

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

Ph.D Candidate in Computer Science

Sc.M in Computer Science

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

Providence, RI

Sept 2021 - Present

May 2023

Wellesley College

B.A. in Computer Science and French

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

Wellesley, MA

Aug 2015 - May 2019

Aix-Marseille University

Study Abroad

Full immersion program with courses in linguistics, history of world languages, translation, and writing

Aix-en-Provence, France

Aug 2017 - Jan 2018

PUBLICATIONS

- **Catherine Chen**, Jack Merullo, and Carsten Eickhoff. *Axiomatic Causal Interventions for Reverse Engineering Relevance Computation in Neural Retrieval Models*. To appear in SIGIR 2024.
- **Catherine Chen** and Carsten Eickhoff. *Evaluating Search System Explainability with Psychometrics and Crowdsourcing*. To appear in 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

FreeWheel, A Comcast Company

Software Engineer

New York, NY

Aug 2019 - Aug 2021

- Worked in an Agile/Scrum environment to develop features that allows media buyers/sellers to manage their ad inventory
- Collaborated with Comcast ML engineers and FreeWheel SWEs in Beijing to create and integrate new technologies into our system
- Developed/maintained APIs in Golang with gRPC to ingest/manage advertising creatives stored in AWS S3 and a MySQL database
- Implemented UI components for a React based web application with service-oriented backend architecture containerized with Docker and Kubernetes
- Developed a video classification deep learning model using Keras/Tensorflow to streamline and standardize advertiser industry assignment processes for human reviewers

PatientsLikeMe

Engineering Intern

Cambridge, MA

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 enables departments outside of Engineering the ability to make changes to the website to increase user retention

University of Massachusetts, Amherst

Research Assistant

Amherst, MA

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

Sheridan Center for Teaching and Learning, *Teaching Certificate I*

NSF REU: AI for Computational Creativity, *Research Methods Study Group Leader*

Providence, RI

Sept - Dec 2023

June - Aug 2022, 2023

Wellesley College

CS 235: Theory of Computation, *Supplemental Instructor*

Wellesley, MA

Sept - Dec 2018

INVITED TALKS

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

Artificial Intelligence: From Fiction to Reality

Ruhlman Conference, *Wellesley College*

May 2018

MENTORSHIP

Master's Students

Kora Helm - University of Tübingen, Germany

Sept 2023 - Present

ExploreCSR: Socially Responsible AI for Computational Creativity

Pearl Zhang - Swarthmore College - with Jeff Huang

Jan - May 2023

Yuhan Wang - Smith College - with Jeff Huang

Jan - May 2023

Marwa Bouabid - Mount Holyoke - with James Tompkin

Jan - May 2022

NSF REU: AI for Computational Creativity

Lucas Weissman - Williams College - with Roma Patel

June - Aug 2022

LEADERSHIP/SERVICE

CS Department Representative

Graduate Student Council

Brown University

Sept 2022 - Present

- Attend monthly meetings to facilitate collective action on graduate student related issues

Graduate Student Orientation and Recruitment

Department of Computer Science

Brown University

Jan 2022 - Present

- 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
- Recruit student volunteers to help with social events and a student life panel
- Organize social events to introduce admitted/incoming students to current students

Graduate Community Fellow

Graduate School

Brown University

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

SIGIR

2024

ECIR

2023

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 - Present

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, R, Java

Practices/Tools

PyTorch, Keras, Tensorflow, Git, Pandas, Sklearn, Docker, Kubernetes, Flask, Jira, Confluence, Agile, Scrum

Languages

English, French, Mandarin