Accepted Manuscript

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 PII:
 S0885-2308(17)30358-3

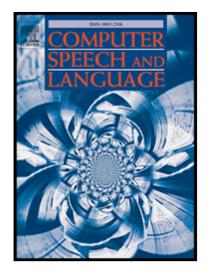
 DOI:
 https://doi.org/10.1016/j.csl.2018.07.006

 Reference:
 YCSLA 940

To appear in:

Computer Speech & Language

Received date:15 December 2017Revised date:23 July 2018Accepted date:26 July 2018



Please cite this article as: Bahman Mirheidari, Daniel Blackburn, Traci Walker, Markus Reuber, Heidi Christensen, Dementia detection using automatic analysis of conversations, *Computer Speech & Language* (2018), doi: https://doi.org/10.1016/j.csl.2018.07.006

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Dementia detection using automatic analysis of conversations

Bahman Mirheidari^{a,*}, Daniel Blackburn^b, Traci Walker^c, Markus Reuber^d, and Heidi Christensen^a

^aDepartment of Computer Science, University of Sheffield, Sheffield, UK ^bSheffield Institute for Translational Neuroscience (SITraN), University of Sheffield, Sheffield, UK

^cDepartment of Human Communication Sciences, University of Sheffield, Sheffield, UK ^dAcademic Neurology Unit, University of Sheffield, Royal Hallamshire Hospital, Sheffield, UK

Abstract

Neurogenerative disorders, like dementia, can affect a person's speech, language and as a consequence, conversational interaction capabilities. A recent study, aimed at improving dementia detection accuracy, investigated the use of conversation analysis (CA) of interviews between patients and neurologists as a means to differentiate between patients with progressive neurodegenerative memory disorder (ND) and those with (non-progressive) functional memory disorders (FMD). However, doing manual CA is expensive and difficult to scale up for routine clinical use. In this paper, we present an automatic classification system using an intelligent virtual agent (IVA). In particular, using two parallel corpora of respectively neurologist- and IVA-led interactions, we show that using acoustic, lexical and CA-inspired features enable ND/FMD classification rates of 90.0% for the neurologist-patient conversations, and 90.9% for the IVA-patient conversations. Analysis of the differentiating potential of individual features show that some differences exist between the IVA and human-led conversations, for example in average turn length of patients.

Keywords: Dementia detection, conversation analysis, speech recognition and segmentation, processing of pathological speech

. Introduction

Dementia is a neurodegenerative disorder of the brain, which is caused by a number of conditions with Alzheimer's disease (AD) being the most common

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Preprint submitted to Computer Speech and Language

August 1, 2018

^{*}B Mirheidari

Email address: mirheidari2@sheffield.ac.uk (Bahman Mirheidari^{*a*,*}, Daniel Blackburn^{*b*}, Traci Walker^{*c*}, Markus Reuber^{*d*}, and Heidi Christensen^{*a*})

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