Vivekanand Education Society's Institute of Technology

Department of Computer Engineering

Mini Project Report On

AI based Pre-consultation system

Under the subject : Artificial Intelligence(AI)

Year: T.E. Semester: VI

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ABSTRACT:

Artificial intelligence (AI) has been deeply applied in the medical field and has shown broad application prospects. Pre-consultation system is an important supplement to the traditional face-to-face consultation. The combination of the AI and the pre-consultation system can help to raise the efficiency of the clinical work. However, it is still challenging for the AI to analyze and process the complicated electronic health record (EHR) data. Our task is to evaluate the ability of the AI and doctors to obtain the primary diagnosis and to analyze the effect of the consistency between the medical history described by our model and the physicians on the diagnostic performance. Finally, when the AI had the same diagnostic conditions with doctors, our model could obtain a more structured medical history and had a good diagnostic logic, which would help to improve the diagnostic accuracy of the outpatient doctors and provide them with pre-consultation.

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INTRODUCTION :-

Artificial intelligence (AI) has been deeply applied in the medical field and has shown broad application prospects. AI has been focusing on imaging diagnosis for a long time. For example, in the terms of iconography and pathology diagnosis, the diagnostic efficiency of the AI exceeds even the most experienced doctors, effectively improving the efficiency and accuracy of the medical staff. With the continuous development of deep learning (DL) technology, the application scenarios of the AI continue to expand at the same time. Currently, AI has been able to diagnose common diseases, evaluate anesthesia, and manage pharmacies.

With the development of medical technology, more and more diversified methods of observing diseases have made medical information more complex and the clinical decision-making also more cumbersome. To make a comprehensive decision, the doctors usually need to evaluate large amounts of the clinical information. Among them, the electronic health record (EHR), as an enormous electronic data repository, represents a wide variety of clinical information. AI has gradually become a powerful tool for mining EHR data to assist human doctors in the clinical decision-making.

In the process of the outpatient consultation, in order to formulate a diagnosis for any visiting patient, the doctors often use the hypothetical coding reasoning.We designed the pre-consultation system based on AI.

Pre-consultation system is an important supplement to the traditional face-to-face consultation, which refers that people could describe their conditions in the form of answering questions on the mobile terminal through the AI pre-consultation system and could obtain the preliminary diagnosis and medical advice before they visit a doctor.

PROBLEM STATEMENT :-

In our topic the main objective is to ask the patient the various questions so as to study the symptoms. The patient answers in yes and no. From the symptoms received the model works on it and produces the result which tells the user what disease he/she is suffering from with consultation. Thus the symptoms are the inputs and the disease detected and its corresponding pre-consultation is provided as output.

CODE & OUTPUT :-

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symptom('Flu'). symptom('Yellowish eyes and skin'). symptom('Dark color urine'). symptom('Pale bowel movement'). symptom('Fatigue'). symptom('Vomitting'). symptom('Fever'). symptom('Pain in joints'). symptom('Weakness'). symptom('Stomach Pain').

treatment('Flu', 'Drink hot water, avoid cold eatables.').
treatment('Yellowish eyes and skin', 'Put eye drops, have healthy sleep, do not strain your eyes.'). treatment('Dark color urine', 'Drink lots of water, juices and eat fruits. Avoid alcohol consumption.').
treatment('Pale bowel movement', 'Drink lots of water and exercise regularly.').
treatment('Fatigue', 'Drink lots of water, juices and eat fruits.'). treatment('Vomitting', 'Drink salt and water.').
treatment('Fever', 'Put hot water cloth on head and take crocin.'). treatment('Pain in Joints', 'Apply pain killer and take crocin.'). treatment('Weakness', 'Drink salt and water, eat fruits.').
treatment('Stomach Pain', 'Avoid outside food and eat fruits.').

input :- dynamic(patient/2), repeat,
symptom(X),
write('Does the patient have '), write(X),
write('? '),

read(Y), assert(patient(X,Y)),
\+ not(X='Stomach Pain'), not(output).

disease(hemochromatosis) :- patient('Stomach Pain',yes), patient('Pain in joints',yes), patient('Weakness',yes), patient('Dark color urine',yes),
patient('Yellowish eyes and skin',yes).

disease(hepatitis_c) :- not(disease(hemochromatosis)), patient('Pain in joints',yes), patient('Fever',yes), patient('Fatigue',yes), patient('Vomitting',yes), patient('Pale bowel movement',yes).

disease(hepatitis_b) :- not(disease(hemochromatosis)), not(disease(hepatitis_c)), patient('Pale bowel movement',yes), patient('Dark color urine',yes), patient('Yellowish eyes and skin',yes).

disease(hepatitis_a) :- not(disease(hemochromatosis)), not(disease(hepatitis_c)), not(disease(hepatitis_b)), patient('Flu',yes),
patient('Yellowish eyes and skin',yes).

disease(jaundice) :- not(disease(hemochromatosis)), not(disease(hepatitis_c)), not(disease(hepatitis_b)), not(disease(hepatitis_a)),
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patient('Yellowish eyes and skin',yes).

disease(flu) :- not(disease(hemochromatosis)), not(disease(hepatitis_c)),
not(disease(hepatitis_b)), not(disease(hepatitis_a)), patient('Flu',yes).

output:- nl,
possible_diseases, nl,
advice.
possible_diseases :- disease(X), write('The patient may suffer from '), write(X),nl.
advice :- symptom(X), patient(X,yes), treatment(X,Y), write(Y),nl, \+ not(X='Stomach Pain')

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?-
% c:/
?- input.
Does the patient have Flu? yes.
Does the patient have Yellowish eyes and skin? |: yes.
Does the patient have Dark color urine? |: yes.
Does the patient have Pale bowel movement? |: no.
Does the patient have Fatigue? |: yes.
Does the patient have Vomitting? |: no.
Does the patient have Fever? |: no.
Does the patient have Pain in joints? |: no.
Does the patient have Weakness? |: no.
Does the patient have Stomach Pain? |: yes.

The patient may suffer from hepatitis_a

Drink hot water, avoid cold eatables.
Put eye drops, have health" sleep, do not strain your eyes.
Drink lots of water, juices and eat fruits. Avoid alcohol consumption.
Drink lots of water, juices and eat fruits.
Avoid outside food and eat fruits.
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CONCLUSION :-

The AI based Pre-consultation system will contribute to raise the diagnostic accuracy in the outpatient clinics and reduce the incidence of the misdiagnosis and missed diagnosis, which make it an important auxiliary tool for the outpatient doctors in the daily visits.
Therefore, the promotion of the AI pre-consultation system will help to shorten the medical gap between the regions and promote the realization of the ideal of common health for the people.