CATHERINE CHEN

she/her/hers ⋄ Providence, RI

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RESEARCH INTERESTS

interpretability/explainability, information retrieval, natural language processing, large language models, human-centered AI, biomedical applications of ML

EDUCATION

Brown University — Providence, RI
Ph.D Candidate in Computer Science — *Sept 2021 - Present*
Sc.M in Computer Science — *May 2023*
Advised by Carsten Eickhoff (now University of Tübingen)
Relevant Coursework: Deep Learning, Advanced Topics in Deep Learning, Computer Vision, Computational Linguistics, Human-Computer Interaction, Reintegrating AI

Wellesley College — Wellesley, MA
B.A. in Computer Science and French — *Aug 2015 - May 2019*
Relevant Coursework: Artificial Intelligence, Combinatorics & Graph Theory, Computer Systems, Data Structures, Databases w/Web Applications, Fundamental Algorithms, Intro to Machine Learning, Statistics w/Calculus, Linear Algebra, Multivariable Calculus, Theory of Computation, Theory of Programming Languages

Aix-Marseille University — Aix-en-Provence, France
Study Abroad — *Aug 2017 - Jan 2018*
Full immersion program with courses in linguistics, history of world languages, translation, and writing

PUBLICATIONS

- **Catherine Chen**, Jack Merullo, and Carsten Eickhoff. *Axiomatic Causal Interventions for Reverse Engineering Relevance Computation in Neural Retrieval Models.* SIGIR 2024.
- **Catherine Chen** and Carsten Eickhoff. *Evaluating Search System Explainability with Psychometrics and Crowdsourcing.* SIGIR 2024.
- William Rudman, **Catherine Chen**, and Carsten Eickhoff. *Outlier Dimensions Encode Task Specific Knowledge.* EMNLP 2023.
- **Catherine Chen**. *Quantifying and Advancing Information Retrieval System Explainability.* SIGIR 2023.

WORK EXPERIENCE

Blue Cross and Blue Shield of Minnesota — Remote
Data Science PhD Intern, AI Models and Platform Team — *June - Sept 2024*

- Developed an end-to-end pipeline leveraging LLMs using AWS services (Sagemaker, Bedrock, S3) for automated case Behavioral Health case summarization

FreeWheel, A Comcast Company — New York, NY
Software Engineer, Creative Team — *Aug 2019 - Aug 2021*

- Created UI components for a React-based web application with service-oriented backend architecture containerized with Docker and Kubernetes, allowing media buyers/sellers to manage their ad inventory
- Implemented APIs in Golang with gRPC to ingest/manage advertising creatives stored in AWS S3/MySQL DB
- Developed a video classification deep learning model using Keras/Tensorflow to streamline and standardize advertiser industry assignment processes for human reviewers

PatientsLikeMe — Cambridge, MA
Engineering Intern — *June - Aug 2018*

- Wrote ˜2000 lines of code using Ruby on Rails and React for a monolithic web app that comprises the world's largest personalized health network, helping people with chronic illnesses connect with one another and find new treatments
- Implemented adminable functionality which enabled departments outside of Engineering the ability to make changes to the website to increase user retention

University of Massachusetts, Amherst   Amherst, MA
Research Assistant   June - Aug 2017
- Advised by David Jensen and worked alongside PhD students in the Knowledge Discovery Lab
- Funded by the NSF as a participant of the Research Experience for Undergraduates (REU) in Data Science
- Reverse-engineered Google Deepmind's CNN to identify influential neurons to explain how the network learned to play Atari Breakout

TEACHING

Brown University   Providence, RI
CSCI 1460: Computational Linguistics, *Graduate TA*   Sept 2024 - Present
Sheridan Center for Teaching and Learning, *Teaching Certificate I*   Sept - Dec 2023
NSF REU: AI for Computational Creativity, *Research Methods Study Group Leader*   June - Aug 2022, 2023

Wellesley College   Wellesley, MA
CS 235: Theory of Computation, *Supplemental Instructor*   Sept - Dec 2018

INVITED TALKS

Advancing Explainable Information Retrieval: Methods for Human-Centered Evaluation and Interpreting Neural IR Models
Glasgow IR Group Seminar, *University of Glasgow*   Sept 2024

Choosing Between Industry and Academia
ExploreCSR: Diversity in Computer Systems, *Brown University*   April 2023

Women in STEM Workshop: Pursuing a Career in CS
The Stemistry Project   Feb 2023

Using Machine Learning to Predict Startup Success
Ruhlman Conference, *Wellesley College*   May 2019

Artifcial Intelligence: From Fiction to Reality
Ruhlman Conference, *Wellesley College*   May 2018

MENTORSHIP

Master's Students
Jennifer Lu - Brown University   *July 2024 - Present*
Kora Helm - University of Tübingen, Germany   *Sept 2023 - July 2024*

Undergraduate Students
Pearl Zhang – Swarthmore College – with Jeff Huang   *Jan - May 2023*
Yuhan Wang – Smith College – with Jeff Huang   *Jan - May 2023*
Lucas Weissman – Williams College – with Roma Patel   *June - Aug 2022*
Marwa Bouabid – Mount Holyoke – with James Tompkin   *Jan - May 2022*

LEADERSHIP/SERVICE

Faculty-Grad Liason   Brown University
Department of Computer Science   Fall 2024 - Present
- Communicate with the department about graduate student affairs/concerns and coordinate student volunteer positions

CS Department Representative   Brown University
Graduate Student Council   Sept 2022 - May 2024
- Attended monthly meetings to facilitate collective action on graduate student-related issues

Graduate Student Orientation and Recruitment   Brown University
Department of Computer Science   Jan 2022 - March 2024
- Collaborate with department administrators to create a schedule of events to welcome admitted/incoming students
- Create and manage messaging hubs (Discord, Slack) to correspond with admitted/incoming graduate students
- Organize social events to introduce admitted/incoming students to current students

Graduate Community Fellow — Brown University
Graduate School — *Sept 2022 - May 2023*

- Designed and implemented community-building initiatives for Women and Non-Binary Graduate Students to celebrate diversity, promote belonging and inclusion, and connect individuals across disciplines

Co-Organizer

New England NLP Meetup — *April 2024*

Conference Reviewer

ACL Rolling Review — *April, June 2024*
ECIR — *2023, 2024*
SIGIR — *2024*

Panelist

Wellesley CS Club: Wellesley Careers in Tech Panel — *April 2024*
AlumConnect: Research at Wellesley — *Feb 2024*
AI/ML Panel at Hack @ Brown — *Feb 2024*
Why Wellesley? An AlumConnect Admissions Panel — *April 2023*
Grad Student Discussion Panel for REU AI @ Brown — *Aug 2022*
Demystifying Grad School: Conversations with CS Grad Students @ Brown — *Mar 2022*
Brown CS Grad School Info Panel — *Nov 2021*

Moderator

Grad Student Discussion Panel for REU AI @ Brown — *Aug 2023*
Grad Student Discussion Panel for ExploreCSR AI @ Brown — *Apr 2023*
Women and Non-Binary Faculty Panel @ Brown — *Mar 2023*

Other Service

Brown CS PhD Application Reader — *Jan 2024*
Grad Student Mentor for Brown University Grad School Cohort — *Sept 2023 - May 2024*
Alumnae Mentor for Wellesley College Senior Support Network — *Sept 2020 - May 2022*
Alumnae Interviewer for Wellesley College Admissions — *Sept 2020 - Jan 2020*

AWARDS

2022-2023 Graduate Community Fellow, Brown University
2019 Camellia Student Leadership Award Nominee, Wellesley College
2018 Grace Hopper Conference Scholarship, Wellesley College

SKILLS

Programming	Python, React, JavaScript, Golang, Ruby on Rails, MySQL, HTML, CSS
Practices/Tools	PyTorch, Git, Pandas, AWS Services (Bedrock, Sagemaker, S3), Sklearn, Docker, Kubernetes, Flask, Jira, Confluence, Agile, Scrum
Languages	English, French, Mandarin