



NLP, Social Network Analysis and Recommendation Systems

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My research group focuses on research problems in the area of NLP, Social Network Analysis and Recommendation Systems. We focus on applied data science research. My group has worked on data from community question-answer (CQA) sites such as StackExchange and Quora; product reviews from e-commerce sites such as Amazon and Yelp; and social media data from sites such as Twitter and Facebook. Following are few sample problems that we have worked on and published recently -- Finding the top-k CQA sites for posting a given question; Finding whether a given question is tagged well or not; Recommending experts who would be willing to answer a given question; Summarizing and tagging product reviews;

Analyzing factors of social media to maximize information diffusion; Summarizing social media posts. To enhance users' navigation through huge volumes of data, we have been exploring personalized and context-based recommendation systems. In 2019, my first PhD student Nagendra Kumar graduated with his PhD in the area of Social Network Analysis. At present, he is working as an Assistant Professor in the Computer Science Department in IIT Indore. My other graduated students have also been working as data scientists in organizations such as Yahoo! Japan, Rakuten in Japan, Walmart Labs in Bengaluru, A*STAR in Singapore.



Automated generation of Natural Language Text

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Automated generation of questions and answers are helpful in various scenarios such as reading comprehension, conversational systems, focused retrieval, knowledge graph enrichment etc. Even for humans, generating questions or answers from a specific input context requires high cognitive skills and thorough understanding of the language. Automating the task is hence even more challenging. However, recent advancements in NLP related to semantic understanding of text has made it possible to address many of the challenges that are common in these problem settings, and has given rise to newer problems in this area. Our research group works on problems related to such understanding and generation of natural language texts.

One way to assess the language understanding capability of the readers is to test their comprehension skills - ask them to read a piece of text, and then ask questions to verify how far they have understood the text. Use of multiple-choice-questions (MCQs) is a commonly followed technique for reading comprehension – as it requires pointed response from the candidates, and automating the evaluation becomes easy. In MCQs, generally there is one correct answer, and there are a few incorrect answers. Given a passage, a question, and a correct answer, multiple incorrect answers can be listed by the instructors.

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