



Artificial Perspective 3

A painting is the intersection of a visual pyramid at a given distance, with a fixed center and a defined position of light, represented by art with lines and colors on a given surface.

—Leon Battista Alberti, *On Painting*

THE SCHOOL OF ATHENS The interest among Renaissance painters in the naturalistic depiction of space, form, and light may have reached its apex in the works of Raphael. His *The School of Athens*, a portion of which is shown here, is an encyclopedia of Renaissance techniques. The painting is a window opening onto space that is continuous with that of the viewer. This scientific depiction of space is now known as *perspective*. Before the Renaissance, however, the term referred more generally to geometrical theories of optics and human vision. Thus, in Raphael's time, painters would have referred to this method of painting as *artificial perspective*. The basic procedures of perspective painting are reiterated today in visual computing.

In the early fifteenth century, the Florentine architect Filippo Brunelleschi—who would design one of the engineering and artistic marvels of the Renaissance, the great dome of the Florence Cathedral—performed an experiment that quietly signaled the beginning of a revolution in the visual culture of the West. Today's computer graphics algorithm designers have much to learn from this fifteenth-century Italian artist's experiments with geometry, light, and naturalism. Indeed, it might be argued that the perspectival schemata devised for painting by Brunelleschi and other Renaissance artists provided the conceptual foundations for the later field of computer graphics.

At the time, *perspective* was a term that referred to a geometrical interpretation of vision, and Brunelleschi was attempting to apply these geometrical concepts to painting. Following a procedure that has remained unknown in its details, Brunelleschi painted an image of the Baptistry across the piazza from the Florence Cathedral, on a small panel. When the