

# In Memoriam

## From the Lab to the Field

Nahum Gershon

The MITRE  
Corporation

Jake  
Kolojejchick

General  
Dynamics C4  
Systems



Steve Roth, 1952–2005.

In late 2003, one of Steve Roth's largest projects was going to end in a month. His company, MAYA Viz (since acquired by General Dynamics C4 Systems), was small and a major project ending without follow-up work would put a strain on the whole organization.

Prior to that time, Steve and his team at MAYA Viz had spent five years, on their own, and in the DARPA Command Post of the Future (CPOF) program building a research prototype of a distributed workspace called CoMotion. This prototype helped people share information, understand each other's views, and establish a common ground.

One month before CPOF's scheduled end, the team demonstrated a prototype to several senior US Army commanders in a series of war-gaming exercises. The results were astounding—the prototype demonstrated a huge

decrease in the time users spent on gathering data, freeing their time to do analysis, decision making, and sharing information throughout the team. One of the commanders saw a technology that could help transform how he commanded his organization. He successfully argued to the army leadership that they should fund an experiment where the CPOF software would be fielded to his new command, scheduled for deployment to Baghdad in early 2004.

Steve and his small team now had a tight budget and only five months to transform their laboratory prototype into a functional product that could work with real users on tactical military networks. It was a stressful time. They had to transform not only themselves—not a trivial task—but also refocus the company from R&D to building production-quality software. The stakes were high—mistakes could cost soldiers' lives.

Finally, with the support of the team of CPOF companies, they did it. A number of large military units in combat use the system 24/7. Moreover, this digital workspace system is revolutionizing military command and control. Now soldiers in different locations can collaborate simultaneously without the risk of traveling through dangerous environments to be physically together.

### Looking back

All of Steve's achievements were the result of his fundamental belief in the unique value of people in the decision-making process. To him, computers existed to empower human decision making, rather than replace it. Steve, a dreamer and visionary, started his career as a graduate student in cognitive psychology. Upon graduating from the University of Pittsburgh, he continued to research the use of computers in the learning process. He then moved to the Robotics Institute at Carnegie Mellon University. His project, System for Automated Graphics and Explanation (developed at CMU), allowed complex data to be represented visually in a way that humans could better see, use, and manipulate. SAGE was later commissioned by DARPA to help the military better manage its logistical operations on the battlefield.

Convinced that their software and methods could drastically change the way humans interact with computers, Steve and his colleague, Jake Kolojejchick, launched MAYA Viz to change the world, have fun doing it, and make money (in that order).

### Editor in Chief's Note

I was both surprised and saddened to hear that Steve Roth had died. I didn't know him well as I had only met and talked with him a few times at IEEE Information Visualization Symposia. I do remember chatting with him and Jake Kolojejchick before they presented a paper at a session I was chairing. I was taken with Steve's enthusiasm for and interest in the projects in which he was involved and his ability to convey and share that enthusiasm. He will be missed by all.

—John Dill

## Coming into alignment

The alignment of the stars that brought the CPOF concept into reality was never lost on Steve and Jake. The path from a laboratory exercise of a research prototype to the adoption by the army was a treacherous one. Only by having a firsthand perspective on problems and opportunities would they be able to keep from making a critical misstep that might keep the software from being adopted. Steve and Jake went to Iraq to support the fielding of the software, understand how it was being used, and expand the users' concepts for what they could do with the system.

Steve cherished diversity and the gestalt that came from many different points of view. He enjoyed sharing his vision and giving his team the freedom to expand it from their own perspective. That a varied crew of designers and engineers who had joined a research company volunteered to go into a war zone to ensure the successful fielding of the system they created was a constant amazement to him. Steve instant messaged the team at all hours of the day and night trying to short-circuit misunderstandings and draw attention to potential problems—all to facilitate the delicate transition from research to deployment.

Steve believed that the potential applications of the CoMotion technology were in no way limited to the military. His vision was that future customers would primarily be from the private sector. But despite his success

**All of Steve's achievements were the result of his fundamental belief in the unique value of people in the decision-making process.**

in fielding a working application, Steve dreamed that one day he would go back to research. He relished the challenge of the design problem. He relentlessly pursued architectural purity and user interface consistency, always with a loving disregard for the practical difficulties of implementing the ideal on time and under budget. He refused to accept that it could not be done. He knew that compromises could become entrenched and would erode the purity that made the work unique. Steve patiently and eloquently described his vision to everyone who worked with him and inspired them to think, dream, and change the world along with him.

*Readers may contact Nahum Gershon at [gershon@mitre.org](mailto:gershon@mitre.org) and Jake Kolojchick at [jake@mayaviz.com](mailto:jake@mayaviz.com).*

**IEEE  
Computer Society  
members**

**save  
25%**

**Not a member?  
Join online  
today!**

on all conferences  
sponsored by the  
**IEEE  
Computer Society**

**[www.computer.org/join](http://www.computer.org/join)**