Thesis Project Portfolio

Autonomous Foosball Opponent

(Technical Report)

(Im)personally Curated: How Spotify's Music Recommendation Algorithms Shape Users and What They Listen To

(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

Entertainment is an essential part of humanity. Art, music, and technology are some of the many ways people find entertainment and identify their values and culture. Due to the technological society we live in, various forms of entertainment technology have been developed and have far reaching global impact. Research has shown these positive impacts on health, education, and quality of life. There is also significant research into the negative effects of current entertainment technology which demand questions of how we might alter them for greater social benefit.

For my technical topic, our team is building a robotic foosball table as a form of entertainment technology that interacts with the physical world. The system we are creating will play one team of a miniature foosball table so that a user can play against it. This involves five main subsystems: a camera to sense the ball, software to determine the ball's position, a microcontroller to interface with the hardware, a printed circuit board to control the motors, and a mechanical system to move the rods. By creating this system, users will be able to practice foosball skills and enjoy the game without needing others to play.

While entertainment technologies like our robotic foosball table may have positive effects, it is also essential to consider the human and social dimensions of their usage because of the ways they shape what we consume. My STS research looks specifically at the music streaming platform Spotify and how its algorithms shape users and what they listen to. I use literature review and observation of the platform to gather data about how Spotify does this. The data is interpreted through Actor-Network Theory because it serves as a helpful framework for seeing technology's relation to human actors. Through this research I find that Spotify's algorithms influence users to see themselves as happy, individualist, and entrepreneurial consumers and that the algorithms maintain a superstar economy of music that hasn't increased diverse listening. Both the creation of the robotic foosball table and the analysis of the social impact of Spotify's algorithms show the importance of being mindful consumers of entertainment technology.