IEEE Visualization Contest 2010 and 2011 Review and Preview

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Visualization Contest 2010
http://viscontest.sdsc.edu/2010

The problem proposed for the Visualization Contest 2010 was focused on assisting neurosurgical planning through visualization. Two comprehensive multimodal data sets including MRT and CT sequences were provided along with relevant questions.

There were a total of 11 submissions (the most vis contest has had so far). The quality of submission was very good overall. For each submission, three reviews were done by visualization experts and two reviews were done by neurosurgical domain experts for top 9 of 11 submissions.

The committee has determined that there is one winner and three honorable mentions.

The winning team receives
- one Apple iPad sponsored by BRAINLAB
- one full registration to VisWeek 2010
- certificates to each team member of the winning team.

Contact

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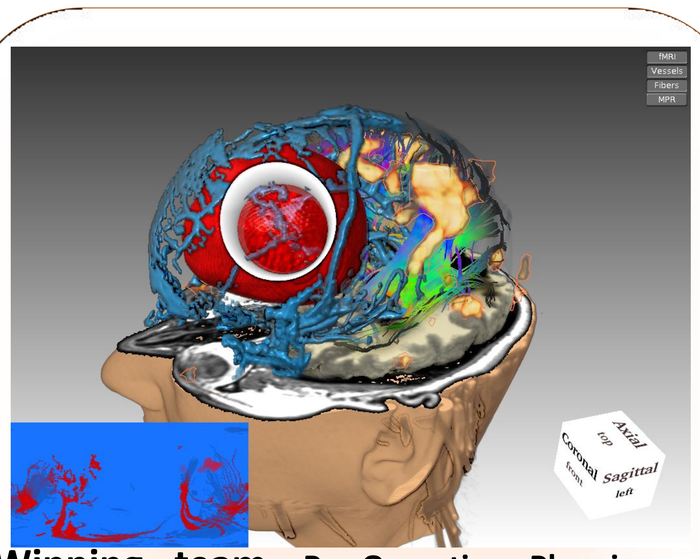
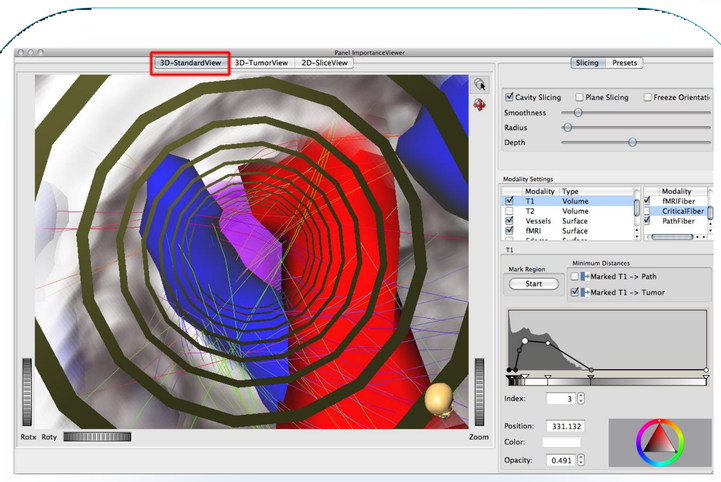
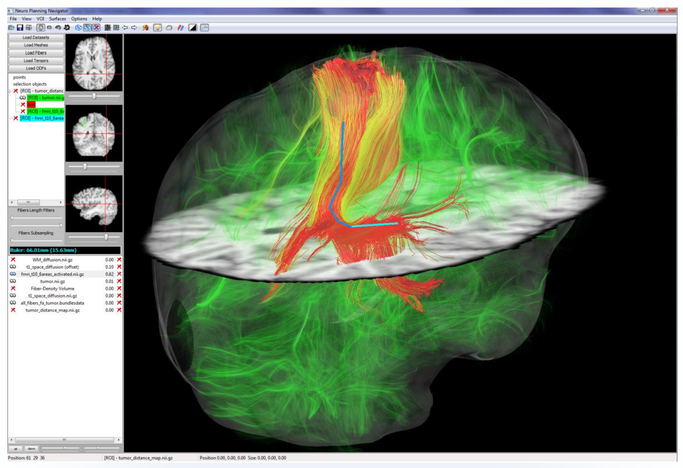
Amit Chourasia, SDSC, San Diego, USA (chair)
Jan Klein, Fraunhofer MEVIS, Germany (co-chair)



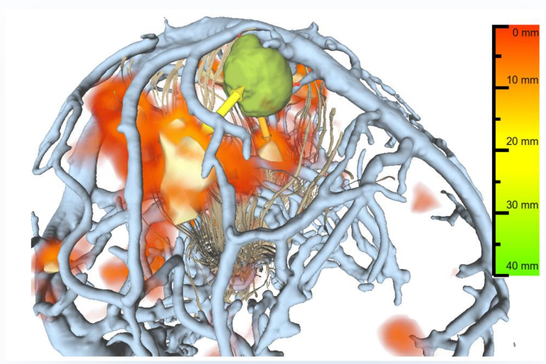
Winning team: Pre-Operative Planning of Brain Tumor Resections, *S. Diepenbrock, J.-S. Praßni, F. Lindemann, H.-W. Bothe, T. Ropinski*



Honorable mention: An Exploration and Planning Tool for Neurosurgical Interventions, D. Röttger, S. Engelhardt, C. Denter, B. Güssefeld, A. Hausdörfer, G. Lochmann, D. Ospelt, J. Paschke, Q. Tao, S. Müller



Honorable mention: A Fiber Navigator for Neurosurgical Planning (NeuroPlanningNavigator)
O. Vaillancourt, G. Girard, A. Bore, M. Descoteaux



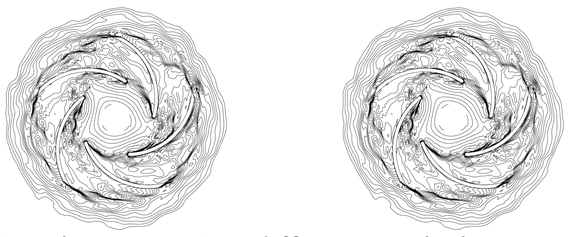
Honorable mention: Neurosurgical Intervention Planning with VolV, S. Born, D. Wellein, P. Rhone, M. Pfeifle, J. Friedrich, D. Bartz

Visualization Contest 2011
http://viscontest.sdsc.edu/2011

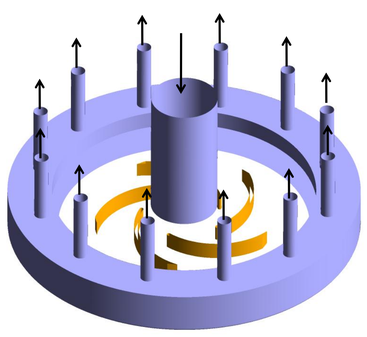
The Visualization Contest 2011 targets the field of fluid dynamics. The overall goal is to visualize the instability of the flow of a centrifugal pump and help to understand the movement and development of rotating stall cells based on 3 different turbulence models. The goal is to find a visualization such that researchers can easily gain insights as to *where* these vortices develop, *how* the stall moves and, possibly, *why* they develop.

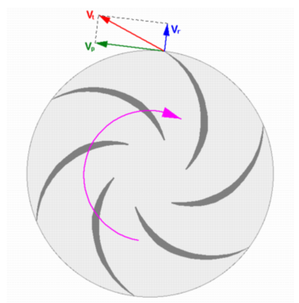
Turbulence models

Because hybrid turbulence models are the state-of-the-art today, two of the models we have chosen are from this class, namely DES and SAS. The third model we have chosen, SST, is a model of the RANS class, which are the classical turbulence models, some of which exist for tens of years. We have chosen SST because it is one of the best in its class.

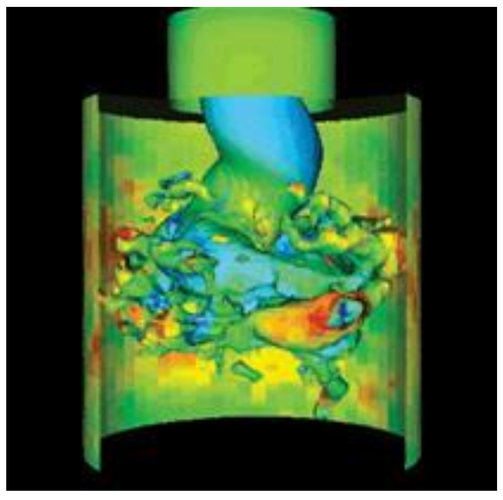


Visualization using different turbulence models: SAS vs SST.





A centrifugal pump uses a spinning "impeller" which normally has backward-swept blades



Fluid dynamics simulation of a centrifugal pump.

Data sets

We provide 3 data sets of the same centrifugal pump, each obtained with a different turbulence model.

Each data set comprises one full rotation of the centrifugal pump consisting of 80 time steps. The numerical setup comprises 6.7 mio nodes and 6.4 mio cells, respectively. The setup contains 2 stationary domains (inlet and diffuser) and the moving rotor domain.

The data can be downloaded in two different formats, *Ansys 12.0 CFX* and *EnSight Gold*. Other formats are available on request.

Deadline: July 29 2011

Awards

The winning team will receive
- one Apple iPad sponsored by CEI
- one full registration to VisWeek 2011
- certificates to each team member of the winning team.

Depending on the number of submissions, honorable-mention submissions will be awarded.

Contact

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