1096-03-933 **Timothy H. McNicholl*** (mcnichol@iastate.edu), Department of Mathematics, Iowa State University, 396 Carver Hall, Ames, IA 50011. *How to hide from a nanobot.*

We consider two classes of points in the plane. The first consists of all points that can be reached by a nanobot (which we model by a point in the plane) that is required to traverse a curve of finite length. Mathematically, this is the set of all points in the plane that lie on a computable planar curve of finite length. This class of points has been characterized by Gu, Lutz, and Mayordomo. The second class consists of all points that can be reached by a nanobot that is prohibited from backtracking. Mathematically, this is the set of all point that lie on a curve that is the image of a computable and injective map on $[0, 1]$; that is, a computable arc. We show that neither of these classes is contained in the other. The methods employed are a mixture of ideas from classical analysis and topology, the finite-injury method, and algorithmic randomness. In particular, it is shown that every Martin-Löf random point lies on a computable arc. (Received September 11, 2013)