

Advancements in Animatronic Design and Manufacturing

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ABSTRACT

Animatronics is the technological field that combines puppetry techniques with mechanical and electrical components to create lifelike animated effects. The origins of animatronics can be traced back to the automatons designed by 17th century clock makers. Modern animatronics began in the 1960's with the development of animatronics for entertainment and film. In the past decade, there has been a rapid advancement in the way animatronics are designed, analyzed, and manufactured. Much of the growth has been enabled by improvements in robotics, software, additive manufacturing and a push for engineering design and analysis methods. Increased power density of electric actuators has allowed the industry to shift from hydraulic and pneumatic systems to full electric systems. Artists and engineers now work in tandem due to developments in software and digital processes. An overview of animatronics along with specific manufacturing technologies and engineering methods will be presented.