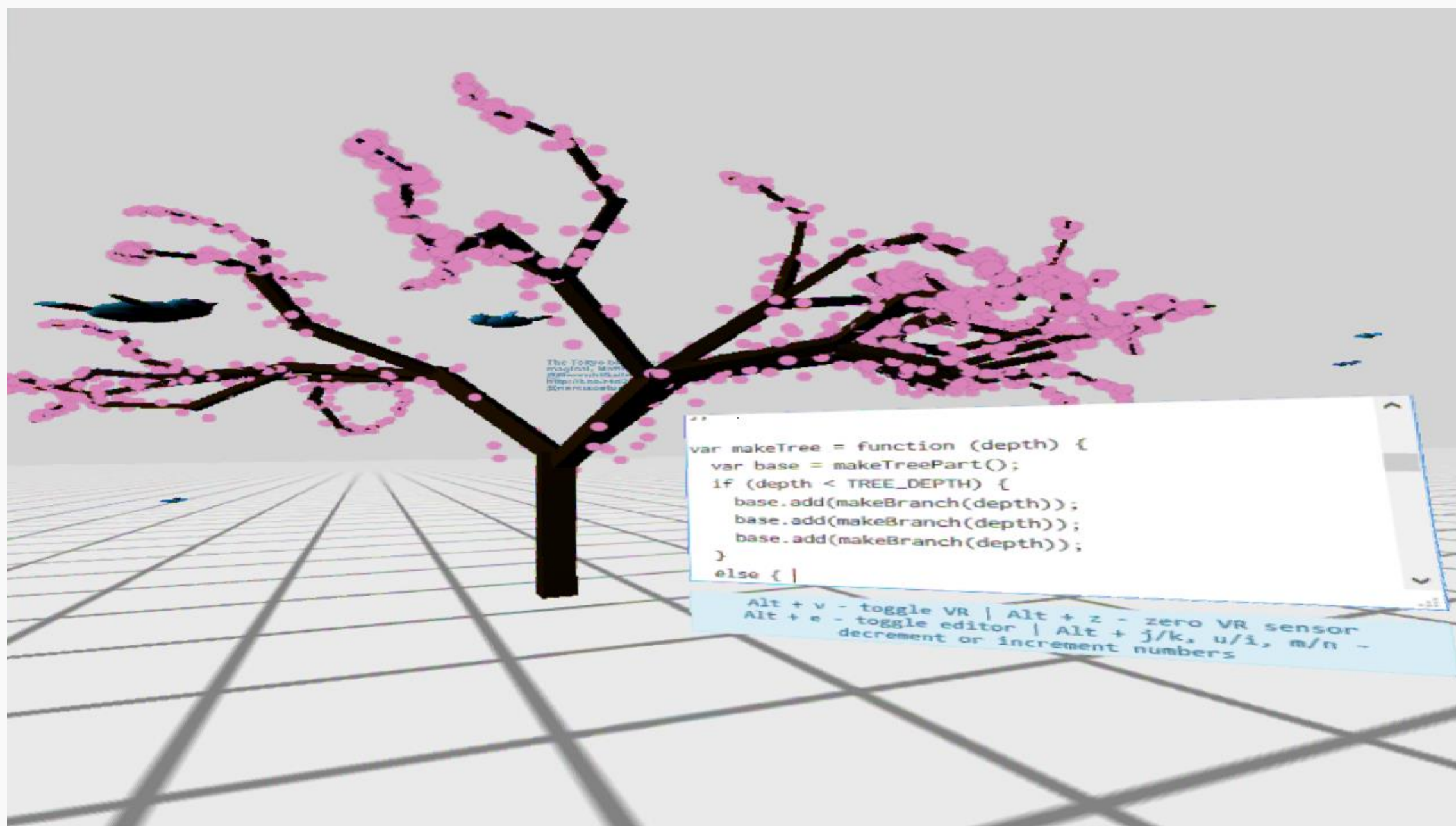# Virtual Reality (VR) and Software Engineering

Anthony Elliott*, Brian Peiris, Chris Parnin*

* North Carolina State University, USA

Programming

RiftSketch presents a user with a simple text editor, floating in front of them in an otherwise empty VR world. As the user types code into the editor, the world around them updates instantly to display the 3D scene dictated by their code. RiftSketch also allows the user to animate their scene via a callback function which is executed on every frame. The user can manipulate the state of the 3D scene in this looped block of code in order to add behaviour to the objects in their scene. This animation makes the user truly feel inside the scene in a way not captured by a 2D screenshot.

Code Review
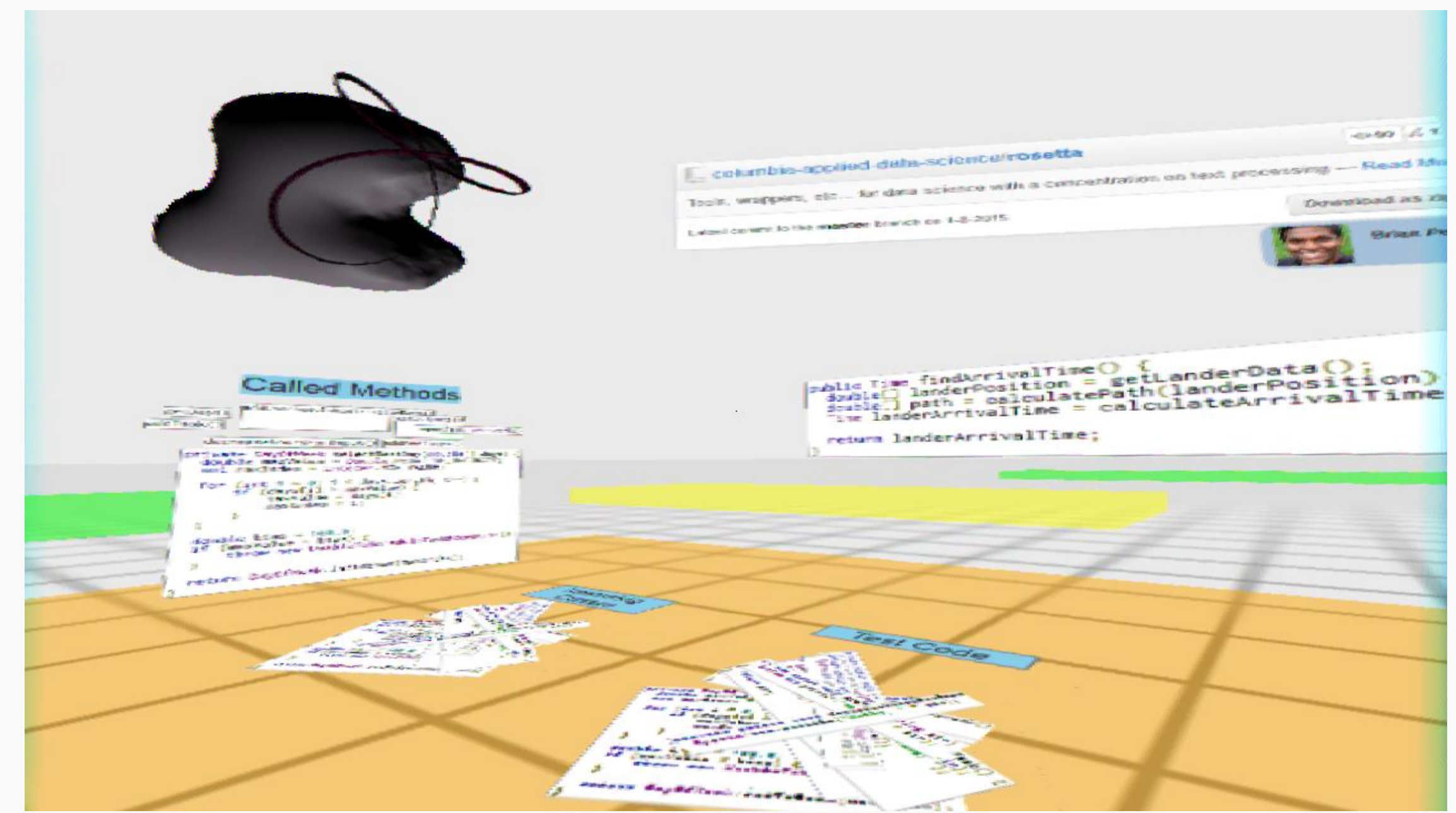
The reviewer is reviewing code to reposition A lander on a comet. The reviewer sees the active method, piles of relevant fragments on the floor, and has expanded one pile into a fragment ring on the left to read the details of those fragments. A model of the comet and the lander's expected flight path is shown in the upper left. The reviewer can walk between code packages on the floor which are color coded according to amount of modification for this review. GitHub details are shown in the upper right.

How VR can help

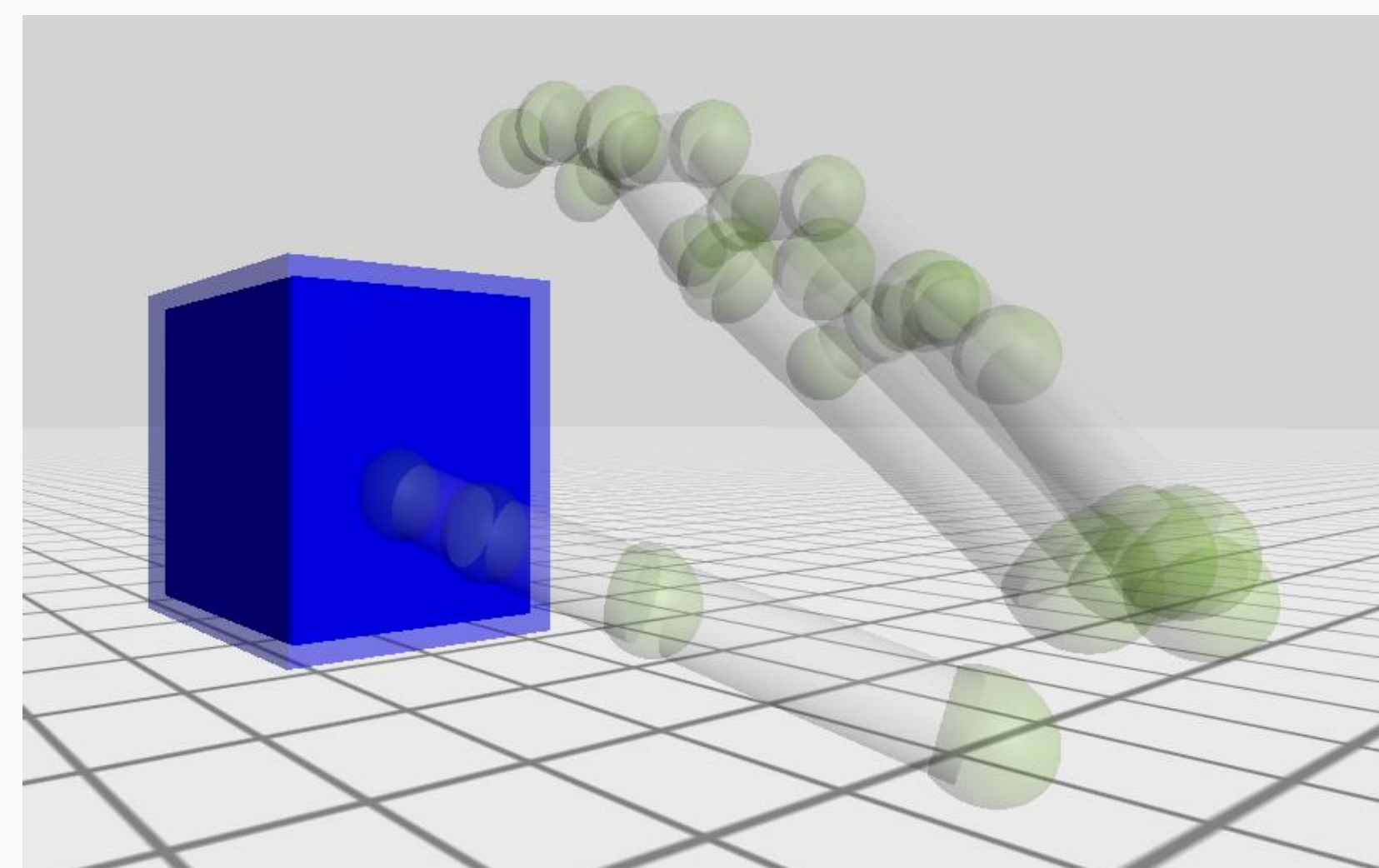**1) Spatial Cognition:**
- Stereoscopic vision (depth)
- Head rotation

Users could remember placement of bookmarks on 3D place after 6 months. (Data Mountain)

2) Manipulation:
- Direct manipulation
- Walking

Programmer selecting object with hand

3) Feedback
- Overcoming 'Gulf of Evaluation'
- Easier to see what's going on and plan next action

Push? Or pull?

How **you** can help:

1) Create a 3D visual programming language for education similar to Scratch

2) Explore where augmented reality could be better suited than immersive virtual reality

3) Create developer tools for
- Debugging
- Simulation
- Visualizations

@anthonyE_vr   @brianpeiris   @chrisparnin

NC STATE UNIVERSITY
Department of Computer Science