on Autonomous Agents and Multiagent Systems (AAMAS 2023)

2022 **Faculty Application Student Reviewer,** Khoury College of Computer Science, Northeastern University

2022 **Reviewer,** CHI 2023 Health Subcommittee

2022 **Reviewer,** Workshop on Robustness in Sequence Modeling for NeurIPS 2022

2022 **Program Committee Member,** UserNLP: User-centered Natural Language Processing Workshop

2021 **PhD Student Application Reviewer,** Khoury College of Computer Science, Northeastern University

2019-2020 **Co-founder and Leader,** Wayfair's Women+ in Software

Extracurricular Activity

2022 **Class of 2022 mentee,** ACL Year-Round Mentorship

Skills

Tools/Platforms	Git, AWS, GCP, Docker, Weights & Biases
Libraries/Frameworks	Pytorch, Tensorflow, HuggingFace, Node.js, REST API, Flask, .NET Core
Front-end	Redux, React, Vue.js, HTML5, SASS, Jekyll
Programming	Python, Java, Javascript, C#, SQL, PHP, LaTeX, Shell, R, C, Racket, Assembly
Databases	MySQL, SQLite, PostgreSQL, MS SQL Server
Languages	English, Korean, Japanese (Basic), Swahili (Basic)