

Zeqiu (Ellen) Wu

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Research Interests

My current research focuses on training language models to understand and respond to the needs of information-seeking users and to learn from them. I'm broadly interested in building trustworthy AI agents to interact with a complex environment and optimize human-centered objectives via feedback from such interactions.

Education

University of Washington

PHD CANDIDATE, ELECTRICAL & COMPUTER ENGINEERING DEPARTMENT

• Advisors: Mari Ostendorf & Hannaneh Hajishirzi (NLP Research Group)

Seattle, WA

2018 - PRESENT

University of Illinois

M.S. IN COMPUTER SCIENCE

• Advisor: Jiawei Han (Data Mining Research Group)

Urbana, IL

2016 - 2018

University of Illinois

B.S. IN ELECTRICAL ENGINEERING, WITH MINORS IN COMPUTER SCIENCE, MATH AND BUSINESS

Urbana, IL

2010 - 2014

Publications

Self-RAG: Learning to Retrieve, Generate, and Critique through Self-Reflection

A. ASAI, Z. WU, Y. WANG, A. SIL, H. HAJISHIRZI. *ICLR (oral)*, 2024.

Fine-Grained Human Feedback Gives Better Rewards for Language Model Training

Z. WU^{*}, Y. HU^{*}, W. SHI, N. DZIRI, A. SUHR, P. AMMANABROLU, N. A. SMITH, M. OSTENDORF, H. HAJISHIRZI. *NeurIPS (spotlight)*, 2023.

INSCIT: Information-Seeking Conversations with Mixed-Initiative Interactions

Z. WU, R. PARISH, H. CHENG, S. MIN, P. AMMANABROLU, M. OSTENDORF, H. HAJISHIRZI. *TACL*, 2023.

CONQRR: Conversational Query Rewriting for Retrieval with Reinforcement Learning

Z. WU, Y. LUAN, H. RASHKIN, D. REITTER, H. HAJISHIRZI, M. OSTENDORF, G. S. TOMAR. *EMNLP*, 2022.

DIALKI: Knowledge Identification in Conversational Systems through Dialogue-Document Contextualization

Z. WU^{*}, B. LU^{*}, H. HAJISHIRZI AND M. OSTENDORF. *EMNLP*, 2021.

A Multi-Passage Knowledge Selector for Information-Seeking Dialogues

Z. WU^{*}, B. LU^{*}, H. HAJISHIRZI AND M. OSTENDORF. (NON-ARCHIVAL SYSTEM DESCRIPTION) *DialDoc@ACL*, 2021.

Automatic Document Sketching: Generating Drafts from Analogous Texts

Z. WU, M. GALLEY, C. BROCKETT, Y. ZHANG, B. DOLAN. *ACL Findings*, 2021.

A Controllable Model of Grounded Response Generation

Z. WU, M. GALLEY, C. BROCKETT, Y. ZHANG, X. GAO, C. QUIRK, R. K. KEDZIORSKI, J. GAO, H. HAJISHIRZI, M. OSTENDORF, B. DOLAN. *AAAI*, 2021.

HiExpan: Task-Guided Taxonomy Construction by Hierarchical Tree Expansion

J. SHEN, Z. WU, D. LEI, C. ZHANG, X. REN, M. T. VANNI, B. M. SADLER AND J. HAN. *KDD*, 2018.

Indirect Supervision for Relation Extraction Using Question-Answer Pairs

Z. WU, X. REN, F. F. XU, J. LI, J. HAN. *WSDM*, 2018.

SetExpan: Corpus-Based Set Expansion via Context Feature Selection and Rank Ensemble

J. SHEN^{*}, Z. WU^{*}, D. LEI, J. SHANG, X. REN, J. HAN. *ECML-PKDD*, 2017.

CoType: Joint Extraction of Typed Entities and Relations with Knowledge Bases

X. REN, Z. WU, W. HE, M. QU, C. R. VOSS, H. JI, T. F. ABDELZAHER, J. HAN. *WWW*, 2017.

Life-iNet: A Structured Network-Based Knowledge Exploration and Analytics System for Life Sciences

X. REN, J. SHEN, M. QU, X. WANG, Z. WU, Q. ZHU, M. JIANG, F. TAO, S. SINHA, D. LIEM, P. PING, R. WEINSHILBOUM, J. HAN. (SYSTEM DEMO) *ACL*, 2017.

Preprint Papers

DIALGEN: Collaborative Human-LM Generated Dialogues for Improved Understanding of Human-Human Conversations

B. LU*, N. HADUONG*, C. LEE, Z. WU, H. CHENG, P. KOESTER, J. UTKE, T. YU, N. A. SMITH, M. OSTENDORF. *Preprint, 2023.*

Extracting Summary Knowledge Graphs from Long Documents

Z. WU, R. K. KEDZIORSKI, M. OSTENDORF, H. HAJISHIRZI. *Preprint, 2020.*

Research Experience

UW NLP Research Group

Seattle, WA

ADVISORS: MARI OSTENDORF & HANNANEH HAJISHIRZI

Fall 2018 – Present

- Built a RLHF framework for *LMs to learn from fine-grained human feedback* and showed its effectiveness on two long-form text generation tasks.
- Collected data for *information-seeking conversations with mixed-initiative interactions* and developed strong baselines.
- Built a multi-task model of *knowledge identification in document-grounded conversations* and achieved state-of-the-art results in two recent datasets.
- Proposed a new text-to-data task, *document summarization using structured relational graphs*, together with evaluation metrics for the task. Implemented and assessed strong baselines as well as a new approach based on graph learning.

Google Research Language Team

Seattle, WA

MENTORS: GAURAV TOMAR, YI LUAN & HANNAH RASHKIN

Summer & Fall 2021

- Worked on *query rewriting for conversational retrieval* that rewrites the dialogue context in an information-seeking dialogue into a standalone question, and retrieves the most relevant passage from the text corpus with a fixed retrieval system.

Microsoft Research NLP Team

Redmond, WA

MENTORS: MICHEL GALLEY & BILL DOLAN

Summer 2019 & Summer 2020

- Proposed the task and evaluation metrics of *template generation* from previously written documents as the first step towards building interactive document writing systems, and built strong baselines with weak supervision.
- Built a *controllable and knowledge-grounded dialogue response generation model* and analyzed how adding control and grounding leads to better generated responses.

UIUC Data Mining Research Group

Urbana, IL

ADVISOR: JIAWEI HAN

Fall 2016 – Spring 2018

- Improved *distantly supervised information extraction* by developing noise-robust systems that extract entities and relations.
- Built systems for *faceted taxonomy construction* from any given text corpus in scientific domains, with a few seed examples.

UIUC MRI Lab

Urbana, IL

ADVISOR: ZHI-PEI LIANG

Spring 2012 - Summer 2012

- Applied signal processing techniques to optimize real-time cardiac image reconstruction and de-noise dynamic MRI.

Industry Experience

IXL Learning

San Mateo, CA

SOFTWARE ENGINEER, PRODUCT TEAM

2015 - 2015

- Maintained and developed IXL web education application and data analysis reporting systems.

Goldman Sachs

New York, NY

SOFTWARE ENGINEER, FIXED INCOME PRODUCTS TEAM

Summer 2013 & 2014 - 2015

- Built a market data monitoring system to inform high frequency traders of data trustworthiness.
- Developed the scalable fixed-income trading applications for daily trading, clearing and reporting.

Altera Corporation

San Jose, CA

SOFTWARE ENGINEER INTERN, FPGA COMPILER TEAM

Fall 2012

- Worked on FPGA synthesis optimization and language extraction.

Honors & Awards

- 2021 **1st Prize of DialDoc Shared Task at ACL 2021**
- 2018 **University of Washington Top Scholar Recruitment Fellowship**
- 2017 **SIGIR Student Travel Grant**
- 2014 **Highest Honor Graduate**
- 2014 **James Scholar**
- 2010-2014 **Dean's list**
- 2014 **Brian & Sophie Leung Scholarship**
- 2013 **Professor N. Narayana Rao Scholarship**

Teaching Experience

EE 511 (Introduction to Statistical Learning), UW ECE

TEACHING ASSISTANT (INSTRUCTOR: MARI OSTENDORF)

Seattle, WA

Winter 2019

CS 412 (Introduction to Data Mining), UIUC CS

TEACHING ASSISTANT (INSTRUCTOR: JIAWEI HAN)

Urbana, IL

Fall 2016 & Spring 2018

Invited Talks

UT Austin LIN 393 (Social Applications and Impact of NLP)

Jan 2024

USC CSCI 535 (Multimodal Probabilistic Learning of Human Communication)

April 2022

UW EE 200 (Undergrad Research Seminar)

Feb 2022

1st DialDoc Workshop at ACL 2021

July 2021

Microsoft Research Workshop

Sep 2020

UW ECE Annual Research Review Day

March 2019, 2021, 2023

Services

Program Committee (Reviewer)

ARR 2021-Present, EMNLP 2021-2023,

ACL 2021-2023, AKBC 2020, AAAI

2020, JAIR 2022, COLING 2022

Volunteer Coordinator, NAACL 2022

July 2022

Co-organizer, 2nd DialDoc Workshop at ACL 2022

May 2022

Visitor Coordinator, UIUC Data Mining Research Group

2017-2018

Alumni Chair, UIUC Women in Electrical and Computer Engineering

2011-2012

Mentoring

Ryu Parish, UW CSE BS -> MS

Nov 2021 - June 2022

Chengyu Huang, NUS CS BS

May 2023 - Present

Skills

Programming: Python, Pytorch, JAX, Java, Matlab, C**Language: English, Chinese, Wu**