

Abstract

Software developers typically work with source code using a keyboard and mouse within a development environment, with the code displayed on a small number of 2D monitors. This traditional approach ignores the possibilities offered by emerging technologies for virtual or augmented reality. We believe that appropriately migrating individual functionalities of the development environment into the world of virtual or augmented reality will increase the productivity of programmers, improve their user experience, and shorten the time required for a programmer to become familiar with an unknown software system.

The main goal of this research is to analyze and propose various ways to utilize technologies in the field of virtual and augmented reality in software development, to evaluate their potential and benefits in this area.

The output of this dissertation is a series of new approaches focused on software analysis in virtual reality, searching and browsing software repositories in virtual reality, and live programming in virtual reality. In addition, we have created our own AR system, which allows for the enrichment of a programmer's physical workspace with virtual elements (e.g., tools and visualizations).

Keywords: virtual reality, augmented reality, software visualization, software development.