

# Improvise

## Highly Coordinated Multiple View Visualization

**Benefit:** *Improvise provides tool developers with an environment for rapidly prototyping and implementing applications that support highly interactive visual exploration and analysis of high-dimensional, multi-source information. Numerous applications developed in Improvise demonstrate support for a broad range of needs in intelligence analysis, crisis management, business planning, and scientific data analysis.*

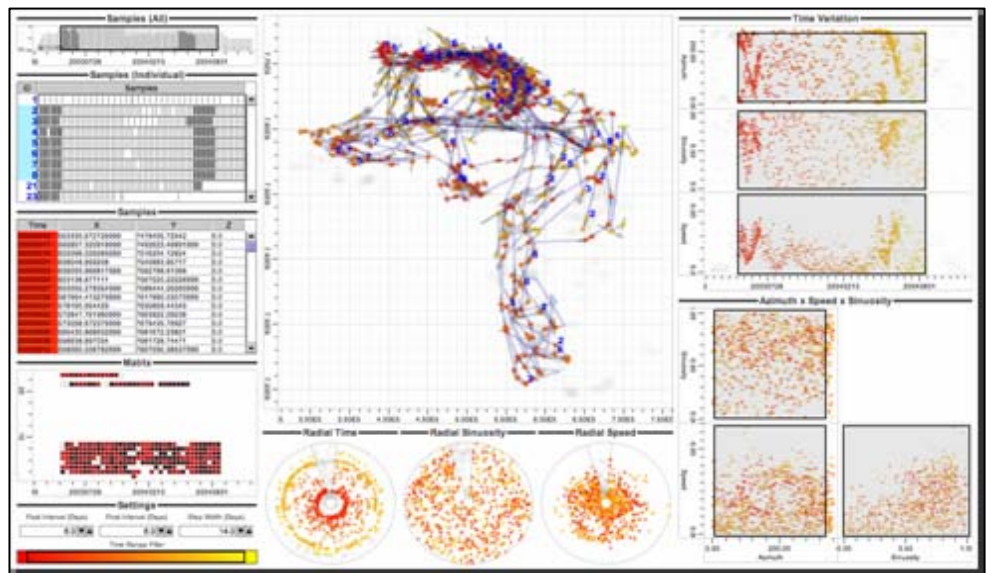
Improvise is a desktop application for building and browsing visual analysis interfaces that support highly interactive querying of multidimensional databases. Much like spreadsheet programs, Improvise integrates tool development with tool operation in a single interactive graphical environment. Technically-savvy users with modest programming skill can switch seamlessly between development and operation in an open-ended data exploration process, often in rapid, iterative collaboration with the analysts that the tools are targeted to support.

Improvise developers interactively construct and explore highly coordinated visualizations containing multiple views. By coupling a declarative visual query language with a shared-object coordination model, developers gain precise, flexible control over the appearance and behavior of data in response to interaction. With access to essentially infinite variations on well-known forms of data representation and coordinated views, it becomes practical to build applications that are richer and more useful than those built by traditional means.

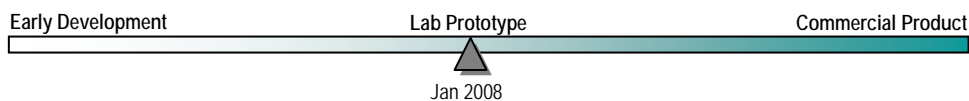
Improvise is a web-enabled, cross-platform, open source Java application. Visualizations save to and load from disk in a self-contained, platform-independent, serialized XML format. Improvise and applications are available for download from the NEVAC web site.

## Visual Analysis of Who-What-When-Where Information

One recent Improvise application integrates REMO (Relative MOtion) algorithms to support visual analysis of moving point objects over time. Visualization of caribou herd migration, seen below, shows divergence of two groups of individuals in late spring 2003. The map at center displays sampled positions of individuals using arrows to represent direction and speed. Dragging and stretching selector boxes in other views filters the map to show sub-ranges of time, speed, azimuth (direction), and sinuosity (curviness), thus allowing the analyst to focus in on specific kinds of movement behavior. Selection of individuals allows isolation and analysis of potential groups that exhibit similar movement behaviors in the form of overlapping paths or shared motion characteristics.



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