I Started a Business as an Engineering Undergraduate
(And Lived to Tell About It)

by Nathan Thompson, CU College of Engineering, Class of 1983

In 1979, I found out that my summer employer wasn't going to meet payroll. As a second-semester Electrical Engineering/Computer Science major at CU, I was used to surviving on a tight budget. But this was serious - I had tuition and rent bills due with no means of paying them. Given the intense second semester engineering curriculum, I knew I could not find time for a job paying enough to meet my pressing financial needs. With few options open, I decided to do something amazing. Using knowledge gained from summer jobs, I decided to take my last $500 and start a business buying and reselling used computer equipment. Even more amazing is the fact that I actually graduated BS EE/CS in 1983.

(above) School days - me in 1981

Today that company, Spectra Logic Corp., is headquartered in four buildings at 55th and Arapaho in Boulder. We have offices in California, Dallas, Chicago, Raleigh, New Jersey, Tokyo and London. We employ approximately 200 persons, with around 50% having engineering or technical responsibilities. Our present product lines include robotic tape libraries, and our "Alexandria" storage management software. Spectra Logic's products are used by companies around the world, including Intel, Boeing, Hewlett Packard, Oracle, Aerospatiale, AMP Corporation, Merrill Lynch, Corporate Express, NASA, Industrial Light and Magic, Gulfstream Aerospace, Rubbermaid, Honda, Cisco and AT&T.

In the technical world one often hears two common sayings - "Necessity is the mother of invention", and "Invent a better mousetrap and the world will beat a path to your door". In order to succeed, I have had to modify both. I'll discuss how and why in the rest of this article.

In our first year, things were really tight. I nearly got thrown out of both school and my apartment for delays in paying tuition and rent. Often, when I was inventory rich or waiting on payment from customers, I was so cash poor that it affected my caloric intake. Against all odds, at the end of spring semester I was still in business and still in engineering school. This leads me to modify the first saying to read: "If necessity is the mother of invention, then starvation is its grandmother".

In our second and third year of business, revenues grew substantially, and I hired my first part-time employees. The company transitioned to integrating computer systems for local companies such as MiniScribe (now Maxtor) and Storage Technology Corp. Reality set in. I learned the hard way just how much time it takes to run a business. For the rest of my college career, I averaged between 3 and 5 hours of sleep per night. Work responsibilities kept social activities to a bare minimum, and cash was always tight. Keeping up with homework, customer needs, lab write-ups, hiring, research papers, and taxes was a daunting task - I am still surprised that I survived. CU used to have an IEEE student lounge with a free phone in the EE Wing of the engineering center. I made most of my sales calls from that phone.

(above) Our office/warehouse/ factory - my living room - during a production push.

During our fourth year in business, we were working out of the basement of a house in Martin Acres. I lived upstairs with a roommate. Our principle business

had shifted again and we were designing and manufacturing add-on memory boards for minicomputers made by Texas Instruments and other companies. We had grown to about ten employees, mostly CU students. (Many of these pioneers now hold significant responsibilities within our organization.) As a four-year engineering student in my fifth year, I was able to organize my schedule to take morning classes and run the business in the afternoons and evenings. Homework, always the bane of engineering students, was relegated to late nights and early mornings. We plowed the profits back into the business, but our relative financial success allowed a few timesaving luxuries such as a part-time housekeeper and meals in restaurants.

The next big push was the race between graduation and eviction. My neighbors in Martin Acres opposed having a business run out of a residence and started a concerted effort to evict. Moving into commercial space would have been a schedule and cost impossibility, so we fought off their efforts just long enough so that I could graduate. That done, we moved into our first building.

From that point the business has steadily grown in revenue and employees. Responding to market changes, we have completely changed our product offering four times. But that original $500, plus a lot of sweat equity, has been parlayed into a vibrant, fast-growing technology company worth millions of dollars.

Now, nearly fifteen years after graduating, I can offer some advice to CU Engineering students: I recommend against starting a business while in school. The risks of failure are high - and mastering the workload of both simultaneously is nearly impossible.

However, starting a business as a student does have some advantages. You will not have been conditioned by previous work environments to "believe what you can't do". I have found that lacking pre-conceived notions about my personal limitations has allowed me to accomplish what experienced persons consider impossible. When I launched my company, I was without family commitments and consequently able to work a large number of hours, a key ingredient to business and technical success.

The disadvantage is that you will make a great number of mistakes due to lack of experience. My greatest mistakes have occurred when I failed to take a hard line on associates who performed at a substandard level, sometimes treating them as friends instead of employees. For many businesses these mistakes can prove fatal, as it nearly has on a couple of occasions for Spectra Logic.

(above) My official 2012 CEO photo

When I was in school, it was not possible for engineering students to take business courses, a reality that has probably cost Spectra Logic millions. I strongly recommend that engineering students take any business courses available. In particular, I suggest taking Engineer Economics, the class that has consistently been the single most useful course from college.

I have also learned that to do great things you must have great people. As CEO, I now do little of the "real work" of the business. My job is planning and communicating strategies to take us into the future, as well as selecting and developing personnel for key positions. I have begun to realize that the prospects for growth and prosperity are dependent on the ability to recruit, train, manage and motivate intelligent and strong people. We are always looking for talented technical personnel, particularly in the areas of electrical, software and systems engineering. We teach business, marketplace and entrepreneurial knowledge. For more information about Spectra Logic products and services, along with a listing of career opportunities, check out our web site at www.spectralogic.com.

Finally, businesses succeed by meeting the needs of their customers. The most common and dangerous mistake engineers make is to believe the saying "Invent a better mousetrap and the world will beat a path to your door." Many technology businesses have died from subscribing to this philosophy. At Spectra Logic, we first try to understand what a prospective customers want, then how we are going to sell that product or service to the customer, and finally how we will develop the product or service. Hence I strongly believe the saying should read "Invent a better mousetrap AND beat a path to the world's door", a practice to which I attribute Spectra Logic's success.

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