

## Review Report

# A Window Observing Developments in Visualization Science in the World

Wei, Qing-Ding\*

\* Department of Mechanics, Peking University, Beijing 100871, China, Email: qdwei@pku.edu.cn

Received 10 March 2007

## 1. Introduction

I whenever receive the periodical of JOV, it becomes a target of my colleagues and students to strive for reading. Usually it has been borrowed and disappeared without a trace, while I have not yet found time to look it. Then I set up a system of borrowing: someone borrows from here, can't lend to the third person, return to me face to face directly. After this, others can borrow from here. I call it the system of the single roller chain. The system have two advantages: first, let JOV always among sight of me, unlikely to disappear without a trace; second, while the colleagues and students return this periodical to me, I can discuss some interesting problems with them, such as what is the advantage of a certain visualization technology, what is its limitation, etc. For example, we had a small seminar to discuss micro-nanotechnology of visualization, referring relative papers of JOV vol. 8, 2005 (Sugii, Y. etc, Murphy, M. J. etc, and Yazicioglu, A. G. etc). In fact, to my colleagues, my students and I, this is a very good learning opportunity, because JOV always publishes the newest information on visualization science in the world. One day, I proposed a question to my colleague and students, hoped everybody of them appraises JOV in a few words. While talking about endlessly, they think that there are more representative two sentences: one sentence is: "it is a flag with full color to introduce visualization science to the world "; another sentence is: "it reflects the new trend of studies on visualization in the world ". I add last one: "it is carried on giant's shoulder ".

## 2. A Flag with Full Color to Introduce Visualization Science to the World

JOV is a unique colored visualization magazine in the world that was established in 1998. The Visualization Society of Japan that is the first one in the world was established in 1987. The Japanese periodical <Flow Visualization> changed its title into <Visualization Information> in 1990 (see Fig. 1). After this <Atlas of Visualization> Vol. 1 and Vol. 2 were published in English in 1992 and 1994, respectively (see Fig. 2). They can be seen as the predecessor of JOV.

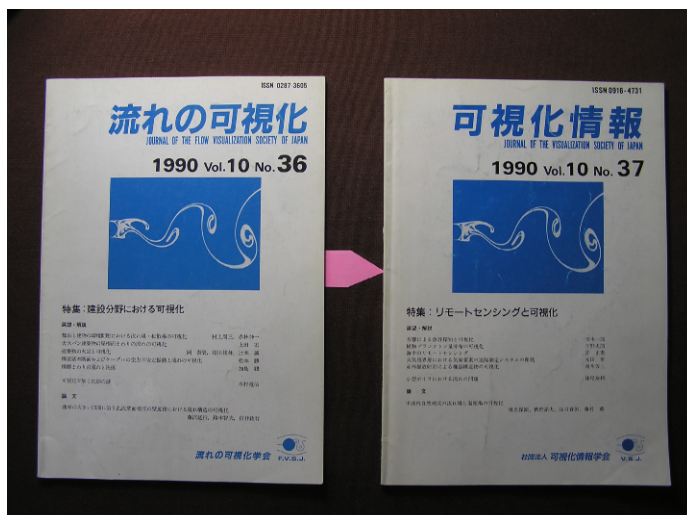


Fig. 1. The title alteration of Japanese <Flow Visualization> in 1990.

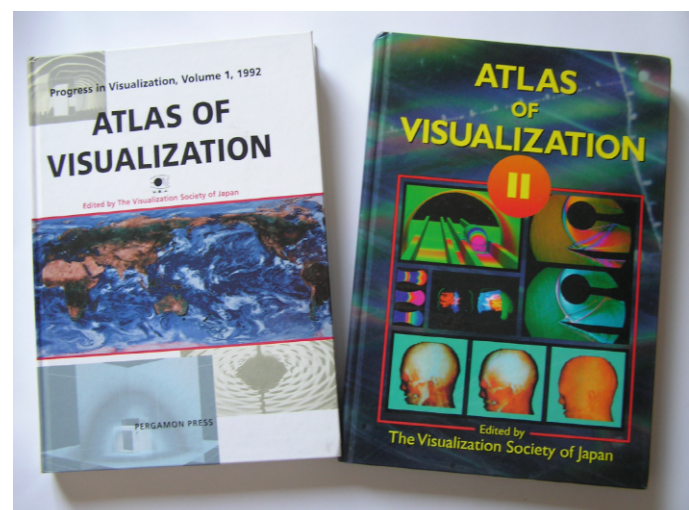


Fig. 2. <Atlas of Visualization> published in 1992 and 1994.

From the history of the Visualization Society of Japan and its Journals we can find that “visualization” changed from a narrow technical term into a scientific discipline term. The publication of JOV seems being a flag lifted by the Visualization Society of Japan on which there are words “Visualization Science”.

The Full color is an important characteristic of JOV. It makes the visualization pattern clearer, finer and more gorgeous, and makes achievements of visualization study being not only the scientific discovery, but also artistic creations. In other words, JOV combines visualization science wonderfully together with artistry by adding the full color printing. Fig. 3-Fig. 5 show three illustrations quoted from three papers published on JOV. The author of this paper invented the captions of them, but the original captions were written in corresponding brackets.

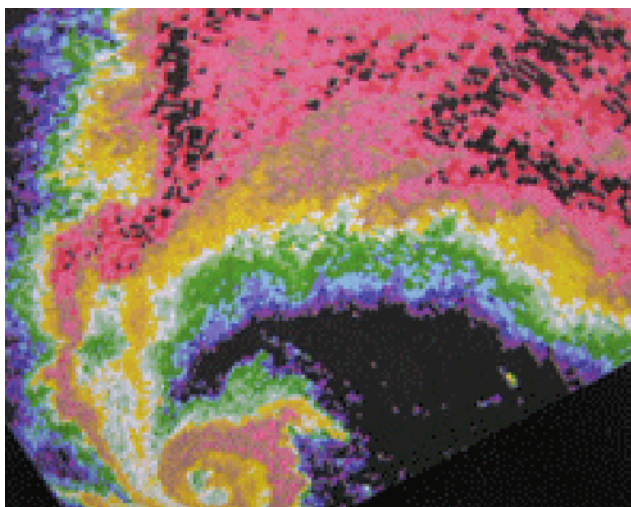


Fig. 3. Colored silk dancing on the sky [Original caption: reflectivity during tornado genesis near Rolla, Kansas at 31 May, 1996 (Wurman, J. 1999)].

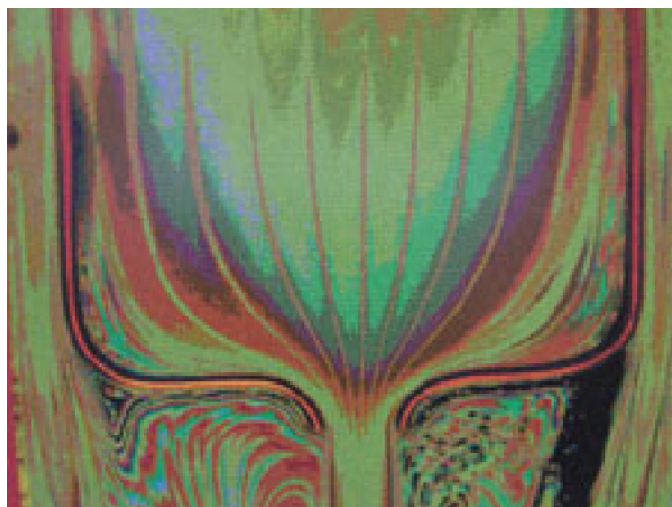


Fig. 4. It looks like the cocktail filled in a rolling cup [Original caption: A two-dimensional sink (Gharib, M. & Bezaie, M. 1999)].

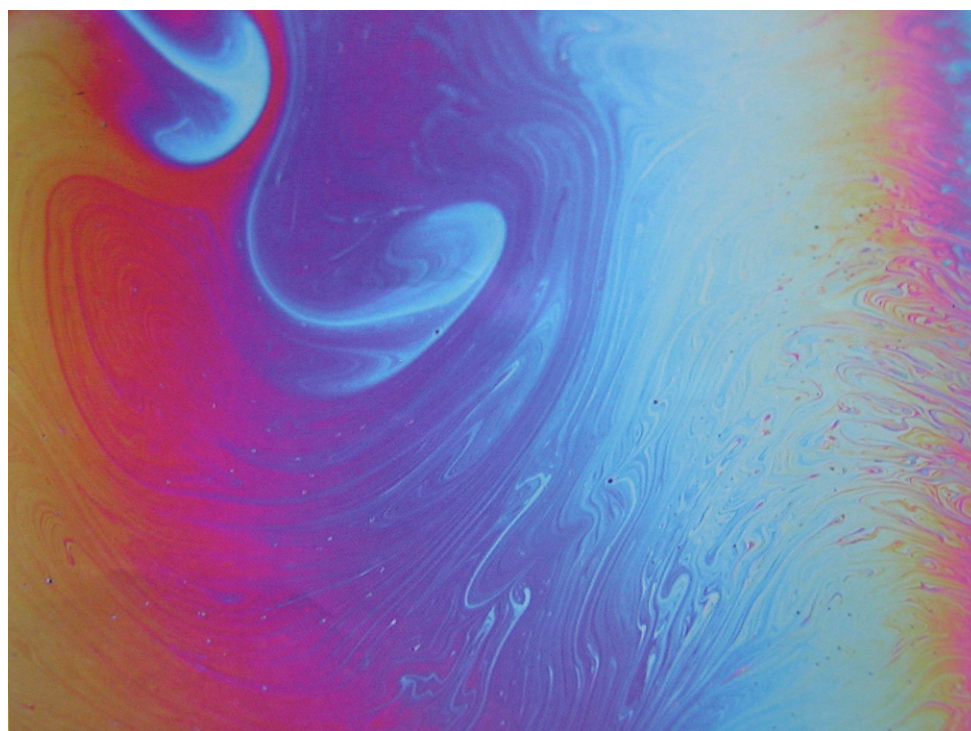


Fig. 5. Fight of fire and water [Original caption: Draining of a soap film illuminated by diffuse sunlight. Jenelle Charbonneau by permission (Herzberg, J. etc. 2005)].

### 3. A Great Window Observing the New Trend of Visualization Study in the World

Generally speaking, academic meetings and periodicals are two ways to reflect the academic trends and guide study direction. As an international periodical of visualization, JOV plays important role of window as following three aspects:

3.1 To introduce the achievements of each branch of visualization studies.

It is the Visualization Society of Japan that proposed a new discipline-visualization science first in the world that combined each visualization studies at different scientific fields. Thus, people can study and apply various visualization techniques and understand the world on the common and wide scientific platform-visualization. As examples, Fig. 6 shows a study on nanoparticle coagulation (Modem, S. etc. 2003) and Fig. 7 shows a precious dissecting model (Hohne, K. etc. 1998). Both are scientific achievements and art works as well.

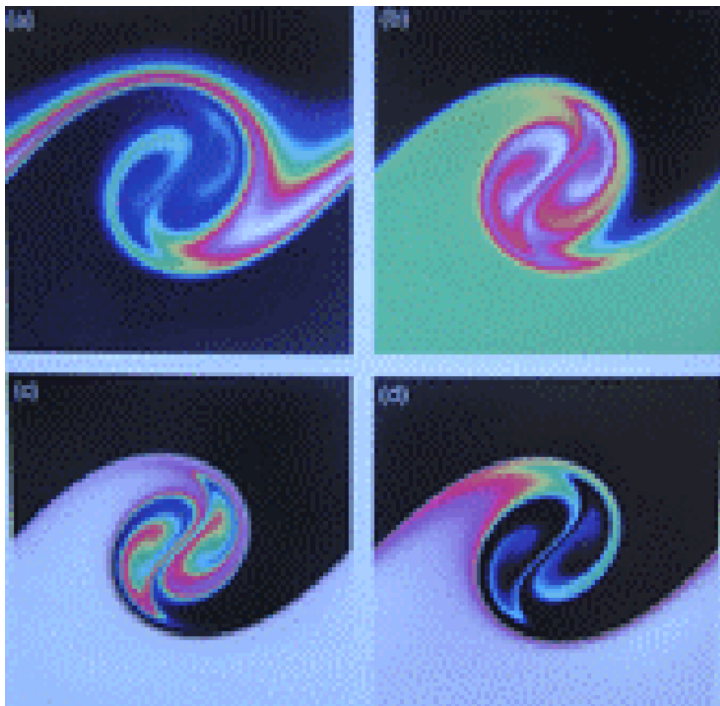


Fig. 6. Instantaneous particle concentration contours at  $t^* = 9.13$  (Modem, S. etc. 2003).

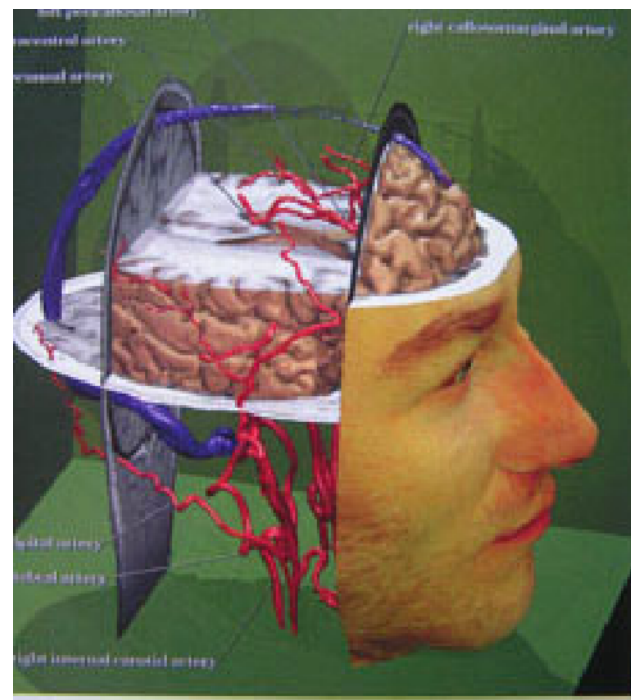


Fig. 7. Volume visualization of visible human head (Hohne, K. etc. 1998).

3.2 To influence researchers not only to pay close attention to frontal discipline including biomedicine, space science, ocean science, astronomy, satellite, material, micro - nanometer discipline, etc., but also to the fundamental researches.

3.3 To show the latest visualization technology, for instance, micro-nanotechnology, 3DPIV, laser holographic, liquid (soap) film tunnel, X-ray scanning, dual-luminophore pressure/temperature sensitive paints, parallel computation and CFD, wavelet multi-resolution analysis, Doppler picture velocimetry (DPV), etc...

### 4. An International Outstanding Periodical Carried on Giant's Shoulder

JOV is a journal of the visualization society of Japan. Its publication once faced the economic crisis many times. Relying on the efforts of editors the difficulties had been overcome again and again. This kind of efforts is outstanding and moving. Some scholars had once supported this publication with personal funds for many years. Some editors went abroad many times to seek the suitable printing factory, in order to reduce the cost of the periodical. Some editors attend various conferences, taking heavy publicity materials on JOV to introduce this periodical and so on. Such stirring deeds were too numerous to mention individually. The editors-in- chief and editors of JOV who I familiar with, such as Prof. Nakayama Y., Prof. Tanida Y., Prof. Kobayashi T. and Prof. Takei M. etc. are all famous scholars, but they do a lot of ordinary publication work to establish and support JOV. I say, JOV is the international outstanding periodical carried on giant's shoulder, because I consider they are giants who devote themselves to visualization science. On the occasion of 10th anniversary of JOV, I

would like to express deep gratitude and sincere compliments to them, wish JOV to be done better and better. I wrote a poem with Chinese five characters to a line (Fig. 8) as congratulations finally.



Fig. 8. The congratulatory poet with five Chinese characters to a line.

### References

- Gharib, M. and Beizaie, M., Visualization of Two-dimensional Flows by a Liquid (Soap) Film Tunnel, *Journal of Visualization*, 2-2 (1999), 119-126.
- Hertzberg, J. and Sweetman, A., Image of Fluid Flow: Art and Physics by Students, *Journal of Visualization*, 8-2 (2005), 145-152.
- Hohne, K., Schiemann, T. and Tiede, U., Volume Visualization of the VISUBLE MAM, *Journal of Visualization*, 1 (1998), Frontispiece 1.
- Modem, S. and Garrick, S. C., Nanoparticle Coagulation in a Temporal Mixing layer Mean and Size-Selected Images, *Journal of Visualization*, 6-3 (2003), 293-302.
- Murphy, M. J., Adrian, R. J., Stewart, D. S., Elliott, G. S., Thomas, K. A. and Kennedy, J. E., Visualization of Blast Waves Created by Exploding Bridge Wires, *Journal of Visualization*, 8-2 (2005), 125-136.
- Sugii, Y., Okamoto, K., Hibara, A., Tokeshi, M. and Kitamori, T., Effect of Korteweg Stress in Miscible Liquid Two-Layer Flow in a Microfluidic Device, *Journal of Visualization*, 8-2 (2005), 117-124
- Wurman, J., Tornadoes Observed with High Resolution Mobile Radar, *Journal of Visualization*, 2 (1999), Frontispiece 6.
- Yazicioglu, A. G., Megaridis, C. M., Nicholls, A. and Gogotsi, Y., Electron Microscope Visualization of Multiphase Fluids Contained in Closed Carbon Nanotubes, *Journal of Visualization*, 8-2 (2005), 137-144.

### Author Profile



Qing-Ding Wei: He graduated in the Department of Mathematics and Mechanics from Peking University in 1963. He worked in 7th Institute of Aerodynamic Academy of China as a researcher from 1968 to 1976, and then he worked at Peking University up to now. He received his Ph. D degree in 1981 from the University of Tokyo. Now he works at State Laboratory of Turbulence and Complex System (Peking University) as a professor. His research interests are environmental fluid dynamics, experimental fluid mechanics and wind engineering.