

Natural Language Processing and Speech Recognition: Technology Overview and Potential Applications in Homecare



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THE presentation will discuss several emerging methodologies that have a potential to significantly enhance the meaningful use of clinical data. First, each technology (natural language processing and speech recognition) will be briefly introduced with conceptual and practical key concepts. Then, we will overview several recent projects that use natural language processing to extract meaning from free text clinical narratives, including depression detection, heart failure self-management status extraction, and using socio-behavioral characteristics to improve readmission predication models, among others. Applications and unexplored venues of natural language processing in homecare will be highlighted. We will also review the emerging field of speech recognition and discuss its various potential applications in homecare, including automated interaction with the patient or tools to facilitate workflows and make clinician's work more efficient. Examples throughout the presentation will use projects conducted by Drs. L. Zhou and M. Topaz with MTERMS- a natural language processing engine developed at the Harvard Medical School and Brigham Women's Health Hospital (Boston, USA).

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