

Technology and Future Trends in Oil and Gas

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The objective of this presentation is to illustrate how the oil and gas industry uses computer science technology and to explore future trends in this area. Anyone with a computer science background will find this presentation interesting and informative. The presentation will consist of PowerPoint presentation slides and perhaps a VHS video or DVD. The presentation should be approximately 30-40 minutes plus 10-15 minutes for questions, depending on the time restrictions of the conference.

Many people are unaware that oil and gas plays a significant role and furthers the development of new computer science technology. The first part of this presentation will give a basic information about the oil and gas area and the problems that computer scientists are trying to solve in this field.

The presentation also will describe the types of data in oil and gas, how they are acquired, and how the geoscientist understands and interprets this data in order to predict where to find oil and gas. All areas of computer science play a role in the geologist's workflow. A few that will be discussed in this presentation are:

- Visualization and Virtual Reality- Visualization and virtual reality are generally acknowledged to be an indispensable technology for the oil and gas industry. It has been proven many times that they help to reduce the risk in the search for and development of oil and gas resources. Multiple kinds of data and interpretation must be visualized, often in 3D.
- Storage and caching - The variety and size of the data makes the requirements unique. The data volumes that must be supported range from a few megabytes to over 100 gigabytes.
- Communications – Oil companies need to securely transmit and receive data between rig and office. The volume of data can be huge and sometimes needs to be transmitted in real-time.
- Algorithms Design – Oil companies often need to view different data formats with different software tools from different software vendors.

Finally, the presentation will explore future trends in oil and gas and some of the open problems that a young researcher might be interested in for future work.

Background of presenter:

Dr. Francine Evans is a Project Lead at Schlumberger located in Houston, TX. Her research interests are computer graphics, virtual reality, and algorithm design. Dr. Evans earned her Ph.D. in Computer Science in August, 1998 from Stony Brook University, where she was a NSF scholar. Her thesis involved using triangle strips to speed up rendering time in computer graphics. This work was a finalist in the 1997 Long Island Software Awards competition, and currently has over 1000 registered users worldwide. Dr. Evans was recently awarded a patent for the Vtype system she developed, which is a virtual reality system that uses gloves to input text. Previously Dr. Evans worked at Brookhaven National Laboratory and Northrup Grumman. She was a visiting scholar at the NASA/University of Houston Virtual Environments Laboratory.