3D IMAGE RENDERING SOFTWAREFOR BIOLOGICAL TISSUES

SUMMARY

The Frederick National Laboratory for Cancer Research seeks parties interested in collaborative research to co-develop software for the automatic 3-D visualization of biological image volumes.

REFERENCE NUMBER

E-254-2012

PRODUCT TYPE

- Diagnostics
- Software

KEYWORDS

- Biological imaging
- Tissue rendering
- K-means++ clustering algorithm
- 3D imaging

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

Available for commercial development is software that provides automatic visualization of features inside biological image volumes in 3D. The software provides a simple and interactive visualization for the exploration of biological datasets through dataset-specific transfer functions and direct volume rendering. The method employs a K-Means++ clustering algorithm to classify a two-dimensional histogram created from the input volume. The classification process utilizes spatial and data properties from the volume. Then using properties derived from the classified clusters, the software automatically generates color and opacity transfer functions and presents the user with a high quality initial rendering of the volume data. The user input can be incorporated through a simple yet intuitive interface for transfer function manipulation included in our framework. Our new interface helps users focus on feature space exploration instead of the usual effort intensive, low-level manipulation.

POTENTIAL COMMERCIAL APPLICATIONS

- Biological Tissue Visualization in 3D

COMPETITIVE ADVANTAGES

- User Friendly, intuitive interface

INVENTOR(S)

- Yanling Liu (NCI)
- Jack R Collins (NCI)

Curtis R Lisle (formerly of NCI)

DEVELOPMENT STAGE

- Prototype

PUBLICATIONS

- Maciejewski R, et al. [PMID 19834223]

Zhou J, Takatsuka M. [PMID 19834224]

PATENT STATUS

- **U.S. Filed:** Research Tool. Patent protection is not being sought.
- **Not Patented:** none

THERAPEUTIC AREA

- Cancer/Neoplasm
- Central Nervous System, Mental and Behavioral, Pain