Foraging in a Virtual Orchard

**Outcome:** A software platform for designing experiments in 3D virtual environments developed in CELEST, an NSF Science of Learning Center, is allowing researchers to investigate human search, memory, and decision-making in realistic visual search and navigation tasks.

**Impact/benefits:** The software platform allows researchers to easily design experiments that run in rich, realistic 3D environments without sacrificing experimental control. Researchers from the Visual Attention Lab at Brigham & Women’s Hospital, Harvard Medical School are currently using the software to run foraging experiments at the Living Laboratory at the Museum of Science in Boston, MA. This arrangement gives members of the public a chance to participate in scientific research and learn more about human visual search and cognition.

**Explanation:** The software allows users to design 3D virtual environments using a simple syntax designed to be accessible and easy to learn, even without any prior programming experience. In currently-running experiments at the Living Laboratory, human participants forage for apples in a virtual orchard: they are asked to find as many apples as possible within a time limit and bring them back to a central collection point. Environmental conditions are manipulated across participants: apples may be easy or difficult to find, and the orchard layout is manipulated to make it easier or more difficult for the participant to orient themselves. These experiments investigate search strategies and how people represent their environment to remember which locations they have or haven’t previously searched.