

droidMaker: George Lucas and the Digital Revolution

By Michael Rubin. Gainesville, FL: Triad Publishing Company, 2005. 518 pp.

A Review by Drew Keller
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This book is the inside story of George Lucas, his intensely private company, and their work to revolutionize filmmaking. A revolution that made computer history. It is over 500 pages of technology, film and human information that swings between simple anecdotes and uber-geekish history. Thankfully, Rubin's book is much more than just an anecdotal retelling of the life and times of a filmmaker. He digs into the birth of Pixar, digital video editing, videogame avatars, THX sound, and a host of other icons of the media age. Rubin makes it clear that Lucas played a central role in the universe of entertainment technologies we see every day.

When first looking at Michael Rubin's *droidMaker*, you can't help but be nervous that another 500 pages have been wasted on the special effects magic behind *Star Wars*. Fortunately, that is not the case. *DroidMaker* really captures the 30-year technology journey that runs from the birth of Lucasfilm and ends with Pixar Animation Studios. Before *Star Wars* creator George Lucas became one of today's most innovative filmmakers, he was just a geek with visionary ideas and talent. The book looks at this maverick filmmaker and how he got his start, and how he built his company into the influential powerhouse it is today.

While currently a filmmaker, author and educator, Michael Rubin once worked in the computer division of Lucasfilm as a technological consultant for the first three *Star Wars* Episodes. Because of that time in the DroidWorks division, which created film and sound editing equipment, he saw and learned a lot about their technological advancements in film. Rubin offers a keen insider's view of the workings of Lucasfilm, and his good standing won him unprecedented access to images and key participants at Lucasfilm, [Pixar](#), and [Zoetrope](#); including George Lucas, his executives, and pioneering computer scientists.

A constant thread throughout the book is the portrait of George Lucas as a quiet visionary who thoroughly loathes technology. Even today Lucas does not use email, nor does he surf the thousands of fan sites devoted to the output of his prodigious imagination. The whole rollicking galaxy of *Star Wars* was originally rendered in longhand with a No. 2 pencil. Rubin writes that George Lucas, "...doesn't see himself as a writer, or even a director. He is a very good

visual storyteller - a craftsman, who likes working on things alone, quietly. And the person who really appreciates the tools of the trade is a craftsman."

Lucas and his contemporaries came of age in the 1960s vowing to explode the complacency of the old Hollywood by abandoning traditional formulas for a new kind of filmmaking based on handheld cinematography and radically expressive use of graphics, animation, and sound. Rubin writes that Lucas was heavily influenced by his mentor, friend, and competitor, Francis Ford Coppola, who despised the old Hollywood of "fat, cigar-chomping movie moguls, after whom the studios were named." Coppola was frustrated that there was no technological innovation in Hollywood, a direct contrast to the "New Wave." This movement, which was sweeping through Europe at the time, favored the use of handheld cameras and mobile sound recording equipment. The irony here is that after film school Lucas veered into commercial moviemaking, turning himself into the most financially successful director in history by marketing the ultimate popcorn fodder. Understanding these early years not only casts light on Lucas' current yearning to make experimental films, it reveals the frustrations that drove a self-proclaimed Luddite to finance the creation of digital tools that forever changed the craft of moviemaking. It can be argued that his greatest contributions are not '*Star Wars*,' '*Indiana Jones*,' or even '*America Graffiti*,' but rather modern special effects, modern film and television audio creation and mastering, digital filmmaking, and non-linear editing.

The core theme of this book is the efforts of a small circle of computer and graphic scientists to radically push technology. Inspired by Coppola's passion for technology, and armed with the success of the first two *Star Wars* movies, Lucas set aside \$10 million to set up a lab researching computers. In this way, "Coppola and Lucas were the architects of the digital revolution," Rubin said. Lucas built his ranch in Marin County and launched a massive R&D blitz to extend a director's editorial control over not just a film's pacing and choice of shots, but every element inside the frame as well. *Droidmaker* chronicles a particular genius on the part of Lucas of hiring exactly the right people, including unsung heroes such as Ed Catmull, an early tinkerer in computerized movies, who created one of the first digitized computer animations as a student at the University of Utah. Catmull was tasked with three primary areas of focus: optical printing, editing, and sound (with video games coming later). Lucas gave his scientists both the time and room to develop these new technologies that Lucas himself felt was essential to making movies. Rubin reports that LucasFilm even inspired the development of another Bay Area movie outfit when Catmull and fellow scientist Alvy Ray Smith invented the software tool

Pixar 2D Frame Buffer. Rubin's book documents the few successes and many challenges that Catmull and Smith's team at Lucasfilm faced as they tried to make computers do incredible things when the machines weren't quite up to the tasks. In one longstanding challenge, Rubin describes how Catmull labored to write an algorithm that solved the problem of creating motion blur, as in a flying bee's wings or a billiard ball moving swiftly across the table. These engineers and scientists were able to wow fellow technophiles by accomplishing feats other design houses couldn't dream of.

The book covers a lot of technical discussions, but Rubin's writing style is accessible rather than dry. Rubin has also done a fine job of getting his facts straight. *DroidMaker* is incredibly detailed, discursive and eye-opening, making Lucas' shadow loom large over the world of contemporary media whether you liked *Star Wars* prequels or not. The author weaves together Francis Ford Coppola, Akira Kurosawa, Steven Spielberg, Michael Crichton, Atari, Sun Microsystems, AOL, Pixar and more while occupying a middle ground between the Lucas-sanctioned hagiography of Marcus Hearn's *The Cinema of George Lucas* and the no-holds barred approach of Dale Pollock's *Skywalking*. For Rubin, the real story is the paper trail of events and technological developments that led to their being possible in the first place. Rubin gives a thorough account of every aspect in the story. He covers the motivations of Coppola and Lucas, the technophiles, and the technology that arose out of their work.

What you won't find is a mushy tribute to *Star Wars* and the "magic" behind it. The *Star Wars* characters, stories and myths have little role in this book. Therefore, if you're not a film making buff, the book might drag in a few parts. Rubin spends a lot of time going over the film editing process and how Lucas' work helped push editing tools along. Such information proved compelling up to a point, but I can see how it could become an overload for some. Just to be honest, my perspective is quite skewed. Because I have worked with all of the 2D, 3D, and editing tools discussed in Rubin's book the content struck quite close to home for me. You may need to have an interest in the technology to get through the technical background, and I am afraid the details in the stories can be a bit arcane, but it is not a difficult read. And I have to admit I really enjoyed the human scale of the story, it was almost like reading *People Magazine* for geeks. You really begin to identify with the challenges faced by each of these developers. It is a technical story told on a very human scale. The book gives the engineers their due and allows them to steal the limelight for a moment from Lucas and Coppola. It may read a bit drier than the typical, sensationalized business profiles, but that's part of *droidMaker's* charm.

I came away from droidMaker believing that Lucas and Coppola are the Lenin and Trotsky of the digital media revolution. And the real revolution is just beginning. I thoroughly recommend this book.