

THE PIXAR TOUCH

The Making of a Company

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1

The early days – Utah and NYIT

“Now and then in history one finds a time and place that seems to be charmed, where talent has assembled in a way that appears to defy all laws of probability – drama in Elizabethan London, philosophy in Athens during the third century BC, painting in late-fifteenth-century and early-sixteenth-century Florence. One of the lesser knowns among these is Salt Lake City in the 1960s and early 1970s – to be more precise, computer graphics at the University of Utah computer science department.”

– David Price

Although it was not realized at the time, a genuine academic “dream team” for computer science assembled at the University of Utah in the 1960s and 1970s. The university was just in the throes of setting up a new computer science department and it recruited a number of people to work there who were on the cutting edge of developments in the brand new field of computer graphics. Not only were the UofU staff the best in the field but many of the graduate students were earning their doctorates doing work which would come to lay the foundation for how the computer graphics industry would grow in the future.

Some of the students who attended the University of Utah in this era went on to highly impressive commercial achievements. John Warnock co-founded Adobe Systems. Jim Clark would go on to found Silicon graphics and co-found Netscape. Nolan Bushnell would start Atari. And in the middle of that mix of future talent was a young graduate student named Ed Catmull who would help found Pixar.

Catmull had come to the University of Utah with a very radical idea for his doctoral thesis. He wanted to use computers to make cartoons and feature-length animated films. The idea was totally ludicrous at the time because computer graphics was in such a rudimentary state it was more on the lunatic fringe of computer science than anything else. Catmull figured someone was going to make this happen eventually and he wanted to get started right here and now.

Ed Catmull had actually grown up wanting to work as an animator. He had been so inspired by the Disney movies *Peter Pan* and *Pinocchio* when he was growing up that as a boy, he had started hand drawing flip books the way animators worked. About the time he was in high school, he concluded he couldn't draw well enough to make a living as an animator. Therefore, when personal computers first came along in the 1960s, he decided a computer just might allow him to do animation after all. Catmull strongly believed eventually someone would use computers to make feature-length films so he wanted in.

Ed Catmull's doctoral thesis in 1974 dealt with the use of what he termed bicubic patches to represent three-dimensional curves. He also went into texture mapping and an invention he called the Z-buffer which kept track of the distance between the viewer and the closest surface of each point in a scene. On graduation from the University of Utah with a freshly minted doctorate in computer science, Catmull reluctantly accepted a programming job with a Boston based company called Applicon which was developing software for computer-aided design. It wasn't anything to do with computer graphics but Ed Catmull (by this time 29 years old) had a wife and a two-year old son so he needed a job to support his family.

After being in Boston for several months, Catmull received a strange phone call one day. A secretary for Alexander Schure, a successful entrepreneur, rang to ask Catmull to come to New

York to meet Mr. Schure. Unbeknown to Catmull, Alexander Schure had been to the University of Utah and had purchased every piece of computer graphics hardware they had developed and were now selling. Schure wanted to set up his own computer graphics operation, and the people at the University of Utah had suggested he should hire Ed Catmull to run it for him. Once Catmull understood the background details, he flew to New York and found Schure was offering him his dream job – the opportunity to run a research lab devoted entirely to computer animation. Catmull quickly accepted the new position and moved to New York to start work in November 1974.

Schure had previously set up his own private university called the New York Institute of Technology in 1955 so Catmull became director of the NYIT Computer Graphics Lab – even though the graphics department had no real involvement or links with the rest of the university other than Schure. The lab was set up in a converted four-car garage on Long Island's North Shore and Catmull wasted no time gathering a team of people he knew to work with him. The allure of doing some cutting edge work in computer graphics was highly attractive and very quickly Catmull was able to put together a team of people who like him were passionate about the challenge of building whatever would be required to make animated films on a computer.

“The NYIT Computer Graphics Lab was an ocean of opportunity and freedom: Your job was whatever you thought was important, so long as you were filling in a piece of the computer animation puzzle. Catmull's style was to try to re-create the atmosphere of an academic department – Utah's – and so the result was a loose-knit collection of largely self-directed projects. His role, as he practiced it, was to empower others: to offer counsel when asked, to run interference with the university, to handle issues with Schure. Dictates from the top were virtually nonexistent. The style was a natural fit for the lab's talented and self-motivated staff, with their ardor for the work.”

– David Price

Adding to the allure of NYIT. Schure was always buying more equipment. When Digital released their VAX minicomputer, Schure bought the first machine off the assembly line for more than \$200,000 (in mid-1970s dollars). When it was casually mentioned the lab needed some more frame buffers, Schure went out and bought another five for around \$300,000. He was an excellent sponsor to have, although he also had a few drawbacks. For one thing, nobody ever could quite figure out what he was talking about at any one time because he tended to talk in grand rhetoric that never quite made sense. He also switched so quickly from one topic to another during a conversation that it was difficult to keep track of what was being discussed. In addition, Schure harbored a grand vision of becoming a movie director himself. The folly of this was highlighted when Schure made his first animated film using conventional animation artists working by hand. This film was a disaster and it suddenly dawned on Ed Catmull and everyone else in the computer graphics lab that money and technical genius in and of themselves were not enough. To make good films, you also had to have people on board who understood all of the elements of film storytelling. Catmull realized he was in the wrong place to make good movies.

Catmull and some of his closest confidantes at the computer graphics lab decided they had better take matters into their own hands. They started taking time during their summer vacations to go to Los Angeles and visit with the major movie studios to see if they could find anyone who would be interested in helping them

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