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**Using Mobile Agent Results to Create Hard-To-Detect
Computer Viruses**

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Abstract The theory of computer viruses has been studied by several authors, though there is no systematic theoretical study up to now. The long time open question in this area is as follows: Is it possible to design a signature-free (including dynamic signatures which we will define later) virus? In this paper, we give an affirmative answer to this question from a theoretical viewpoint. We will introduce a new stronger concept: *dynamic signatures* of viruses, and present a method to design viruses which are static signature-free and whose dynamic signatures are hard to determine unless some cryptographic assumption fails. We should remark that our results are only for theoretical interest and may be resource intensive in practice.