

Interactive Geometry In Mathematica

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Mathematica is now twenty years old. It has always been an environment for algebra, calculus, numerics and graphics, but since Version 6 was released two years ago, it has also offered users the ability to build real-time interactive content.

This facility is fully general; it applies across all mathematical domains. However, after a brief general introduction, we will focus on classical geometry, exploring ways of creating interactive geometrical figures that respond in real time to the user's actions.

There are two reasons for focusing on geometry. First, it will simply be interesting and fun to compare and contrast how this can be done in Mathematica with the way it is done in, say, Sketchpad or Cabri. Secondly, Mathematica's approach involves using a CAS-style structured language, and there are interesting pedagogic implications of this difference, which we will reflect on.

It may be possible to demonstrate new technology, not yet in any released version, though at the time of writing this cannot be guaranteed.