

Live programming in practice: A controlled experiment on state machines for robotic behaviors

Campusano, Miguel

Fabry, Johan

Bergel, Alexandre

© 2018 Context: Live programming environments are gaining momentum across multiple programming languages. A tenet of live programming is a development feedback cycle, resulting in faster development practices. Although practitioners of live programming consider it a positive inclusion in their workflow, no in-depth investigations have yet been conducted on its benefits in a realistic scenario, nor using complex API. Objective: This paper carefully studies the advantage of using live programming in defining nested state machines for robot behaviors. We analyzed two important aspects of developing robotic behaviors using these machines: program comprehension and program writing. We analyzed both development practices in terms of speed and accuracy. Method: We conducted two controlled experiments, one for program comprehension and another for program writing. We measured the speed and accuracy of randomized assigned participants on completing programming tasks, against a baseline. Results