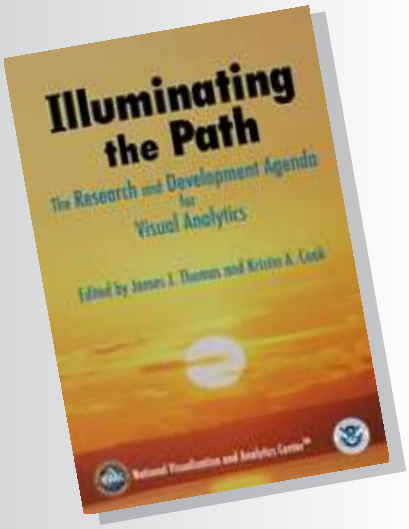
Science.

Technology.

Innovation.



Illuminating the Path, a Research and Development Agenda for visual analytics, was developed to define the directions and priorities for future research and development programs focused on visual analytics tools. This R&D Agenda provides a coordinated technical vision for government and industrial investments and ensures that a continued stream of technology and tools enter the hands of analysts, border personnel and emergency responders.

Pacific Northwest National Laboratory

Operated by Battelle for the U.S. Department of Energy

National Visualization and Analytics Center™

The National Visualization and Analytics Center (NVAC™) at Pacific Northwest National Laboratory (PNNL) was established in 2004 by the U.S. Department of Homeland Security (DHS). The center provides leadership and coordination among the academic community, industry, national laboratories and government to create and deploy visual analytics technologies to help counter future terrorist attacks in the United States and around the globe.

NVAC provides strategic direction and scientific leadership with four core capabilities:

- Research and Development Leadership
- Technology Evaluation and Implementation
- Coordination and Integration
- Education.

The U.S. Government faces a critical challenge in identifying and preventing attacks on U.S. soil. With the establishment of the Department of Homeland Security in collaboration with existing agencies and the intelligence community, resources are being focused on stopping terrorism.

Visual Analytics

Visual analytics tools and techniques will become the 21st century's answer to information overload. In the fight against terrorism, analysts are bombarded with enormous volumes of data from a variety of sources, including documents, images, numbers, video and audio. Recognizing that humans have a keen ability to process visual information, researchers are creating visual analytics tools to analyze and interpret huge volumes of data.

The tools can be used to synthesize massive, dynamic and often ambiguous data into assessments, ready for communication and action. Visual analytics are timely, defensible and easily understood; they facilitate high-quality human judgment and require a limited investment of an analyst's time.

NVAC has taken visual analytics to new heights, identifying opportunities for applying it to many industries and organizations, in addition to homeland security. NVAC's leadership and coordination of technology from laboratories, industries, government agencies and universities has the potential to benefit businesses such as healthcare, telecommunications, marketing and education.

Innovative Leadership

DHS selected PNNL to lead NVAC based on the Laboratory's highly successful development of visualization technology and its broad talent base.

PNNL is internationally recognized for scientific leadership with a long history of high-impact contributions in information visualization and analysis for homeland security, intelligence and defense. Researchers at PNNL have worked alongside analysts to bring fundamentally new analytical capabilities into their working environment. NVAC continues this strong collaboration of talent and tools to provide high-impact contributions in visual analytics.

Educating the Next Generation

Education is paramount in the fight against terrorism. Defeating terrorism requires a new generation of scientists and engineers with capabilities in visual analytics to help identify and prevent terrorist attacks on U.S. soil. NVAC is committed to preparing our next generation of scientists and engineers in visual analytics to serve national needs in multiple agencies, roles and functions.

To achieve the goals of a sustained flow of advanced high-impact technologies and talents, Regional Visualization and Analytics Centers (RVACs) at key U.S. academic institutions have been established. The RVACs provide both research expertise and training and education programs, supplementing the knowledge centered within NVAC.

The RVACs work with NVAC and its collaborators to identify and develop talented students with high-achieving potential in the science of information analytics. They concentrate on creating meaningful educational activities and interactive learning opportunities, such as simulated decision making and use of threat data scenarios for students. Through programs and internships, researchers, faculty and students can become effective contributors to the visual analytics research agenda. The ultimate goal is to continue feeding the pipeline of visual analytics experts.

Regional Visualization and Analytics Centers at key academic institutions throughout the United States have been set up to ensure a flow of research talent in visual analytics.

VAC Consortium: Partnering for Success

The Visualization and Analytics Centers (VAC) Consortium was set up to provide a forum where industry leaders and government specialists could collaborate in achieving the best solutions to protect the nation. Composed of representatives from NVAC, industry, university and government, the VAC Consortium was formed to:

- Develop and implement intelligence-informed/science-based risk assessment approaches
- Engage public and industry stakeholders to assess the impact of cutting-edge science and technologies.

The Consortium provides a unique mechanism for government, universities and industry to collaborate in demonstration platforms, development and deployment of visual analytics tools to achieve the best solutions to protect the nation. Collaboration ensures that the form and functionality of technology developed through the NVAC is deployable and has impact in the real world.

Through meetings and discussions, the Consortium gains unique and valuable insight into the activities of NVAC programs, including the RVACs. Participation in conferences, forums and workshops and connection to the community of users influences the direction for both development and deployment of solutions and future generations of information and visual analytics.

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