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*The real computation controversy: Is it real?*

There are two major “competing” approaches to modeling computation over the reals, the algebraic approach and the bit model approach. I would argue that each abstraction provides useful insights. Moreover with regard to computational complexity, the two approaches are naturally linked via the condition of a problem instance, as introduced by Turing in 1948. Much work has been done during the past decade pursuing this direction. (Received March 25, 2009)