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Message from the Chair

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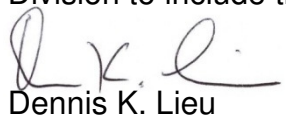
I remember when the movie *Jurassic Park* was first released many years ago. Besides the realistic physical and digital dinosaur models, one of the most memorable scenes was that of a child searching for information on a computer with a graphical user interface (albeit old by today's standards) where information was stored and organized in the form of simulated 3-dimensional objects in a 3-dimesional space. The implication was that information stored in this manner would be so easy and intuitive to manipulate that a child could do it. Geometry is all around us. We can see it, touch it, and change it. Because we experience it every day, we usually find it easy to visualize, simulate, and understand. In the engineering world, the design and production of physical parts has always required the control of geometry. Our work in visual communication must continue to foster not only a deeper understanding of geometry, but also a deeper understanding of the cognitive processes that will make the communication of geometry faster and more accurate. While many people think of geometry as a static condition, it can actually be made dynamic by combining it with other forms of information, and it is this unique quality of geometry that needs to be further explored developed. In the simplest example, a time component can be added to make a three-dimensional presentation into one that is four-dimensional. Time can be unidirectional, and it is for streaming video, or it can be interactive and controllable, and it is in a virtual reality environment. In either case, the amount of information that can be transferred, as compared to a static model, is tremendous. In addition to physical objects, other types of information can be conveyed in the form of geometry. In the past, this presentation has also been static. For example, certain types of data can be presented in the form of bar or pie charts, which essentially take large amounts of information and present them in the form of physical objects. In more recent manifestations, the presentation of data, as well as the search for data, in geometric form can be made dynamic. The transient velocity, density, and pressure distributions of gases in three dimensions, for example, can be shown dynamically with streamlines and colors in finite element models. The search for applications of geometric visualization beyond that of physical objects is still a developing art that presents unique research challenges. I encourage you to search for such applications, and develop them, because they represent opportunities to apply what we know about the understanding and control of geometry to other engineering areas. To be successful in this venture, we must seek and embrace those who are knowledgeable in these new areas, and expand the scope and membership of this Division to include them.



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