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## 2 INTRODUCTION:

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In today's world the impending question of whether we will be able to enable creative thinking in computers is perhaps the most interesting. However, what we have seemingly left behind is the ability of computers to aid human well-being seems to be lagging. Although we have attempted to mimic the mind, we have missed out on developing ways for computers to help us to aid mental illness.

In an attempt to do so we have undertaken this endeavor to develop a system that is capable of performing well-defined question-based psychoanalysis and as an output generate a map of the mind that demonstrates the magnitude of functioning of the different brain parts. We have implemented this functioning using Text-to-speech algorithms, natural language processing using BERT Neural Network to perform Sentiment Analysis, the sentiment analysis performed for patient responses for various questions that are weighted, their weight depending on the theoretical normal functioning of a healthy brain.

Over the course of this project, we were also required to map Freud's 3 mental components of a personality the Id, Ego and Superego to physical parts of the brain. Therefore, our endeavor we have also made a bet on the relevance of Freud's psychoanalysis as a potent mechanism that can contribute for brain mapping in computer-based psychotherapy.

This system automates a small part of the larger practice of Psychotherapy. The presence of Psychoanalytical techniques in the modern psychotherapy represents an opportunity to automate this process as it is mostly question and answer as well as, sentiment based.

### 3 LITERATURE REVIEW:

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- **BERT NEURAL NETWORK:** BERT is a pre-trained neural network that produces word embeddings used as features in NLP models. It is based on the Transformer architecture and is capable of generating high-quality representations of text.
- **PSYCHOANALYSIS IN MODERN PSYCHOTHERAPY:** Psychoanalysis was developed in the late nineteenth century as a theory and form of therapy. It suggests that unconscious conflicts form the root of psychological issues and that symptoms can be reduced by bringing these conflicts into conscious awareness. Contemporary psychoanalytic theory considers the social factors that contribute to ego health, giving counselors a foundation for understanding human development.
- **MAP OF ID, EGO, AND SUPEREGO ON THE PHYSICAL BRAIN:** Freud's psychoanalytic theory suggests that the id is the primitive and instinctual part of the mind that contains sexual and aggressive drives and hidden memories, the superego operates as a moral conscience, and the ego is the realistic part that mediates between the desires of the id and the superego. Although each part of the personality comprises unique features, they interact to form a whole, and each part makes a relative contribution to an individual's behavior.

#### 4 PROBLEM STATEMENT:

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The use of computers in modern psychoanalysis is limited, and there is a need to develop a system that can provide completely bias-free psychoanalysis.

The current psychoanalytic methods are subjective and rely on the therapist's interpretation of the patient's responses.

The use of computers can provide an objective analysis of the patient's responses, eliminating the therapist's bias. The lack of computerized psychoanalysis is a missed opportunity to aid mental illness and improve human well-being. The integration of psychoanalysis and computer science can provide a new alliance that can lead to more rigorous and quantifiable theories

- The use of computerized measurement tools can collect characteristics of different psychiatric disorders, providing an objective analysis of the patient's responses
- . The development of a system that can provide completely bias-free psychoanalysis can facilitate a reflection on the psychological effects related to digital methods
- . Psychoanalysis has always had the potential to be irrigated by the life sciences and the social sciences. The use of computers can provide a new intellectual framework for psychiatry that can lead to a better understanding of unconscious mental processes, psychic determinism, and infantile sexuality.

Keeping in mind the above areas of lacking development in the field if computers in psychotherapy, we can, in essence, fill a small void of the larger void that is complete computerization of psychotherapy. We can also finally, with the help psychoanalytical theory and vast data relating to psychoanalysis give a system that depicts brain activity through psychoanalysis.

## 5 FOLLOWING ARE THE REFERENCES FOR THE ABOVE TEXT:

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### 5.1 LITERATURE REVIEW

- Stress & Emotional Recognition Using Sentiment Analysis with Brain Signal (2022)

By- Ashvini A Bamanikar, Ritesh V Patil, Lalit V Patil

Publisher: IEEE

- Psychoanalysis and its Critics (2007)

By- Morris N. Eagle, PhD

Published by: American Psychological Association

- Freud's Theory of Personality: Id, Ego, And Superego

By- Saul Mcleod, PhD

Published by: Journal of clinical psychology

- BERT language model

By- Ben Lutkevich

[https://www.techtarget.com/searchenterpriseai/definition/BERT-language-](https://www.techtarget.com/searchenterpriseai/definition/BERT-language-model#:~:text=BERT%2C%20which%20stands%20for%20Bidirectional,calculated%20based%20upon%20their%20connection.)

[model#:~:text=BERT%2C%20which%20stands%20for%20Bidirectional,calculated%20based%20upon%20their%20connection.](https://www.techtarget.com/searchenterpriseai/definition/BERT-language-model#:~:text=BERT%2C%20which%20stands%20for%20Bidirectional,calculated%20based%20upon%20their%20connection.)

- <https://www.goodtherapy.org/learn-about-therapy/types/psychoanalysis>

## 5.2 PROBLEM STATEMENT

- Biology and the Future of Psychoanalysis: A New Intellectual Framework for Psychiatry Revisited  
By- Eric R. Kandel, M.D.  
Published by- The American journal of psychiatry
- Artificial Intelligence and Psychoanalysis: A New Alliance  
By- Sherry Turkle, Associate Professor of psychology, MIT  
Published by- The MIT Press on behalf of American Academy of Art & Sciences
- The Digital Phenotyping Project: A Psychoanalytical and Network Theory Perspective  
By- Remy Potier  
Published By- National Library of Medicine