MORCEGO

Wiki 3D visualization framework

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Motivation

Recent Wiki technology has allowed information to be easily build and organized in network structure, opposed to traditional linear structure provided by analogic media, reflecting with more accuracy the way we store information in our mind. But understanding the information as a network requires reading and understanding of the concepts involved.

History

Considering this matter, Arca developed Morcego, a tool for 3D visual perception, analysis and navigation of graph-like structures. Lacking previous experience with java applets or 3D, the author exchanged coding services through RentACoder and hired Ramgopal, from India, to develop a first prototype. It served as a basis for starting Morcego, and after lots of refactors - thanks to Eclipse - we came to version 0.3.

License

Morcego is distributed under Gnu Lesser General Public License (LGPL).

Morcego

This graph is an example of how you would see a wiki structure with Morcego. Green nodes represent existing pages, while red ones pages yet to be created. When using the software, you can:

* Rotate the graph
* Drag nodes around
* Drag and "throw" to make it keep spinning
* Click in a node an navigate to it
* Click in center node to open wiki page

Arca

Arca is a brazilian Free Software development group.

Credits

LUIS FAGUNDES AUTHOR + MANTAINER
FERNANDO FREIRE CO-AUTHOR + 3D AND PHYSICAL MODELING
ALEXANDRE FREIRE TEST SUITE
CHRISTIAN ASMUSSEN RELEASE MANAGER
PEDRO SAITO POSTER DESIGNER
RENATO LOPES LOGO DESIGNER
FABIO MATHIAS PADAWAN
DEVAPI D. FIRST PROTOTYPE
CARLOS SEABRA SPONSORED FIRST PROTOTYPE

Network analysis

A precise physical model will allow analysis of network based on physic analogy. For example, when we remove a node from network, every other node gains an instant speed, until the graph gets stable again. The measure of that speed on each node could be interpreted as the influence the removed node has on it.

Dense networks

One of Morcego's greatest challenges is to deal with very dense networks and big hubs. For that, further versions shall support user selection of nodes and connections to be seen. This selection would be based in many configurable aspects of node. These can be discrete (like categories) or continuous (creation time). With continuous properties we would be able to watch an animation of graph as the properties vary (like watching network evolution through time).

Future development

Physical model

Positioning vertexes of a graph in space for good visualization is a difficult problem. But instead of calculating best positions, Morcego emulates a physical model that makes the graph arrange itself, giving the structure an organic appearance. In this model, each node has mass, speed and charge, so they all repel each other. To put them together, each connection is represented as an spring. And to make the whole system stop we need friction, given by viscosity of environment.

In current stable version this model is still very precary, but v0.4.0 in release process implements this model.

Technology

Morcego is a java applet that communicates with wiki engine using XMLRPC. To integrate it to your wiki engine, you have to code a XMLRPC server that returns a subgraph around a given node. With current version, you can configure:

* Color for each node.
* Page to which each node will link
* Usability aspects (node distance, camera position, animation interval, etc)

Wiki integration

It's currently being distributed with TikiWiki v1.9 that was just released.

XMLRPC

http://morcego.arca.ime.usp.br