

## Visual Analytics: a Grand Challenge in Science - Turning Information Overload into the Opportunity of the Decade

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### Abstract:

Visual Analytics is an emerging field of study that brings talents from many disciplines including statistics, mathematics, information, knowledge, and library sciences, knowledge representation and synthesis, scientific and information visualization, cognitive and perceptual sciences, communications, decision sciences and more. The demand for visual analytics is being stimulated by new requirements for homeland security but similar needs are present in science, commerce, home, and almost any domain that deals with complex, large information sources that require human judgement to **“detect the expected and discover the unexpected”**. The definition of visual analytics is the science of analytical reasoning facilitated by the interface visual interface. Jim will present the new needs for science and technology, referenced from the recent book *Illuminating the Path: the Research and Development Agenda for Visual Analytics*, (<http://nvac.pnl.gov/>) Jim will also discuss the driving new characteristics of interaction and suggest the top technical challenges for visual analytics, enlisting comments and recommendations. Jim will conclude this class discussing career opportunities.

### Bio:

Jim Thomas is Chief Scientist for Information Technologies at Pacific Northwest National Laboratory. He is the Director of a Department of Homeland Security founded National Visualization and Analytics Center (NVAC) that also provides funding for 5 Regional (university led) Visualization and analytics Centers (RVAC). He has received several international science awards including "Top 100 Scientific Innovators" (Science Digest) and twice the Research and Development's Industrial Research 100 Significant Scientific and Industry Accomplishments "Top 100 Innovators in Science and Industry". In addition, twice he was awarded the Federal Laboratories Consortium Technology Transfer Award for innovation in transferring research technology to industry and universities. Jim just received PNNL's highest science awards 2007 Lifetime Achievement Award. In addition Thomas served as 2003 and 2004 IEEE Visualization Conference Co-Chair, Chair ACM SIGGRAPH 1987 – 1992, 1998-2002 Editor-In-Chief for IEEE Computer Graphics and Applications, Founder of ACM User Interface Science and Technology Conference, and has over 140 publications and sits on several advisory boards.