Defense Technical Information Center
Compilation Part Notice

ADP013337

TITLE: Discussion - Maths and Techniques

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This paper is part of the following report:

TITLE: Multimedia Visualization of Massive Military Datasets [Atelier
OTAN sur la visualisation multimedia d'ensembles massifs de donnees
militaires]

To order the complete compilation report, use: ADA408812

The component part is provided here to allow users access to individually authored sections
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the context of the overall compilation report and not as a stand-alone technical report.

The following component part numbers comprise the compilation report:
ADP013309 thru ADP013341

Discussion – Maths and Techniques

Opportunity for data compression – recovering data from the black box
     streaming of exercise log book – DERA commercial product

Looking to apply MBP in the medical field, with military medical records.

Event stream analysis uses simplistic symbolize to show true movement of red and blue forces. Stream massive amounts of data

Visualisation is a means to an end. Streamed data preserves temporal information, and delivers information in a stream instead of all at once. Element of anomaly detection because you may be able to predict expected movement and will be able to see deviation from the direction.

Event stream analysis can be used to display patterns and trends in the display.

Visualisation provides pattern recognition… good for decision-makers who have the experience to make the generalizations and can interpretation of data.

Visualisation is a tool, not the method.

Currency of data - archived data could be used as a benchmark for comparison but be careful of validity.

Data mining – what are the analytical tools used to analyse data? Is there a way to match up the analysis tools with the different types of problems?
     Clustering
     Correlation
     Convolution
     Statistical analysis

In the end it doesn't matter what the analytical engines are or do, it's how they impact the user or the human environment. Visualisation tools have to deliver information that allows the user to perform the tasks well. The people who will be using the tool are in the business of analysis, they still have to do the analysis, but these tools help the user focus in on areas, and making more efficient and effective analysis.

You need to put the users' hands into the visualisation. You can tell if a visualisation is intuitive by using it.

The importance of testing. What are we measuring the tool against? Requirements definite the process. Visualisation is usually not a requirement, but may have come up as a possible solution to a real problem.

Briefings are a necessity, and have huge amounts of data that they need to present effectively and timely. Need to compare preparation of briefs with the use of the tools to that of the "old" way. Hard to get the raw data, but definitely something they are trying to test.

Elastics.

Testing intuitive use of tool:
       Here's the task
       Here's the visualisation tool
       Can you do the task without training or assistance?

Sometimes the visualisation doesn't need to be intuitive. It depends on the task. Sometimes if a task is difficult and complex, the interface may have to be the same, and can be learned by a user.

Important to have people, using real data, performing real tasks, and see how effectively they can perform them.

Often Vis tools are useful in tasks that need to be done quickly and effectively without training or time.

Evaluation – usable systems with out much training wanted by clients. Systems are being put together without much testing with the hope that it's effective. There is need to assess and measure visualisation tools

In R&D stage, use your creativity and freedom to develop the best tool you can…

Image Compression
Much support of the process.

Have to have some way of determining what are the areas of interest.
       Out of the norm, something different
       Cueing
       Identifying and modeling normalities and then if there is something out of the norm it is something of interest

       Simulation
       Spatial information – can corrupt small details

Evaluation needs to be addressed.

Use of compressed image is important. Technology is great, must make sure that it is applicable to the task.

Sending intelligence + context to someone who can analyze it.