Literature Survey

REAL-TIME COMMUNICATION SYSTEM POWERED BY AI FOR SPECIALLY ABLED

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LITERARTURE SURVEY

SURVEY 01:

AI Fairness for People with Disabilities: Point of View Shari Trewin, IBM Accessibility Research,trewin@us.ibm.com

In their view, fairness for people with disabilities differs from fairness for other protected characteristics like race, gender, and age.. A major difference is the broad range of ways disabilities can be manifested and people adapt. Additionally, disability information can be sensitive and isn't always shared with others, this is due to the possibility of discrimination. AI-based applications should not embody bias against any protected group. However, experience has shown that such bias can and does exist. A popular saying in the autism community is: “When you’ve met one person with autism, you’ve met one person with autism.” Rather than forming a cohesive group, the disabled community includes many outliers. This poses a challenge for machine learning, which works by finding patterns and forming groups. Outlier data is often treated as ‘noise’ and disregarded. People who have a speech impairment are often unable to use such systems. This aspect of fairness can be improved by gathering training data from a broad set of groups, and ensuring the process of ‘cleaning’ the data retains enough diversity. However, it is possible that using more diverse training data can degrade the overall performance of some models. In such cases it may be necessary to build specialized models for known groups, such as recognition of deaf speech.

SURVEY 02:

IntelliDoctor – AI based Medical Assistant

2019 Fifth International Conference on Science Technology Engineering and Mathematics (ICONSTEM)

Keywords—Medical Diagnosis, AI in Medicine, Healthcare, Fitness Application, Machine Learning

A perfect health-care application that keeps up with the fast-paced world of automation, IntelliDoctor

It is an indispensable companion for any individual and for doctors to have a better understanding of their patents. It automates many of the processes in health care like keeping track of user’s health activities, giving them an overview of their health, reminding them of routine medicine in-take, exercises and medical check-up schedules. Furthermore, it predicts users' diseases and suggests steps to take. It also sends an intimation to pre-set contacts and selected doctors about their condition in some emergencies. Using this paper and application, they hope to make healthcare more mobile and accessible to more and more people, and as more people use it, the more robust it will become. Due to its widespread accessibility, people can use it even in remote locations to track their health

SURVEY 03:

Medical Diagnosis: are Artificial Intelligence systems able to diagnose the underlying causes of specific headaches

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There are several reasons why in the medical field AI technology is very much needed. AI technologies assist clinicians and medical staff in medical diagnosis

, therapy evaluating and planning , personal health , health care management and image recognition and interpretation. Although the number of AI applications in medicine is high, current research shows very limited work in headaches. In fact there has been an implementation of a computer-assisted diagnosis database for the management of headaches , a proposed system which is in its early developmental stage of a computer-assisted diagnosis of primary headaches and a computer diagnosis of chronic head pain . In addition a NeuroDiary web-based application has been recently developed to collect data on general headaches. Before clinicians can recommend a course of treatment to their patients, they must first review the patients' medical history and perform a physical examination. In addition, they also perform a complete neurological examination including specific diagnostic testing if needed. Finally, clinicians ask specific questions to determine if symptoms are caused by hydrocephalus .The neurological examination will also help to determine the severity of the patients' condition . Further tests such as an ultrasound (if the patient is an infant), computed tomography (CT scan), or magnetic resonance imaging (MRI) may be ordered as these tests may reveal useful information about the severity of the condition and its likely cause

Hence, the study had been divided into two phases. In phase one is about improving the current NeuroDiary web Application by improving its input and output user interface screens, patients' data, choice of symptoms, adding more visualization components and extending the input questions to support more chronic pain events and conditions. In phase two they extend the application beyond web to support Android mobile phones as shown clearly. Thus, the new mobile expert system will imitate the mental process and logic of clinicians to diagnose the underlying cause of a headache, to analyse the data submitted by patients and to suggest a therapeutic approach.

SURVEY 04:

Artifcial intelligence and disability: too much promise, yet too little substance?

Peter Smith1 · Laura Smith2

The aim of this thought piece is to explore the interface between AI and disability, and the ethical dilemmas which this raises. To do so, they used narrative accounts, in the form of diaries as two disabled people, to analyse how AI is used as part of our daily lives, and the promise, support, and frustrations this brings. they also undertake a brief literature review of academic and professional articles on the topic of AI, disability, and ethics. Finally, they draw conclusions as to how developers might better approach the construction of AI software and technology. More than a billion people live with disability and there is a need to explore how AI technologies can affect this diverse group. AI research can be a force for good for disabled people as long as they are not marginalised. A roadmap which includes AI and ethical issues has yet to be developed according to the Alan Turing Institute. for, and serve the needs of, those with disabilities. It is true that AI technologies have the potential to dramatically impact the lives of people

with disabilities. Houver, widely deployed AI systems do not yet work properly for disabled people, or worse, may actively discriminate against them. Guo et al. “Autoethnography is an approach to research and writing that seeks to describe and systematically analyse personal experience in order to understand cultural experience. Autoethnography involves analysing your own experiences and feelings, preferably as they occur, and relating this to the academic literature; and using those experiences to draw wider conclusions, resulting in lessons for others. There is much activity in the area of AI, disability, and ethics. This is very commendable and offers hope and promise to disabled individuals, such as Laura and me. However, our own experiences, as detailed in our diaries, demonstrate how on a daily basis, AI technology can assist, and frustrate us. Sometimes AI technology lives up to its promise; on other occasions, it lets us down. However, overall, our own experiences of AI technology are positive.

REFERENCES:

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2. IntelliDoctor – AI based Medical Assistant

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3.Medical Diagnosis: Are Artificial Intelligence Systems Able to Diagnose the Underlying Causes of Specific Headaches?

Anthony Farrugia; Dhiya Al-Jumeily; Mohammed Al-Jumaily; Abir Hussain; David Lamb

4. Artificial intelligence and disability: too much promise, yet too little substance? https://www.researchgate.net/publication/346111546_Artificial_intelligence_and_disability_too_much_promise_yet_too_little_substance