Let's play games: Using no-code AI to reduce human cognitive load during AI solution development

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Abstract. Understanding and developing cutting-edge technologies like artificial intelligence are widely seen as complex tasks and significantly strain human cognitive capacity. Cognitive fit theory is an established theory that proposes that task completion performance is enhanced when there is a congruent relationship between the problem statement and task execution. Despite efforts to simplify the tasks, the tasks may still pose a challenge when it comes to understanding and execution. This paper argues that artificial intelligence, particularly no-code artificial intelligence, can reduce human cognitive burden. The paper aims to illustrate how an artificial intelligence artefact can be used to assist humans in transforming a task with a high human cognitive load into a task with a low human cognitive load. A simple game of Tic-Tac-Toe was developed, which is easy to play and comprehend, therefore representing a low human cognitive load. This was followed by an isomorph Scrabble card game, which is more challenging to play, introducing a higher human cognitive load. Winning the latter served as the problem representation in this paper. Two design science research cycles were used during solution development. During the first cycle, an artificial intelligence agent was developed to play and win both games on behalf of the human. The coding required to develop the agent, however, introduced a high human cognitive load. Subsequently, in the second design cycle, an artificial intelligence agent that could win both games was developed using the no-code artificial intelligence platform DataRobot. Overall, this resulted in a low cognitive load in both solving the problem (winning the Scrabble card game) and developing the problem solution (artificial intelligence agent). On a theoretical level, this research contributes to information systems research by demonstrating the value of cognitive fit theory in the context of developing artificial intelligence solutions.