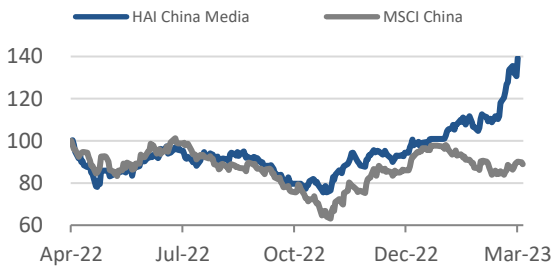


中国媒体 China Media

ChatGPT 技术原理解读 Interpretation of ChatGPT's Technical Principles

观点聚焦 Investment Focus

股票名称	评级	股票名称	评级
分众传媒	Outperform	天下秀	Outperform
昆仑万维	Outperform	三人行	Outperform
三七互娱	Outperform	华策影视	Outperform
世纪华通	Outperform	遥望科技	Outperform
芒果超媒	Outperform	中文在线	Outperform
吉比特	Outperform	皖新传媒	Outperform
完美世界	Outperform	云音乐	Outperform
万达电影	Outperform	掌趣科技	Outperform
光线传媒	Outperform	姚记科技	Outperform
中国电影	Outperform	梦网科技	Outperform
蓝色光标	Outperform	顺网科技	Outperform
中南传媒	Outperform	掌阅科技	Outperform
中文传媒	Outperform	新媒股份	Outperform
捷成股份	Outperform	视觉中国	Outperform
浙数文化	Outperform	数码视讯	Outperform
		风语筑	Outperform



资料来源: Factset, HTI

Related Reports

4月月报: 应用端 AI+相关行业仍有持续修复估值空间, 年报季报因素需加大考量 (April Monthly Report: Application AI + Related Industries Still Have Room to Recover in Valuation, Catalysts from Annual and Quarterly Report Need More Consideration) (3 Apr 2023)

AI 应用的星辰大海 (The Promising Future of AI Application) (3 Apr 2023)

Presentation: 游戏行业专题报告: 迎接需求共振 (Game Industry Special Report: Meet the Boost in both Supply and Demand) (27 Mar 2023)

(Please see APPENDIX 1 for English summary)

2017 年, AlphaGo 在围棋比赛中完胜世界冠军柯洁; 2022 年, OpenAI 旗下的 ChatGPT 横空出世。我们认为, 这种类似人类的思辨能力, 展现了里程碑式的技术变迁, 使人们用“创造”而非“计算”去重新理解人工智能。或许, 这就是比尔·盖茨认为: ChatGPT 出现的意义不亚于互联网和个人电脑诞生的原因。

ChatGPT 是建立在 GPT 架构之上的 AI 智能聊天机器人。GPT 的全称是 Generative Pre-Trained Transformer, 生成式预训练变换模型。

G 是 Generative, 指生成式, 作用在于生成内容。不同于搜索引擎, 它通过“单字接龙”生成全新的文本, 而非仅匹配数据库现有内容, 根据任意长度的上文, 生成下一个字, 再把自己生成的下一个字和之前的上文组合成新的上文, 以此不断的循环从词到句到段落。比如输入为“今”, 生成“今天”后再生成“今天天”, 一直到“今天天气真好”。它也可能输出“今天天气真差”, 这取决于背后的模型, 会根据训练经验和上下文生成最符合语言规律和意义的內容, 答案可能不同。

GPT 中, “P”是 Pre-Trained, 指预训练, 代表模型已经在某些有限的材料中进行相关的训练。那么, 它如何进行的呢? 主要依靠两个数据集和三个模型来进行训练优化。具体 3 步骤如下: 一、标签化数据输入并有监督的进行训练: 人工标注对话数据集, 然后利用强监督学习来训练预训练模型。二、训练奖励阶段。对几个输出回答, 通过评分机制来标注排序数据集, 形成 Reward Model。三、通过强化学习 PPO 算法强化前两部模型结果。

T, Transformer 是底层的深度学习模型, 我们可以类比于一个聪明的语言机器人接收到用户输入的文本后, 基于学习到的知识和经验, 在接收文本输入后自动理解用户意图并生成回答。

ChatGPT 采用语言大模型, 在一个个微小的训练、迭代下, 不断学习与人类交互。GPT4 于 2023 年 3 月发布, 其参数量预计已达万亿。生成式 AI 能一定程度上模拟人类的创造力和想象力, 这还是基于世界范围内较大的知识库之上的。可以说, ChatGPT 叩响人工智能的关键奇点, 这也使它在 2022 年 11 月推出仅仅两个月, 就达到月活过亿。根据华尔街见闻援引 Sensor Tower 数据, Tik Tok 在全球推出后用约 9 个月时间达到 1 亿用户, Instagram 用了 30 个月才达到同样的基准。ChatGPT 的开发者 OpenAI, 始建于 2015 年, 成为行业先行者; 国内百度也在 2023 年 3 月推出大语言模型产品—“文心一言”。

风险提示: 国内大模型开发进度不及预期。

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APPENDIX 1

Summary

- In 2017, AlphaGo defeated Jie Ke, the world champion, in a weiqi chess contest; and in 2022, OpenAI launched ChatGPT. We believe that its human-like analytical ability demonstrates a milestone of technological revolution that makes people re-understand AI in terms of "creation" rather than "computation".
- ChatGPT is a smart AI chatbot built based on the GPT network, which stands for Generative Pre-Trained Transformer.
- G stands for Generative, the content generation function. Unlike search engines, it generates new text by "single-character-based sequence build-up" rather than merely matching existing content in databases.
- P refers to Pre-Trained, which means that the model has been trained with certain materials, mainly trained and optimized through two datasets and three models.
- T stands for Transformer, the underlying deep learning model, which is similar to a smart language bot that receives text input by users and then automatically understands users' intentions and generates answers based on its learnt knowledge and experience.
- ChatGPT adopts a large language model and continuously learn to interact with human through lots of minor training and iteration. GPT-4 was launched in March 2023, and its number of parameters is estimated to reach a trillion. Generative AI can simulate human's creativity and imagination to some extent based on worldwide large knowledge bases. ChatGPT marked the key singularity of AI, which enabled it to acquire more than 100mn monthly active users only two months after its launch in November 2022. OpenAI, the developer of ChatGPT, was founded in 2015, and has become an industry pioneer; and in China, Baidu launched its large language model product "ERNIE Bot" as well in March 2023.
- Risks: Slower-than-expected progress of domestic large-scale model development.

附录 APPENDIX

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中性, 未来 12-18 个月内预期相对基准指数变化不大, 基准定义如下。根据 FINRA/NYSE 的评级分布规则, 我们会将中性评级划入持有这一类别。

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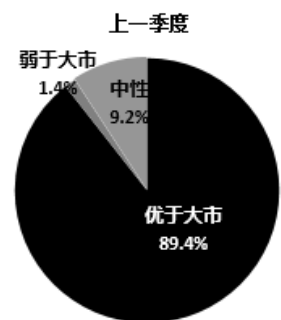
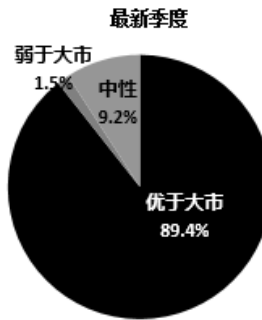
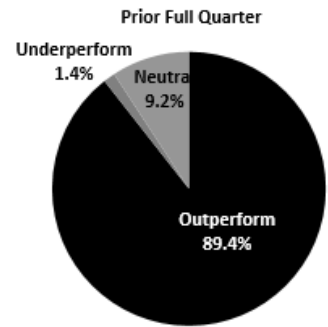
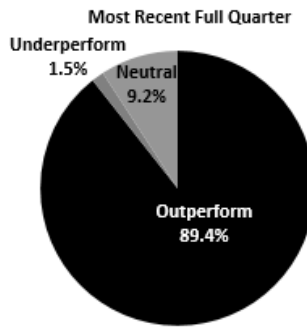
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*在每个评级类别里投资银行客户所占的百分比。

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*Percentage of investment banking clients in each rating category.

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