We introduce Code Park, a novel tool for visualizing codebases in a 3D game-like environment. Code Park aims to improve a programmer's understanding of an existing codebase in a manner that is both engaging and fun to be appealing especially for novice users such as students. It achieves these goals by laying out the codebase in a 3D park-like environment. Each class in the codebase is represented as a 3D room-like structure. Constituent parts of the class (variable, member functions, etc.) are laid out on the walls, resembling a syntax-aware 'wallpaper'. The users can interact with the codebase using an overview, and a first-person viewer mode. They also can edit, compile and run code in this environment. We conducted three user studies to evaluate Code Park’s usability and suitability for organizing an existing project. Our results indicate that Code Park is easy to get familiar with and significantly helps in code understanding. Further, the users unanimously believed that Code Park was an engaging tool to work with.

Major: Computer Science

Educational Career:
Bachelor's of Computer Science, BS, 2013, University of Tabriz

Committee in Charge:
Joseph J. Laviola, Chair, Computer Science
Gary Leavens, Computer Science
Hassan Foroosh, Computer Science

Approved for distribution by Joseph J. Laviola, Committee Chair, on May 25, 2017.

The public is welcome to attend.