NIM **Nuremberg Institute for Market Decisions**

Research Spotlight

TRUST: HOW DOES EYE CONTACT INFLUENCE THE RELATIONSHIP BETWEEN HUMANS AND ROBOTS IN PURCHASE DECISIONS?

Eye contact is one of the most powerful ways to connect with people, whether it's on a first date, with an old friend, or with a potential client. It does not only signals attention, but also creates trust, which mitigates perceived risks and can speed up decision-making. But what happens when we interact with artificial intelligence? Are robots and other intelligent agents able to gain human trust and influence human decisions through eye contact?

As more an more consumers are interacting with artifcial service agents, this question is crucial for future customer interactions in many industries. The financial industry is a pioneer, because so-called robo-advisors have established themselves as a new tool for digital wealth management. Using artificial intelligence in the form of virtual agents and humanoid robots as financial advisors instead of the purely text-based interfaces, which currently dominate the market, has the potential to change the quality of interaction with customers and their purchasing decisions.

It is important to know how the increasingly anthropomorphic appearance and behavior of intelligent agents impacts consumer's trust and purchase decisions - both for providers and consumers and last but not least for us as a society.

Research on robots and recommendation agents shows that higher levels of anthropomorphism are more likely to lead to greater trust and intent to use. However, there are also contradicting research results and the interaction of all influencing factors has not yet been fully researched.

EFFECTS OF HUMAN-LIKE APPEARANCE AND BEHAVIOR

This project aims to shed light on the research question of how human-like appearance and behavior of a robotic advisors affect trust and investment decisions of consumers.

The project team focuses primarily on eye contact as the most important non-verbal signal of social interaction between people. For this purpose, an online experiment was carried out in which subjects were invited to imagine an investment scenario. They joined a virtual consultation with a financial advisor, who made an investment proposal. The subjects were then asked to decide on the amount of their investment and to choose their preferred type of asset management (human or machine). In order to make the incentive as realistic as possible, the selected investment was simulated and the paid out - converted into a participation fee.

CONSULTATION WITH PROFESSIONAL ACTRESS AND SOCIAL ROBOT FURHAT

Since the US is the most advanced in this field, the experiment was conducted online with around 4,500 people from the US who were randomly assigned to one of nine experimental groups. The groups met with virtual advisors with different behavior (with or without eye contact) and different appearance (human, filmed physical robot, virtual robot with human-like face, virtual robot with plastic face, or text-based website).

How crucial is a human-like appearance in counseling?

The consultations were conducted with a professional actress and the fully programmable social robot Furhat. Typical speaking segments of a financial consultation of both were filmed and then combined into a seamless virtual consultation dialogue. In the questionnaire, the participants provided information on their perception of the financial advice, their own reactions and decisions, and their technical, financial and socio-demographic background.

KEY FINDINGS

→ Human-like appearance of the consultant is crucial for consumer trust and decision satisfaction.

→ Virtual social robots are considered more trustworthy than robo-advisors based on purely text-based websites. Eye contact matters - even with robots. Developers of human-robot interactions, should care for eye contact with consumers.

→ Consumers should be aware that advice from a more human-like artificial intelligence can also lead to a greater willingness to follow its recommendations.

HUMAN-LIKE APPEARANCE MAKES THE DIFFERENCE

The results show: the human-like appearance of the consultant is crucial. People trusted human advisors more than robotic ones, but robotic advisors had several advantages compared to the text-based website: Participants who consulted with robotic advisors were more likely to be satisfied with their decision and the overall service, found the recommendation more relevant, and had a higher chance of choosing machine-managed assets.

It also becomes clear that eye contact with robots has a smaller but similar effect as eye contact with a human advisor - but is essential for trust and satisfaction. The participants who had eye contact with a robot advisor rated the advisor more competent, felt more trust in the advisor, liked the advisor more, were happier overall and showed a higher willingness to recommend the advisor than the participants who did not make eye contact with a robot advisor. The differences are not huge, but they are significant and should not be ignored. The good news for consumers: Eye contact alone does not directly lead to higher investments. There is only a weak indirect connection as eye contact increases trust and greater trust goes hand in hand with increased risk affinity and higher investments.
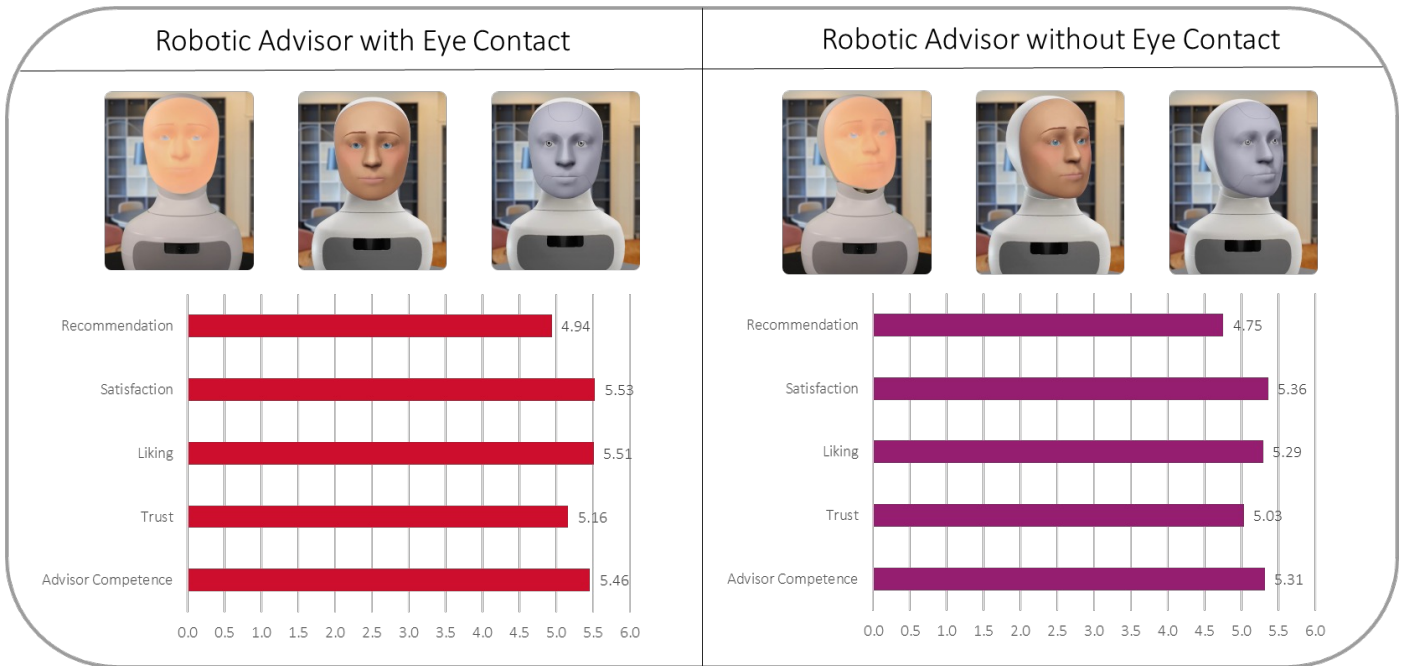
Providers, also in other industries, have the chance to use the new technology to increase the perceived quality of their advice and their touchpoints with their consumers - compared to text-based agents. Consumers should be aware that they tend to be more responsive to anthropomorphic artificial intelligence - and possibly more willing to follow advice - and take this into account when making decisions. And for a fact-based and constructive socio-political discourse on the future role of artificial intelligence, it is important to know the possibilities and limits of supporting and manipulating human consumer decisions.■

Robotic Advisor with Eye Contact	Robotic Advisor without Eye Contact
Recommendation 4.94	Recommendation 4.75
Satisfaction 5.53	Satisfaction 5.36
Liking 5.51	Liking 5.29
Trust 5.16	Trust 5.03
Advisor Competence 5.46	Advisor Competence 5.31

Evaluation on a 7 Point Likert Scale, * p<.1, ** p<.05, *** p<.01, **** p<.001

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MORE ON THE SUBJECT

Project Video