

Sandeep Avula

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RESEARCH INTERESTS

Information Retrieval, Conversational Search, Collaborative Search, Dialogue Based Systems, and Mixed-Initiative interactions.

EDUCATION

School of Information and Library Science, University of North Carolina at Chapel Hill

Ph.D. Candidate, Information Science, 2014 - Present

- Advisors: Dr. Jaime Arguello and Dr. Gary Marchionini
- Thesis: *Characterizing and Understanding User Perception of System Initiative for Conversational Systems to Support Collaborative Search*

M.S. in Information Science, 2012 - 2014

- Advisor: Dr. Jaime Arguello

Dhirubhai Ambani Institute of Information and Communication Technology

B.Tech. in Information and Communication Technology, 2006 - 2010

RESEARCH EXPERIENCE

Laboratory of Applied Informatics (UNC Chapel Hill), 2019 - current

I am working with Prof. Javed Mostafa to build voice interfaces for Electronic Health Record (EHR) systems. In this project, we are building a customized query language and testing different interaction modes for EHR systems.

Interactive Information Retrieval Lab (UNC Chapel Hill), 2015 - current

I am working with Prof. Jaime Arguello on understanding how a conversational search system should take the initiative when engaging with users, specifically during collaborative search — this is my dissertation project. Before this, I worked on problems relating to *speech-enabled information retrieval*. I worked on understanding how query performance predictors could improve the retrieval effectiveness of spoken queries.

Lucidworks, Summer 2016 & 2017

I interned with Grant Ingersoll for two summers, 2016 and 2017. In my first internship, I worked on the problem of query intent prediction. I used Lucidwork's in-house pipelines to build a dataset for query intent prediction. Following this, I used different classification techniques to make a pipeline for intent prediction. In my second internship, which was part-time, I worked on mapping redundant help questions on the company's Slack channels to relevant answers.

School of Information and Library Science (UNC Chapel Hill), 2012 - 2014

I worked with Prof. Gary Marchionini on the Lifetime Library Project at UNC, which aims to provide UNC students with personal knowledgebases. Think of this as UNC's sandbox version of Google Drive and Dropbox, built using an open-source data management software called iRODS. While working on this project, I got to build the project's homepage, translate data management policies to iRODS' custom rule language, make both video and written tutorials on using the software, and conduct QA sessions with students on using the software.

Refereed Conference Papers

Sandeep Avula, Jaime Arguello, Robert Capra, Jordan Dodson, Yuhui Huang, and Filip Radlinski . Embedding Search into a Conversational Platform to Support Collaborative Search. In *Proceedings of the 4th ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR '19)*, 2019.

Sandeep Avula, Gordon Chadwick, Jaime Arguello and Robert Capra. Search-Bots: User Engagement with ChatBots during Collaborative Search . In *Proceedings of the 3rd ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR '18)*, 2018.

Jaime Arguello, **Sandeep Avula**, and Fernando Diaz. Using Query Performance Predictors to Reduce Spoken Queries. In *Proceedings of the 39th European Conference on Information Retrieval. (ECIR'17)*, 2017.

Jaime Arguello, **Sandeep Avula**, and Fernando Diaz. Using Query Performance Predictors to Improve Spoken Queries. In *Proceedings of the 38th European Conference on Information Retrieval (ECIR'16)*, 2016.

Refereed Conference Short, Demo, and DC Papers

Sandeep Avula and Jaime Arguello. Wizard of Oz Interface to Study System Initiative for Conversational Search. To appear In *Proceedings of the 5th ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR '20)*, 2020.

Sandeep Avula. *Searchbots*: Using Chatbots in Collaborative Information-seeking Tasks. In *Proceedings of the 40th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '17)*, 2017.

Refereed Workshop Papers

Sandeep Avula. Wizard of Oz: Protocols and Challenges in Studying Searchbots to Support Collaborative Search. In *the 2nd SIGIR Workshop on Conversational Approaches to Information Retrieval (CAIR'18)*, 2018.

Unrefereed Text REtrieval Conference (TREC) Papers

Sandeep Avula and Jaime Arguello. Query-expansion Approaches for Microblog Retrieval. In *Proceedings of the 24th Text REtrieval Conference (TREC'15)*, National Institute of Standards and Technology, special publication, 2015.

Sandeep Avula, John O'Connor, and Jaime Arguello. A Nearest-Neighbor Approach to Contextual Suggestion. In *Proceedings of the 22nd Text REtrieval Conference (TREC'13)*, National Institute of Standards and Technology, special publication, 2013.

Invited Papers

Javed Mostafa, Xiaopeng Lu, and **Sandeep Avula**. Perennial, Permuted, and Pervasive Search in Ambient Intelligence. To appear in the *Proceedings of the First IEEE International Conference on Cognitive Machine Intelligence (CogMI '19)*, 2019.

PATENTS Javed Mostafa, Xiaopeng Lu, and **Sandeep Avula**. Methods, Systems, and Computer Readable Media for Creating and Using Minimum Dictionary Language (MDL) to Access Data in Closed-Domain Data Sets. Filed 2019.

THESIS **Sandeep Avula**. Which Hashtag to use? Building a Hashtag recommender system and understanding the textual features surrounding Hashtags. Masters thesis. University of North Carolina at Chapel Hill, 2014.

Sandeep Avula and Sudheer Mupparaju. Evaluating Web Server Performance in Virtual Environments. Undergraduate thesis. Dhirubhai Ambani Institute of Information and Communication Technology, 2010.

TEACHING 2019 (Summer) Text Mining (INLS 613, Graduate Level Course)
 2019 (Spring) Web Databases (INLS 760, Graduate Level Course)
 2018 (Fall) Text Mining (INLS 613, Graduate Level Course)
 2018 (Summer) Text Mining (INLS 613, Graduate Level Course)

HONORS AND AWARDS 2019 Carnegie Research Grant
 2019 Edward G. Holley Research Grant
 2017 - 2019 SIGIR Student Travel Grant
 2016 - 2019 Asheim Fellowship
 2012 - 2014 Carolina Technology Associates (CaTa) Research Assistantship
 2012 - 2013 Akers Fellowship

SERVICE 2020 Program Committee Member for CAIR (Co-located at CHIIR)
 2018 - 2019 Student Representative, Diversity Committee, UNC SILS
 2017 - 2018 Student Representative, Personnel Committee, UNC SILS
 2016 - 2017 Doctoral Student Association, President, UNC SILS

GRADUATE COURSEWORK Statistical Theory-I Machine Learning
 Applied Statistics-I Information Retrieval
 Applied Statistics-II Research Methods
 Longitudinal and Multilevel Data Analysis Psycholinguistics
 Time Series and Multivariate Analysis

PROGRAMMING SKILLS Python, Java, Matlab, R, JavaScript, PHP, Scala, and C.