



## John H. Christiansen

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John Christiansen is a computer scientist with the Decision and Information Sciences Division of Argonne National Laboratory. He has over thirty years of computer modeling and simulation experience, covering a range of subject domains that spans ecology, archaeology, anthropology, agronomy, meteorology, hydrology, botany, ocean physics, healthcare, logistics, law enforcement, air pollution, emergency response, and astrophysics. Over his past two decades at Argonne he has served as principal architect for numerous advanced computer modeling and simulation, visualization, and decision support applications, concentrating on generic, object-based simulation software frameworks to help scientists to build and maintain complex multi-disciplinary simulations. A key research focus has been the creation of systems that make effective use of multiple toolsets, such as agent-based social modeling, physics-based natural process modeling, and artificial intelligence techniques, to capture the dynamics of complex, heterogeneous dynamic systems. Relevant recent and ongoing projects include:

- Holistic simulations for study of socioecological stability and sustainability of settlement systems in ancient Mesopotamia (NSF-funded Biocomplexity in the Environment project).
- Holistic simulations to study societal and environmental issues surrounding a massive public works project for an Iron Age city-state in Anatolia.
- Agent-based micro-agroeconomic simulations to address modern socioeconomic sustainability issues in rural northern Thailand.
- Agent-based microsimulations of child welfare processes in the State of Tennessee, as a decision aid for social program policy analysis.
- Multidisciplinary simulation tools in support of disaster management and humanitarian assistance decisionmaking, and as in-country staff training and policy analysis aids for stability operations in societies under stress.
- National-scale agent-based analytic simulations of U.S. healthcare reform alternatives, in collaboration with the RAND Corp.