

Human-AI Collaboration in Surgery Planning: The Role of Contextual Information

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Andreas Fügener (University of Cologne)

Sebastian Schiffels (TU Munich / Lancaster University)

(Please contact the authors for more information)

Abstract: We study the effect of AI-advice on human decision-making in surgery planning. More precisely, we consider a judge-advisor system where the AI is the advisor providing surgery duration predictions. The physician is the judge making the final prediction after receiving advice. The general advice-taking literature states that, while advice increases the overall accuracy, humans often fail to use the received advice efficiently. Instead, they place too much weight on their own estimations. One explanation that is recently discussed in the medical context is the lack of information about the AI algorithm. Contextual information can help a physician to evaluate which information is included in the AI prediction, and which information needs to be additionally considered in making the final prediction. In this work, we address the question of whether the use of contextual information with AI advice improves human decision making in surgery prediction. We consider three treatments: Without Advice, With Advice, and With Advice and contextual information and in the next step we are going to test these treatments in a German university hospital.