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Visualizing Linear Algebra using the HTML5 Canvas.

The HTML5 canvas is a workspace that can be added to a web page to perform many of the same features as Flash. However, unlike Flash, which is no longer viewable on many devices, any device which can view web pages with a current browser can view canvas animations and interactive content. The canvas also has the advantages of requiring no extra software, no plug-ins, and hence no extra cost to view or create for it. In order to design for the canvas however, one must understand the concepts of translations, scaling, rotations, skewing, and the composition and inverse of matrix transformations. These are needed to properly place and animate objects on the canvas. Using such matrix transformations to create canvas elements will be illustrated. A project containing an interactive canvas in a web page will then be used to illustrate the concepts of translations, scaling, rotations, homogenous coordinates, and projections for both 2 and 3 dimensional objects. Such tutorials may be viewed on any device-computers, tablets, and mobile phones-which can view a web page. (Received August 17, 2014)