

Jeffrey A. Nichols



Postdoctoral Research Associate

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Jeffrey A. Nichols is a postdoctoral research associate in the Environmental Sciences Division of ORNL. He has been a developer and computer consultant since high school with special interest in scientific applications.

Nichols received his PhD in mathematics at the University of Tennessee at Knoxville in 2008. There, his research focused on the applied mathematics topics of differential equations and numerical methods. In his dissertation, he developed parallel computation techniques for individual-based ecology models resulting in super-scalar performance gains on multi-core computers. These techniques were applied to perform thousands of simulations that led to the discovery of stability conditions for aquatic predator-prey populations arising from competition between large and small predators and two modes of juvenile-induced extinction.

His first paid-position was as a consultant to Southern Research Institute in Birmingham, Alabama, where he played an information management, automation, and analysis role in the trials of the first effective anti-viral AIDS drugs.

Expertise in Linux-based computational clusters led Nichols to consulting, information technology director, and business research positions at Jewelry Television (JTV), a \$500M+, nationwide television broadcast company in Knoxville, Tennessee. There he developed novel media solutions for their business-critical, 24/7, on-air product presentation. Further, he integrated into these systems automated measurement of critical business processes that fundamentally improved how JTV did business. Returning to science after a ten-year hiatus in industry, he has applied his new media and business experience to create tools and systems that assemble large datasets for visualization and analysis.