iHub Anubhuti-
IIITD Foundation

Anubhav:
a Newsletter by iHub Anubhuti

Issue No. 06 | June 2022

Counselling Conversation Summarization

In today's fast-moving life, people are so much busy that they barely get time to focus on their mental health. With increasing stress and hypertension, everyone has a risk of developing a mental health disorder. With the increasing number of people reporting mental health illnesses, the awareness of mental health has also increased in recent times.

Therapists use many ways to determine the cause and symptoms of illness in a person. One of many ways is "talk therapy". Through talk therapy, patients talk to a mental health expert and therapists are able to identify the complex symptoms and causes of mental health. They understand the behavior, emotions, and ideas that contribute to the illness. It is a complex process to determine the actual cause of illness in the first session itself. And it is even more complicated to make a record of all the conversations between the patient and the therapist.

The therapist writes down notes during the therapy session to make a record for reference in future therapy sessions with the patient. But cannot be relying only on those notes.

Efforts are being made to seek aid for mental health issues by taking therapy sessions or by talking to a psychologist.

LCS2 (IIIT Delhi) is currently one of the labs working in the area of digital health under the mental health space.

Need for Summarization after Counselling

Unlike general clinical discussions, psychotherapy's core symptoms are hard to distinguish, thus becoming a complex problem to summarize later. A structured counseling conversation may contain discussions about symptoms, history of mental health issues, or the discovery of the patient's behavior. That's why it is important and necessary to use online counseling conversation summarization that will directly help the therapist.

General Summarization Model

Various speech recognition and dialogue summarization has been built with time to help people generate documents and reduce time. In the healthcare sector, various online medical conversation summarization platforms had also been made to provide solutions with patients' medical data but due to lack of knowledge of such an online platform, it is hardly used by doctors and medical staff. And it is extremely important in mental healthcare to keep a record of the patients' data and keep critical information like medical history.

ConSum Model : Counselling Conversation Summarization in Mental Healthcare

ConSum, an online **Counselling Conversation Summarization Model**, a psychotherapy intervention technique is a multifaceted conversation between a therapist and a patient.

The main focus of the Consum Model is to summarize the symptoms/reasons, routines, and patient discovery. It Summarizes the whole conversation in meaningful and relevant information with good grammar and linguistics. It makes sure that the summary is completely unbiased.

Is remarkable to see the use of artificial intelligence and deep learning in the current state-of-the-art models. Researchers from LCS2 Lab, IIIT Delhi have used advanced deep learning methods including transformer-based models to build quality counseling summaries.

Aseem Srivastava and **Yash Kumar Atri**, **Ph.D. Students – IIIT Delhi,** under the guidance of **Dr. Tanmoy Chakraborty** have been working on this project and developed this model which helps therapists directly in the counseling sessions.

The comparative study shows that ConSum Model improves performance and generates cohesive, semantic, and coherent summaries. It comprehensively analyzes the generated summaries to investigate the capturing of psychotherapy elements (aka counseling components). Human and clinical evaluations of the summary show that ConSum generates quality summaries.

CONSUM UNDERGOES THREE INDEPENDENT MODULES:

1.To assess the presence of depressive symptoms, it filters utterances utilizing the Patient Health Questionnaire (PHQ-9).

2.Classification of essential counseling components that play a major role in summary generation.

3.Propose a problem-specific Mental Health Information Capture (MHIC) evaluation metric for counseling summaries.

Mental health experts from Mpathic.ai validate the clinical acceptability of the ConSum summarization model. The ConSum application has been approved to be commercialized for therapists and other mental health experts worldwide. The first version of the application will be rolled out soon.

-Blog by Swati Mangla, Executive Assistant,
iHub Anubhuti-IIITD Foundation

ScaleX Cohort

A Call for Startup

We have received 12 applications for the ScaleX Cohort program. After the intial screening process only 7 applications were selected for the second round. Above these 7 startups , two are from education verticle, two are from sustainability domain and one is from healthcare domain. The second round of interview process was held on 3rd June 2022 to decide the quantum of funds to be invested as seed fund.

The committee members for the second interview were Dr. Tanmoy Chakraborty, Director, iHub Anubhuti – IIITD Foundation, Dr. Debajyoti Bera, Associate Proffessor, CSE-IIITD and Mr. Naresh Priyadarshi, CEO, IIITD Innovation & Incubation Center.

Out of these 7 applications, 3 applications were selected for the final round of interview. These 3 startups were evaluated as per the eligibility, theme, and terms of the program. Also, evaluated based on their business model, scalability, product and services provided, and their target market and competitors. For the final discussion we invited them for another round of interview on 16th June, 2022.

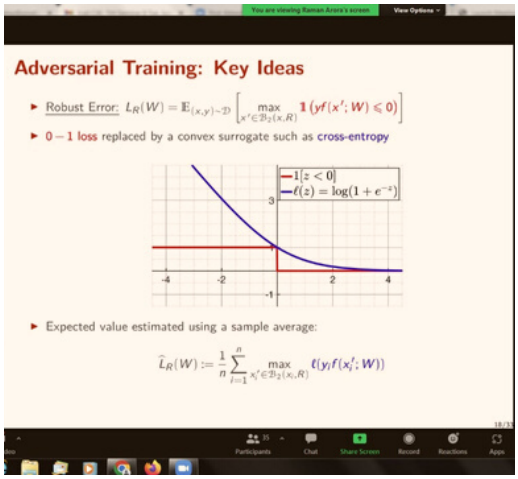
The committee members for the inal interview were Dr. Vikram Goyal, Director, iHub Anubhuti – IIITD Foundation, Dr. Pushpendra Singh - Director, iHub Anubhuti – IIITD Foundation, Dr. Tanmoy Chakraborty, Director, iHub Anubhuti – IIITD Foundation, Mr. Naresh Priyadarshi, CEO, IIITD Innovation & Incubation Center and Mr. Kapil Dev Garg, Finance Manager, IIITD.

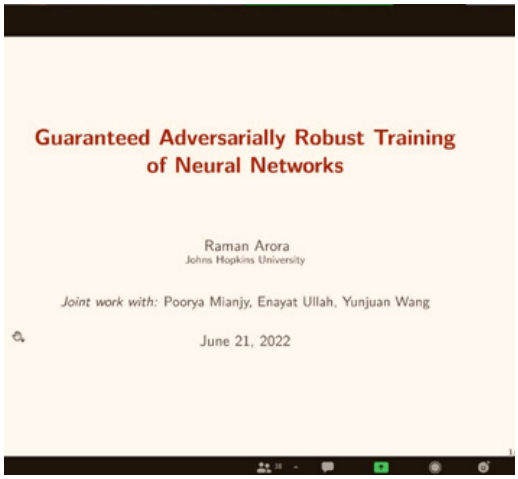
Webinar on Guaranteed Adversially Robust Training of Neural Networks

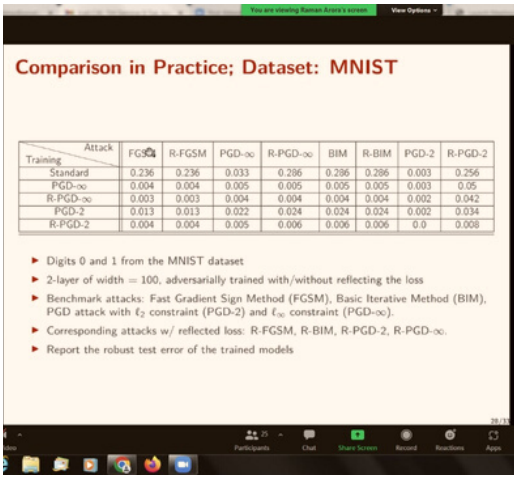
Raman Arora is an assistant professor in the Department of Computer Science at Johns Hopkins University where he is also affiliated with the Mathematical Institute for Data Science(MINDS), the Center for Language and Speech Processing(CLSP), and the Institute for Data-Intensive Engineering and Science(IDIES).

Raman's research interests are in Machine Learning, online learning, robustness and privacy. He received an NSF CAREER award in 2019.

On 21st of June 2022, iHub Anubhuti-IIITD Foundation and Infosys Centre for Artificial Intelligence IIITD (CAI) had jointly organized a webinar under the name "Guaranteed Adversially Robust Training of Neural Networks". The Webinar has been hosted by Dr. Tanmoy Chakraborty, Associate Professor – IIITD.







Training \ Attack	FGSM	R-FGSM	PGD-∞	R-PGD-∞	BIM	R-BIM	PGD-2	R-PGD-2
Standard	0.236	0.236	0.033	0.286	0.286	0.286	0.003	0.256
PGD-∞	0.004	0.004	0.005	0.005	0.005	0.005	0.003	0.05
R-PGD-∞	0.003	0.003	0.004	0.004	0.004	0.004	0.002	0.042
PGD-2	0.013	0.013	0.022	0.024	0.024	0.024	0.002	0.034
R-PGD-2	0.004	0.004	0.005	0.006	0.006	0.006	0.0	0.008

Newsletter Editorial Team

Souravi Halder, Web Manager, iHub Anubhuti-IIITD Foundation
Swati Mangla, Executive Assistant, iHub Anubhuti-IIITD Foundation

CONTACT US

info@ihub-anubhuti-iiitd.org

@AnubhutiIhub

@ihubanubhuti.iiitd

@iHubanubhuti

@ihub_anubhuti_iiitd

@iHubanubhuti

5th floor, Old Academic Building, IIITD, GB Pant Polytechnic Extension,
Okhla Phase-III, Delhi 110020, Ph: 011-26907335