Chess Automation for Accessibility

(Technical Report)

Female Gamers and Their Struggles with Online Gaming

(STS Research Paper)

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by

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Preface

Competition can stimulate improvement. However, in competitive games, worthy players may be excluded for reasons of disability or bias. Sociotechnical innovation can overcome such exclusions.

How can we make chess more accessible to people with disabilities? Some physical disabilities can complicate or preclude playing over-the-board chess. An automated chess board was created to overcome this barrier. A Core-XY gantry system was used with an electromagnet payload. On top of the gantry sits a chess board with magnetic chess pieces, such that the gantry can move any chess piece to any location on the chess board automatically. The system is run on a RaspberryPi with a mounted PCB that plugs into a wall outlet. Using a camera and computer vision, the system can now reset pieces to their origin. Following small software tweaks, it could play full chess games automatically.

In the U.S., how do women gamers, their allies, and their antagonists compete to influence the online gaming climate for women? Online hostility to women gamers, reflecting implicit and explicit bias, is endemic; content moderation is only partially effective. Women gamers and their allies strive to reduce the significance of gender on gamers' reputations. They resist stereotypes, promote mixed-gender competition, and seek to shift the balance of power in favor of women gamers.