



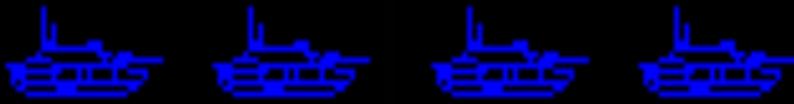
Fusing JCATS Data into Information

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In computer-based combat simulations, data is generated at breakneck speeds. To the humans using the software, this can be overwhelming. It is therefore desirable and helpful to fuse the data into information useful to the human playing the game.

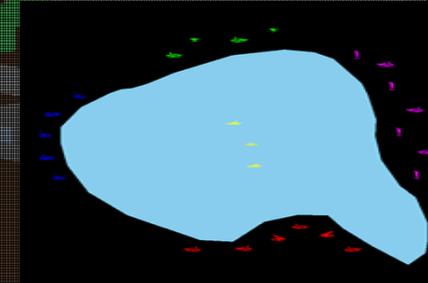
Introduction:



JCATS (Joint Conflict and Tactical Simulation) is a computer-based combat simulator used to train military personnel, evaluate threats, and generate data on warring systems. The game is entity based: it revolves around individual touchable things as play pieces (tanks, infantry, etc.). Further, JCATS handles tens of thousands of entities. Computers can keep up with what these thousands of things are doing; humans cannot. It is therefore a necessary exercise to simplify goings on into human accessible format.

Methods:

Computers are capable of tracking hundreds of individuals. Humans, however, group like things for the sake of our sanity. Therefore, causing the computer to group things as we do becomes a helpful tool in human-computer relations.



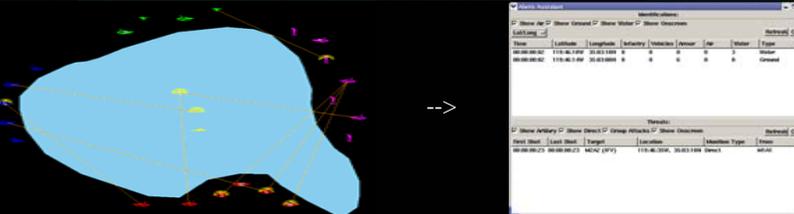
25 individual play pieces, or 5 colored groups?

Computers see the first, humans the second.

Causing the computer to see the groups is a big step in information presentation from raw data.

Results:

By grouping units that the user may need to interact with based on geographic location, we fuse potentially hundreds of points of data into a single comprehensible token of information, to be assessed in a far more timely manner than would otherwise be possible.



Entity	Latitude	Longitude	Velocity	Heading	Altitude	Color	Type
115.86.128	30.03.188	0	0	0	0	Red	Vehicle
115.86.128	30.03.188	0	0	0	0	Yellow	Vehicle
115.86.128	30.03.188	0	0	0	0	Purple	Vehicle
115.86.128	30.03.188	0	0	0	0	Green	Vehicle

Information overload: While the computer yields a vast store of data (left), humans find it more helpful to see group information relevant to what they are doing (right).

Discussion:

As JCATS continues to push more entities, the need for information fusion will continue to grow, and methods of reporting events will become more varied. Further, causing the computer to recognise groups and drawing generic information from data is the first step in automated responses in the game.



With the ability to recognise attacks and groups, the client assistant may reactively cause entities to seek cover from attacks.