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SMILE: A Verbal and Graphical User Interface Tool for Speech Control of Soccer Robots in Ghana

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SMILE (Smartphone Intuitive Likeness and Engagement) application, a portable Android application that allows a human to control a robot using speech input. SMILE is a novel open source and platform independent tool that will contribute to the robot soccer research by allowing robot handlers to verbally command robots. The application resides on a smartphone embedded in the face of a humanoid robot, using a speech recognition engine to analyze user speech input while using facial expressions and speech generation to express comprehension feedback to the user. With the introduction of intuitive human robot interaction into the arena of robot soccer, we discuss a couple specific scenarios in which SMILE could improve both the pace of the game and autonomous appearance of the robots. The ability of humans to communicate verbally is essential for any cooperative task, especially fast paced sports. In the game of soccer, players must speak with coaches, referees, and other players on either team. Therefore, if humanoids are expected to compete on the same playing field as elite soccer players in the near future, then we must expect them to be treated like humans, which includes the ability to listen and converse. SMILE is the first platform independent smartphone based tool to equip robots with these capabilities. Currently, humanoid soccer research is heavily focused on walking dynamics, computer vision, and intelligent systems; however human-robot interaction (HRI) is overlooked. We delved into this area of robot soccer by implementing SMILE, an Android application that sends data packets to the robot's onboard computer upon verbal interaction with a user.

Biography

Patrick Fiati is a Professor (Assistant) at Cape Coast Technical University, Ghana. His research interests are Telecommunications, Robotics, AI, Computer Applications, Computer Operating Systems.

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