Begun in 2005, the North-East Visualization and Analytics Center (NEVAC) is one of five regional centers led by the National Visualization & Analytics Center and supported by the Department of Homeland Security. NEVAC is coordinated through Penn State's GeoVISTA Center, and includes academic, government and private sector collaborators from:

- Penn State's Department of Geography, College of Information Sciences and Technology, and Department of Film-Video and Media Studies
- Drexel University's College of Information Science and Technology
- The Port Authority of New York and New Jersey
- VideoMining Corporation
- GeoDecisions, Inc.

Our fundamental scientific goal is to better understand how individuals and teams use information technology to analyze complex information, build knowledge, and make decisions - then to use this understanding to develop information technologies that enable these processes.

The NEVAC research team is pursuing 3 core goals:

**Visual analytics** to exploit data complexity: extracting useful information from distributed, heterogeneous, unstructured data of uncertain relevance by **finding connections across diverse information fragments**.

**Visual analytics** to generate domain-relevant actionable intelligence: synthesizing, assessing, & abstracting assembled information to yield domain-relevant intelligence, thus methods/tools for **constructing new knowledge and grounding it in both existing knowledge and analytic tasks**.

**Visual analytics** to leverage individual and distributed team expertise: to **assess situations, interpret evidence, make decisions, & carry out actions across the range of contexts represented by intelligence analysis and emergency response**.

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**Examples:**

Analyzing dynamics of conflicting opinions identified by TermWatch

Analyzing space-time interactions among radio transmissions, traffic accidents, and weather

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**Cognitive/Collaborative Knowledge-Enabled Visual Analytics Workspace**

Observation

Integration Interface

Knowledge-enabled visual analytics

Turbo K issues, space-time

GeoVISTA Studio visualization & exploration environment

Improvise coordination & visualization environment

GeoTools open GIS Toolkit

Playback of analysis

Mobile-Multimodal Interface

Timeline-Spatial Projection Tool

Team Argumentation Articulation Space

Decision

Semi-automatic Pattern Recognition Toolset

Collaborative Suite

Case-based Reasoner

Recording of foraging/sense-making

Analysis tools

Semantic search

Data visualization

Concept maps

Geography

Social networks

Time

Supporting Infrastructure

Remote/Local data collections (maps, imagery, tables, graphs, etc.)

Knowledge repository (concepts, tasks, explanations, etc.)

Database mediation & query rewriting software

GeoDecisions IRRIS web portal data service

OAI protocol for metadata harvesting

PennState

GeoVISTA