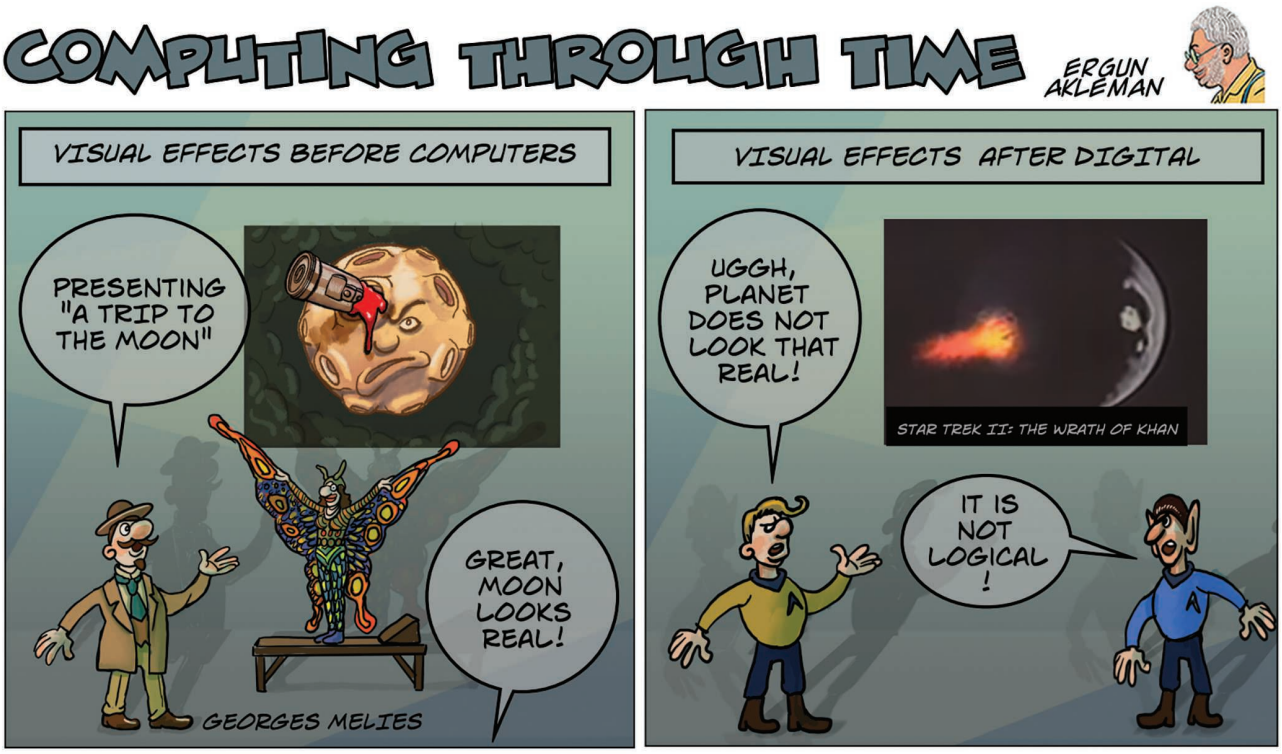

GEORGES MELIES (1861–1938), A FRENCH FILMMAKER, POPULARIZED SPECIAL EFFECTS TECHNIQUES IN MOVIES, SUCH AS SUBSTITUTION SPLICES, MULTIPLE EXPOSURES, TIME-LAPSE PHOTOGRAPHY, DISSOLVES, AND HAND-PAINTED COLOR. ONLY AFTER 1980, COMPUTERS STARTED TO BE USED FOR SPECIAL EFFECTS. *STAR TREK II: THE WRATH OF KHAN* MADE IN 1982 WAS THE FIRST FEATURE FILM CONTAINING A COMPLETELY-COMPUTER-GENERATED (CGI) CINEMATIC IMAGE SEQUENCE. THE SEQUENCE LASTED 60 SECONDS.

Digital Object Identifier 10.1109/MC.2022.3176992
Date of current version: 2 August 2022

The three articles included in this theme issue present very different approaches to fighting complexity." *[Editor's note: See the following three article extracts and my comments.]*

Applying Software Product-Line Architecture; David Dikel et al. (p. 49) "Product-line architecture not only reduces the complexity and cost of developing and maintaining code, but also streamlines the production of documentation, training materials, and product literature. ... Only in conjunction with appropriate organizational behaviors can software architecture effectively control project complexity." (p. 50) "a set of six organizational principles believed critical to the long-term success of a software architecture: • Focusing on simplification, minimization, and clarification. • Adapting the architecture to future customer needs, technology, competition, and business goals. • Establishing a consistent and pervasive architectural rhythm. • Partnering and broadening relations with stake-holders. • Maintaining a clear architecture vision across the enterprise. • Proactively managing risks and opportunities." (p. 54) "Our advisers helped us develop six critical organizational principles, and our study of Nortel confirmed each of them." *[Editor's note: The analysis in this article of these six principles clearly shows the benefit for each of them. Unfortunately, even today many development teams only haphazardly follow those principles.]*

Using Genetic Algorithms to Design Mesh Networks; King-Tim Ko et al. (p. 56) "Designing mesh communication networks is a complex, multiconstraint optimization problem. The design of a network connecting 10 Chinese cities demonstrates the elegance and simplicity that genetic algorithms offer in handling such problems." ... To formulate a genetic algorithm method for mesh communication networks, we needed to define the essential network architecture and the design parameters. We based our design on a well-known problem formation for packet-switched communications networks." (p. 59) "Our approach breaks the problem of network design into three optimization processes—for topology, routing, and capacity—and applied the genetic algorithm technique to each." *[Editor's note: Through this detailed analysis, the authors show that using genetic algorithms leads to better results than using other known algorithms. Looking at the literature, they are not the only ones, but clearly early ones, to use the genetic algorithm approach.]*

Object Structures for Real-Time Systems and Simulators; K.H. (Kane) Kim (p. 62) "The ideal representation (or modeling) scheme should be effective not only for abstracting system designs but also for representing the application environment. It should also be capable of manipulating logical values and temporal characteristics at varying degrees of accuracy. ... The object structure, which evolved out of the abstract concept formulated by Hermann Kopetz and myself, has a concrete syntax structure and execution semantics. It is called TMO (time-triggered message-triggered object; formerly called RTO.k). TMO promotes the uniform, integrated design of real time, distributed systems and the real time simulators