VISNOW

Generic visualization and visual data analysis platform

http://visnow.icm.edu.pl

VisNow

VisNow is a modular and pluggable system for data processing and visual analysis based on data-flow driven network.

Each module in the processing network is responsible for separate visualization process task: data access, data pre-processing (filtering), mapping, post-processing, rendering and presentation. Data flow through the module network drives the proper synchronization of certain elements execution.

Philosophy

Underlying the design and creation of VisNow software were several fundamental assumptions and guidelines distinguishing our software from other rival solutions:

Read and watch

While working with computer software the user requires visible effects of his actions. VisNow system tries to provide the user with instant visualizations by creating a default data representation in a graphical window right after reading. Also, all newly instantiated network modules are automatically connected to the viewer and provide a consistent presentation parameters interface.

Clear and simple desktop

Work environment requires only two desktop windows – main application window (with network creation interface, modules library and module parameters interface) and graphical window (for visual information presentation and virtual world interaction). As a result VisNow ensures a clear and simple screen, not deluging the user with a vast number of additional dialog windows.

Network creation support

Network creation wizard supports the user with creating a functional network, guaranteeing a formal consistence of the process. The limited modules library, suggested on data ports, enables connecting only those modules that are capable of processing the dataset being connected. In the next VisNow release this functionality will be enriched by deeper data analysis and will enable to choose from the most proper visualization paths.

Multifunctional modules

We emphasize in VisNow system the low number of multifunctional modules. Thanks to this assumption not only the modules library is smaller and easier to learn and navigate through, but also the structure of modules network is significantly simplified.

Strict relation module/GUI/object

A module instance is always visibly related with its steering interface (GUI) and with a created geometric object in a graphical window. This provides always a simple and explicit access to visualization parameters. Choosing a module in a network or an object in a graphical window brings up the proper user interface.

Sensible default values

For a smooth and interactive work, more computationally sophisticated modules, provide an automatic setting of default parameters for data and graphical representation simplification. This enables the user a fast and smooth setting of many visualization parameters with the following increment of imaging precision.
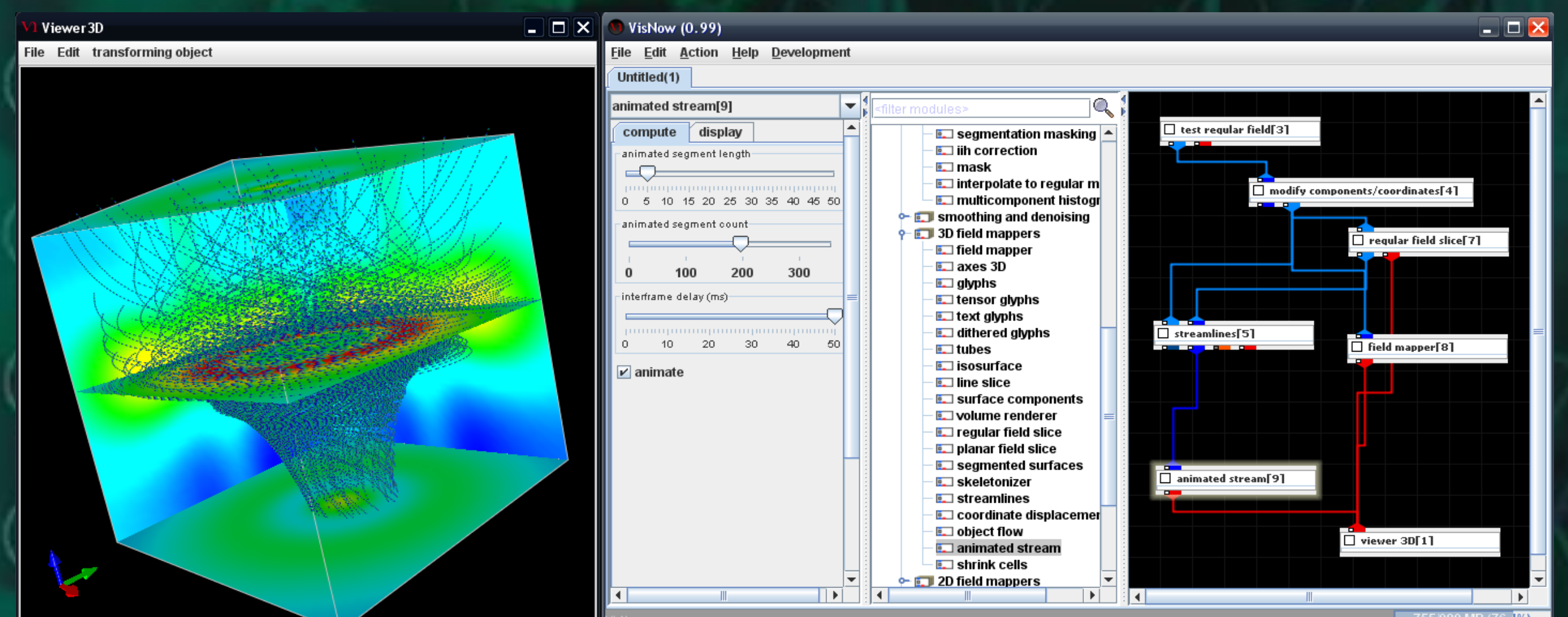
## Modules

- **Data access**
  - Generic ASCII format (via VisNow File headers)
  - Generic binary format (via VisNow File headers)
  - Images (JPG, PNG, GIF)
  - AVS Fields (FLD)
  - AVS Unstructured Cell Data (UCD)
  - ANSYS Fluent (CAS)
  - Visualization Toolkit (VTK)
  - Wavefront Objects (OBJ)
  - GADGET-2 (cosmology)
  - DICOM (medical)
- **Processing**
  - Data simplification
  - Denoising and smoothing
  - Differential operations (Gradient, Laplace, etc.)
  - Morphological operations
  - Interpolation and triangulation
- **Mapping**
  - Two- and one-dimensional slices
  - Graphs
  - Isolines and isosurfaces
  - Volume Rendering
  - Graphical and text glyphs
  - Vector field streamlines
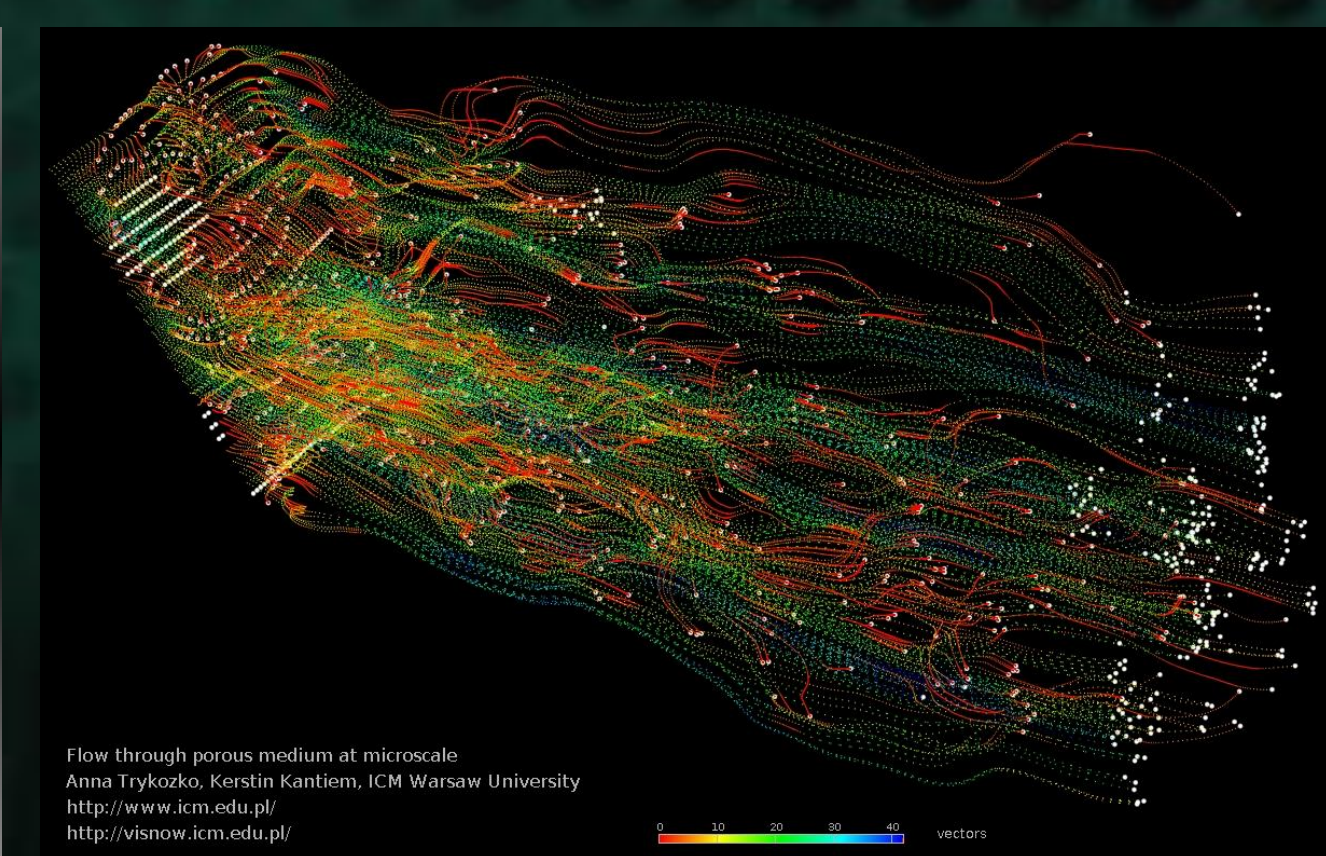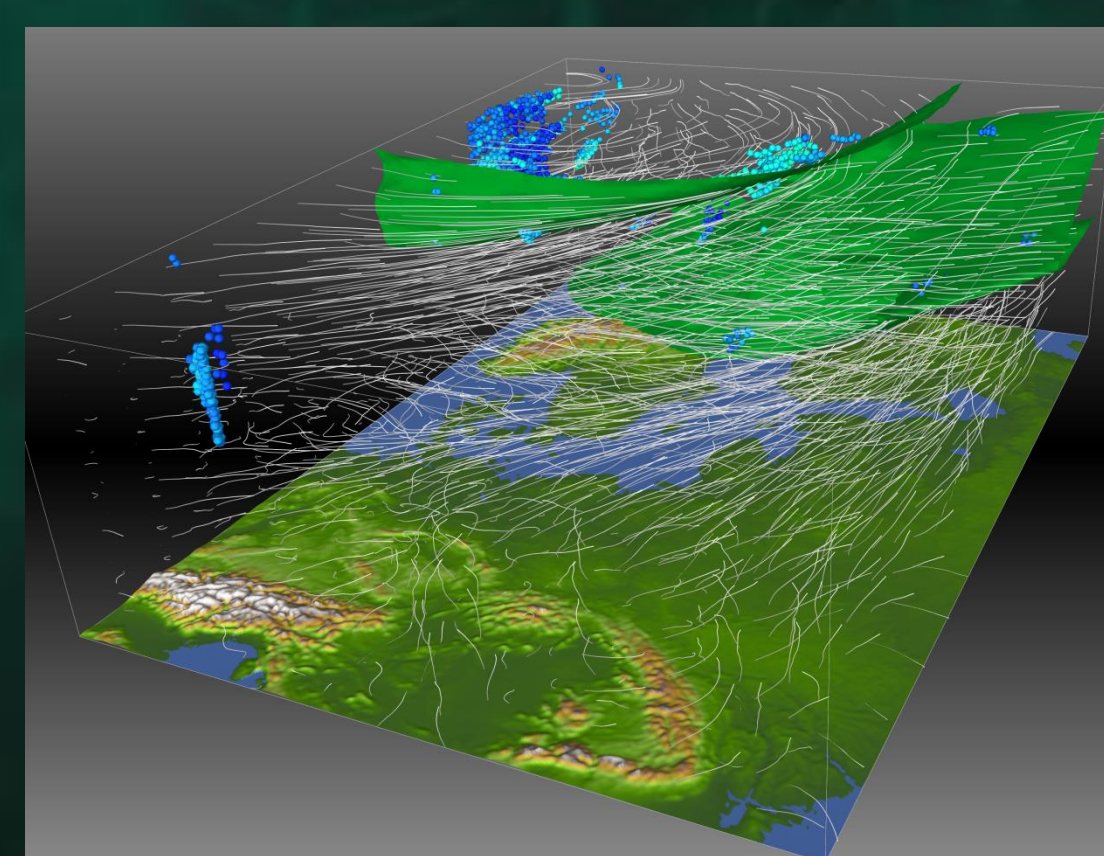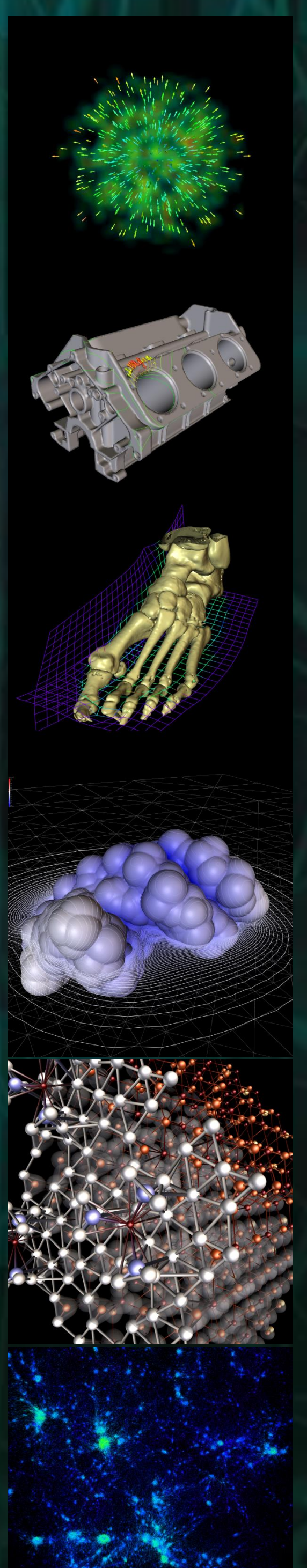
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