



# Visual Computing in Geoscience and Reservoir Engineering

A Special Track of the  
9th International Symposium on Visual Computing (ISVC'13)

<http://www.isvc.net>

July 29-31, 2013, Crete, Greece

## Scope:

Data handled in geoscience and reservoir engineering are highly diversified. They are multiscale; space and time scales range from "Nano" to "Kilo". Oil and gas field models may contain petrofacies analyzed in nanometers to reservoir extensions described in kilometers. Time scales can range from milliseconds in high frequency microseismic events to 3D seismic reflection data series sampled with years in between. The data is multimodal as it covers sources such as subsurface imaging, measurements and simulation results. Finally, the data requires different interpolation schemes as they vary in regularity, resolution and sampling. The data sets can be very sparse and at different resolutions containing few measurements such as well logs, or can be dense 3D seismic volumes. Thus, all steps of analyzing, modeling and handling this data opens up a rich field for applying and developing visual computing techniques.

This track seeks papers that apply visual computing (interaction techniques and methodologies, computer vision, computer graphics, virtual reality, real time data processing, visualization, and visual analytics) to geoscience and reservoir engineering. We seek works that present new visual computing techniques or improvements to existing ones that are highly applicable to geoscience and reservoir engineering applications and systems. Submissions should show (1) actual results using geoscience and reservoir engineering data sets **or** (2) fundamental techniques in visual computing with clear justification and rationale to potential use in geoscience and reservoir engineering data sets and problems. For system-papers, if the contribution is not strongly based on novel techniques, we welcome studies that demonstrate that the application brings improvement to the domain.

The symposium's proceedings will be published by Springer-Verlag in the [Lecture Notes in Computer Science \(LNCS\)](#) series. Selected papers accepted for this track will also be considered for

re-publication in the [Computers and Graphics](#) journal (ISI/SCIE indexed) after significant extensions and revisions.

## Topics:

The topics of interest include but not are limited to the following areas applied to Geosciences:

- **Computer Vision applied to Geoscience and Reservoir Engineering**
  - Segmentation and Grouping
  - Object Recognition/Detection/Categorization
  - Pattern Recognition
  - Statistical Methods and Learning
  - 3D Reconstruction
  - Image-Based Modeling
  - Human-Computer Interfaces
  
- **Computer Graphics applied to Geoscience and Reservoir Engineering**
  - Geometric Modeling
  - Geo-Physically Based Modeling
  - Sketch-Based Shape and Surface Modeling
  - Image-Based Computer Graphics
  - Stylized Rendering
  - Volume Graphics, Semi-Transparent Media
  - Interaction and Human-Computer Interfaces
  - Simulation for Computer Graphics
  
- **Interaction and Virtual Reality applied to Geoscience and Reservoir Engineering**
  - Augmented / Mixed Reality
  - Interactive Display Surfaces (tabletops, display walls, mobile devices)
  - Immersive Visualization
  - Artificial Reality
  - Real-Time Rendering
  - 3D Interaction for VR
  - Modeling and Simulation
  - Collaborative Virtual Environments
  - Tracking and Sensing
  - Human Factors
  
- **Visualization applied to Geoscience and Reservoir Engineering**
  - Information Visualization
  - Scalar, Vector, and Tensor Visualization
  - Multi-dimensional and Multi-Resolution Data Visualization
  - Time Series Data Visualization
  - Volume Visualization
  - Large Scale Data Set Visualization
  - Collaborative and Distributive Visualization
  - Isosurfaces
  - Rendering Techniques
  - Visualization Systems
  - Visual Analytics, Visual Data Mining and Knowledge Discovery
  - Display and Interaction Technology

## Paper Submission Procedure:

Papers submitted to ISVC 2013 Special Track must not have been previously published and must not be currently under consideration for publication elsewhere. Manuscripts should be submitted in camera-ready format and should not exceed **12 pages**, including figures and tables (see <http://www.isvc.net> for details). All papers accepted will appear in the symposium proceedings which will be published by **Springer-Verlag** in the **Lecture Notes in Computer Science (LNCS)** series.



### Important Dates:

<b>Paper submissions</b>	May 10, 2013
<b>Notification of acceptance</b>	June 10, 2013
<b>Final camera ready paper</b>	June 28, 2013
<b>Advance Registration</b>	June 28, 2013
<b>ISVC'13 Symposium</b>	July 29-31, 2013

### Organizers:

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