

## More Thoughts on the Whole Organism Challenge

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In 2002 I proposed a long-term “grand challenge” for the comprehensive and realistic modeling of biological systems, where we try to understand and analyze an entire system in detail, utilizing in the modeling effort all that is known about it. The proposal was to produce an interactive, dynamic, computerized model of an entire multi-cellular organism. Specifically, I suggested the *C. elegans* nematode, which is extremely complex despite its small size, but well-defined in terms of anatomy and genetics. In this talk I will review this challenge, and discuss some insights about its feasibility, based on some recent modeling efforts we have carried out, including the organogenesis of the pancreas, rat neural whisking, cancer tumor formation, and various projects regarding the *C. elegans* nematode worm.