Mental Health

Intelligent Mental Health

Intelligent Mental Health Chatbot

based on Integrated LLM

Intelligent Mental Health

Chatbot

Summary

Mental Health

01. Industry Background

Mental health bot eases the imbalance between supply and demand in the mental health services market

02. Market Pain Points

- Limited efficiency of psychotherapist services
- High cost of psychotherapist services
- Existing bots cannot provide flexible mental health services

03. Core Technologies

Based on an integrated large model

Using a professional mental health knowledge base for training

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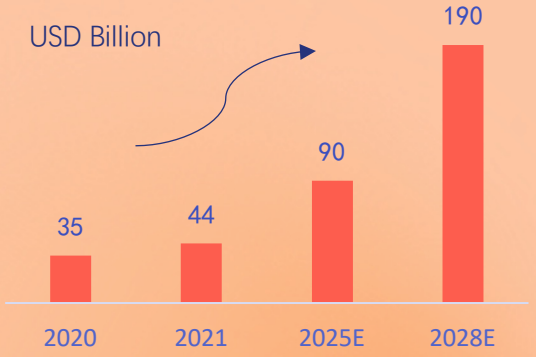
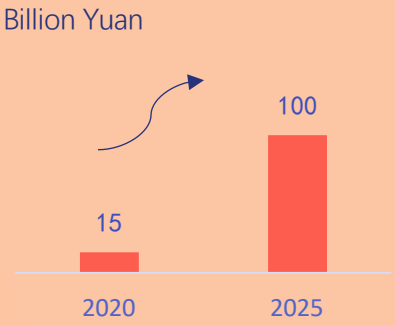
Industry Background:

Double-driven by policy and demand

Digital Health Empowering Mental Health



Global Digital Therapy Market Size Forecast



China digital therapy market size forecast

Policy

Digital forms of mental health include, but are not limited to, "online health care, guided therapy apps, virtual assistants and chatbots, and gamified therapy".

Data Source： Insight Partners， EVERSANA，艾瑞咨询

2020

- 国家医保局、国家卫健委联合印发《关于加强和完善精神专科医疗服务的意见》

2021

- 工业和信息化部、国家卫健委联合引发《关于公布5G+医疗健康应用试点项目的通知》

2022

- 两会《青少年心理健康教育专项方案》

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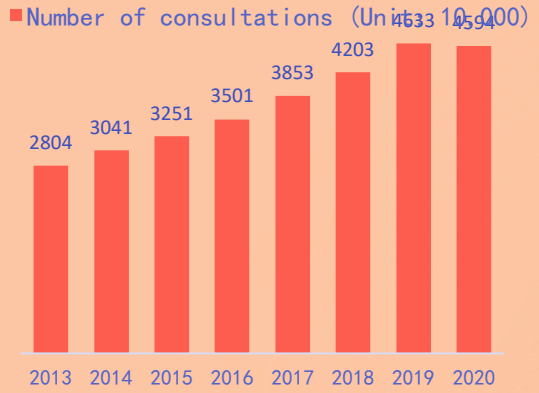
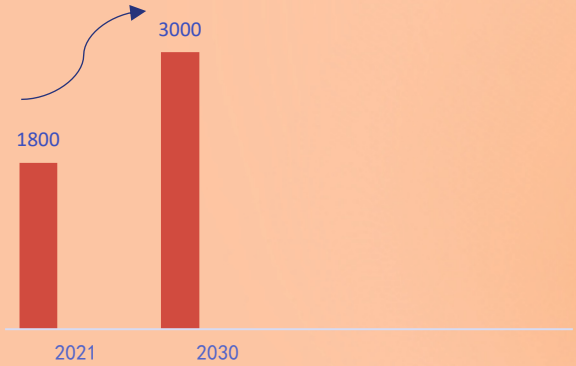


Number of people treated for psychological disorders in Chinese hospitals, 2013-2020



China mental health services market size forecast

Data Source： Insight Partners， EVERSANA，艾瑞咨询

Imbalance between supply and demand

Less than 10% of patients with psychological and psychiatric disorders seek medical care

Demand

- **Rapid growth in market size**
- **Large base of patients with psychological disorders**

Supply

- **Slow growth in market size**
- **Long training period for professional level psychotherapists and limited in number**
- **Limited efficiency of psychotherapist services**

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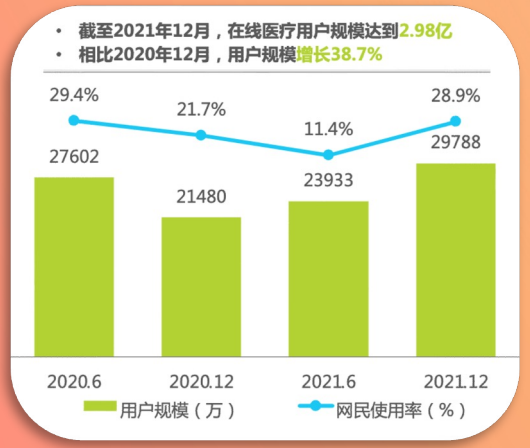
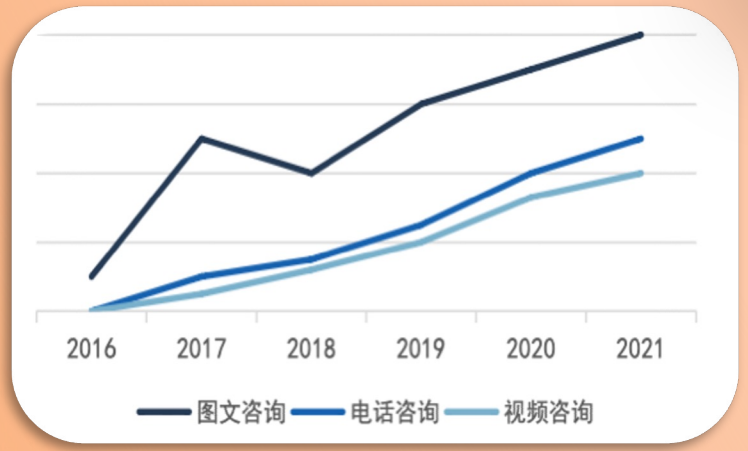
Change of Service Mode



The epidemic accelerates the digitalization process



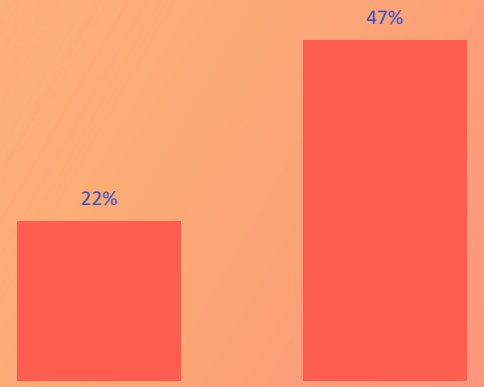
Online medical health recognition continues to rise, the user scale continues to increase

In the post-epidemic era, mental health services are gradually migrating to Internet platforms

- When told that the consultant was an AI, the client still had a good consultation experience.
- There was no significant difference in the fluency and depth of the counseling experienced by the clients compared to the counselors.
- There was no difference in the frequency of use of various vocabularies and no significant difference in the depth of consultation between the bot and the human consultant.

47% *express interest in using chatbots when needed*

22% *of adults have used a mental health chatbot*



Woebot Health
2021 Chatbot Usage Intentions Survey

Mental Health Chatbot

Mental Health & AI

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The value point of combining AI and Mental Health

Psychological issues have a strong mapping in language

Mental state information obtained through algorithmic analysis of linguistic data has strong validity,2017 article published in NATURE： Characterization of mental health conditions in social media using Informed Deep Learning.

Reduce the cost of psychotherapist services

AI-powered chatbots can act as guides in psychotherapy, assisting or even replacing therapists to some extent

Robots have their inhuman advantages

- WHO report shows that 2/3 of people do not seek help from counselors because it is difficult to talk about it
- Mental Health bot can help users at any time and place

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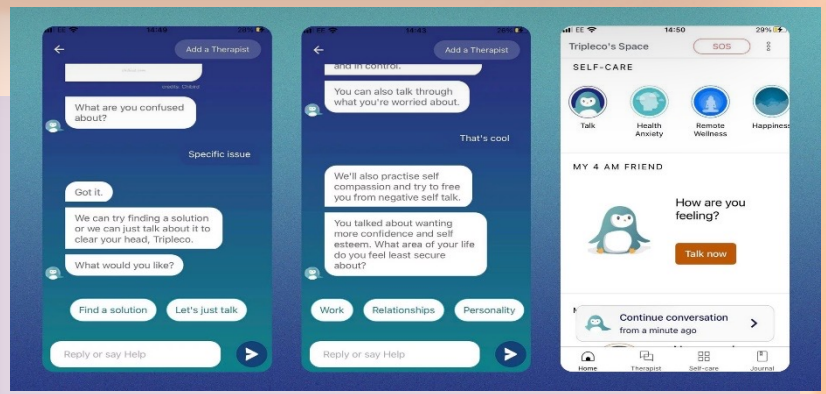
Light Consultation



- Provide comfort and advice to individual with some psychological distress including depression, anxiety and other emotional troubles.
- For all kinds of people with psychological distress combined with other functions within the platform to solve simple emotional problems, such as scale testing, analysis, etc.

- Combine a large amount of medical expertise to build a knowledge graph and use the reasoning power of large models
- It can assist psychiatrists in patient assessment, routine testing, medication decisions, or replace therapists to provide partial treatment plans.

Professional Platform

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Specific Cases

- Based on the NLP model, other technologies can be integrated to expand the application of the product in industrial scenarios.
- For example, the model can be integrated with facial emotion analysis technology, combining the model's psychological knowledge to analyze the owner's emotion and give appropriate reminders.

- Some groups are at high risk of mental illness, such as students and the elderly, and specialized knowledge bases can be constructed for different scenarios.
- For example, we can provide psychological assistance for campus, elderly institutions, and corporate employees.

Industrial Scenes

Chatbot

Competitor Analysis

wysa

聆心智能

Woebot® Health

Emotional analysis is rough

Chatbots lack the ability to empathize with the emotions and often fail to understand the derived meaning of the user's speech, resulting in less accurate psychological crisis intervention.

Inability to provide individualized healing programs

- There are many pan-psychology products on the market
- Personalized healing solutions rely on the services of real counselors in the platform

Limited comprehension of text content

The effectiveness of mental health services is limited by the inability to dissect the external causes of mood changes and thus dismantle the underlying logic of emotions.

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Other Products

- Single interactive scene
- Poor comprehension of text content, single response pattern
- Weak ability to deal with various problems based on a single model
- Simply remaining silent or giving inappropriate answers when confronted with offensive, sensitive questions

Ours

- Rich Chatbot scene design and interaction methods are available for different application scenarios
- Based on integrated large language model, model has good comprehension of text, and rich and accurate answers
- Self-developed integrated modeling framework for better performance on various issues, while improving system stability
- Ability to respond appropriately to aggressive or sensitive issues based on a professional toxicity handling framework

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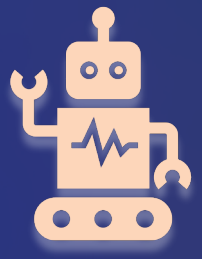
Tech Overview



Intelligent chatbots based on integrated LLM

- Integrate multiple models to adapt to multiple scenarios and have more stable performance
- Professional in mental health

- Text input detection to respond appropriately to offensive or politically sensitive questions
- Data pre-processing and desensitization of data

Toxicity detection & privacy security system

Communication & Expandable Scenes

- TTS Techniques and localized design, will support Cantonese Q&A with a natural tone of voice
- 3D scene construction with high scalability in facial expressions, voice, and movement

- Apply prompt learning with professional data to make the answers more accurate
- Build professional psychological knowledge base to train the model with expertise

Rich Prompt and psychological Q&A corpus

Tech Overview

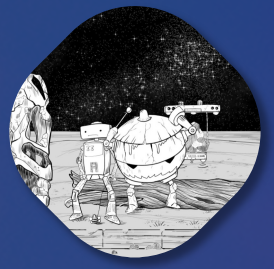
Our Team

Karl

A senior data scientist and a veteran in Web3 and AI

A computer scientist from a top university in China majoring in AI

Sanda



Long

An expert in Unity 3D, algorithms engineering and data science

A passionate algorithm engineer with a focus on NLP

Michael

Our Team

Our Team

Ronald

A senior NLP experts with platform design and translation

An investment advisor and business developer

Cecilia

Eric

An enthusiastic AI believer with rich experience in PR and BD

A skillful student in speech algorithms, digital human and deep learning

Star

Our Team

Welcome future members!

TEAM Adviser

Wang Yang

Mathematician; Vice President of the Hong Kong University of Science and Technology; Professor of the Department of Mathematics; Director of the Big Data BioIntelligence Laboratory of HKUST; Deputy Director of the Institute of Big Data of HKUST.

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Intelligent psychology

Thank you

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