

# Lines

By Ali Ozer

Updated for 2.0 by Jayson Adams

Updated for 3.0 by Ali Ozer

## Overview

Lines draws a number of connected lines whose endpoints bounce around randomly within a view. The slider regulates the number of endpoints (you can select from 2 to 20). Lines uses PostScript user paths to speed its drawing.

## Theory of Operation

The LinesView maintains an array of points and their velocities. When you press the "Go" button, the LinesView starts a timed entry which calls the `animate` method as fast as possible. The `animate` method repeatedly takes each point and moves it according to its velocity (changing its velocity if it hits a side). It then uses PostScript user paths (via `UserPath.[hm]`; see below) to draw lines between the points.

## UserPaths made Simpler

The code in `UserPath.[hm]` makes user paths easier to use. Instead of having to

allocate space for the points and operators, maintain the bounding box, etc., you create a `UserPath`, add points to it, and send it to the window server. The `UserPath` functions construct the userpath, allocate more memory for a `UserPath` based on how many points you've asked it to contain, adjust the bounding box to encompass all points, etc. You can use `UserPaths` in your own code by copying `UserPath.[hm]` into your project directory and reading the beginning of `UserPath.h`.