

SARAH E. FINCH (FILLWOCK)

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EDUCATION

Emory University, Atlanta, Georgia

Aug. 2018 - Present

Ph.D. Candidate in Computer Science

GPA: 3.98

Awarded: *George W. Woodruff Fellowship*,

Emory University Schoettle Research Award

Michigan State University, East Lansing, Michigan

Aug. 2014 - May 2018

Bachelor of Science in Computer Science, Minor in Cognitive Science

GPA: 4.00

RESEARCH EXPERIENCE

Natural Language Processing Lab

Ongoing

Dr. Jinho Choi, Emory University

- Investigated the impact of evaluator group on dialogue system evaluations by quantifying system-level and conversation-level outcomes
- Designed dialogue behavior analysis methods for neural dialogue models that are more successful at fine-grained dimensional chatbot evaluation than existing likert and comparative methods
- Developed a regression analysis approach to decomposing conversation-level user ratings into utterance-level quality ratings
- Analyzed current approaches for dialogue system evaluation

Emory Virtual Assistant: Senior Researcher

Ongoing

Dr. Jinho Choi, Emory University

- Guiding an undergraduate team in their development of a virtual assistant for Emory students that provides both chit-chat functionality and educational/coursework support
- Designed a database scheme to support asynchronous student-student and student-professor interactions through the virtual assistant

Got It AI: Research Intern

May 2022 - Aug. 2022

Amol Kelkar

- Developed an article-grounded conversational question-answering dialogue system that minimized the fabrication of information
- Implemented prompt-based large language model approaches to information-retrieval, hallucination-detection, and response generation
- End-to-end performance improvement verified by internal human-bot test parties and internal evaluation datasets

Amazon Alexa Prize Socialbot Grand Challenge 4: Co-Team-Lead

Sept. 2020 - July 2021

Dr. Jinho Choi, Emory University

- Developed an inference-driven dialogue engine with a semantic graph dialogue representation constructed using machine-learning models
- Managed a 6-student team to develop a conversational agent that advanced to Finals Round

Amazon Alexa Prize Socialbot Grand Challenge 3: Co-Team-Lead July 2019 - July 2020

Dr. Jinho Choi, Emory University

- Placed 1st (out of 10 total teams) by achieving an average score of 3.81 on a 5-point scale (0.64 higher than second place) and an average conversation duration of 7 minutes and 37 seconds
- Implemented a unified state-machine-based dialogue management and topic transition framework
- Managed a 14-student team to develop a conversational agent

Intelligent Information Access Lab

Aug. 2018 - May 2019

Dr. Eugene Agichtein, Emory University

- Investigated a language-based approach for predicting user engagement in conversational systems

NSF REU: Research in Interactive Virtual Experiences

May - Aug. 2017

Dr. David Traum, ICT at University of Southern California

- Created a corpus of chat-oriented dialogues annotated for personal information
- Implemented a word-embedding approach for extracting personal information from dialogue

Language and Interaction Research Group

Sept. 2015 - May 2018

Dr. Joyce Chai, Michigan State University

- Aided in the implementation of an end-to-end multi-modal task-learning BAXTER robot

PUBLICATIONS

Sarah E. Finch, James D. Finch, and Jinho Choi. 2023. *Don't Forget Your ABC's: Evaluating the State-of-the-Art in Chat-Oriented Dialogue Systems*. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL)*.

James D. Finch, **Sarah E. Finch**, and Jinho Choi. 2021. *What Went Wrong? Explaining Overall Dialogue Quality through Utterance-Level Impacts*. In *3rd Workshop on NLP for ConvAI*.

Sarah E. Finch, James D. Finch, Daniil Huryn, William Hutsell, Xiaoyuan Huang, Han He, and Jinho D. Choi. 2021. *An Approach to Inference-Driven Dialogue Management within a Social Chatbot*. In *4th Proceedings of the Alexa Prize*.

Sarah E. Finch and Jinho Choi. 2020. *Towards Unified Dialogue System Evaluation: A Comprehensive Analysis of Current Evaluation Protocols*. In *Proceedings of the 21st Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGDIAL)*.

Sarah E. Finch, James D. Finch, Ali Ahmadvand, Ingyu (Jason) Choi, Xiangjue Dong, Ruixiang Qi, Harshita Sahijwani, Sergey Volokhin, Zihan Wang, Zihao Wang, and Jinho D. Choi. 2020. *Emora: An Inquisitive Social Chatbot Who Cares For You*. In *3rd Proceedings of the Alexa Prize*.

Sarah Fillwock and David Traum. 2018. *Identification of Personal Information Shared in Chat-Oriented Dialogue*. In *Proceedings of the 11th International Conference on Language Resources and Evaluation (LREC)*, Miyazaki, Japan.

Sarah Fillwock, Changsong Liu, and Joyce Chai. 2016. *Dialogue Management for Task-Learning Human-Robot Dialogue*. Poster presented at the *Mid-Michigan Symposium for Undergraduate Research Experiences*, Michigan State University, East Lansing, MI.

TEACHING EXPERIENCE

Teaching Assistant, **Computational Linguistics** (undergraduate) *Jan. - May. 2020*
Faculty: Jinho Choi, Emory University

- Gave three lectures to ~50 students
- Graded weekly quizzes and monthly projects

Teaching Assistant, **Artificial Intelligence** (graduate) *Aug. - Dec. 2019*
Faculty: Eugene Agichtein, Emory University

- Gave two lectures to ~30 students
- Graded bi-weekly projects

Teaching Assistant, **Introduction to Computer Science I** (undergraduate) *Aug. - Dec. 2018*
Faculty: Davide Fossati, Emory University

- Proctored weekly quizzes for sessions of ~30 students
- Graded weekly quizzes and bi-weekly projects

LEADERSHIP AND COMMUNITY OUTREACH

ACM-W Chapter: Women in Computing (WIC)
Michigan State University, East Lansing, MI

- Vice President (*2017/18*), Secretary (*2016/17*), Community Relations (*2015/16*)

SKILLS

- *Languages*: Python, C/C++
- *Machine Learning*: Pytorch, scikit-learn, Keras
- *AWS Services*: EC2, ECS, Load Balancers, Lambda, DynamoDB, CodePipeline, Alexa Skills Kit