



# Sloan Career Cornerstone Center

## Profiles of Industrial Engineers



**Daniel Baker**

**President and Research Scientist  
Kinetic Research and Design  
Seattle, WA**

### **Education:**

B.S. - Industrial and Operations Engineering, University of Michigan, Ann Arbor

M.S. - Industrial and Operations Engineering, University of Michigan, Ann Arbor

Ph.D. - Mechanical Engineering, University of Utah, Salt Lake City

### **Job Description:**

President and Research Scientist of a biomedical research-consulting firm. He is involved with everything from surgical instrumentation design to helping companies integrate people into manufacturing systems.

### **Video Transcript 1:**

"There are really nice things about large companies, and there are really bad things about large companies. And for me the good thing for the large company was that I really got to interact with a lot of different people at a lot of different levels. There was a lot of real interesting information available and instruments available and if you wanted to do something, you could go next door and find somebody who did it and go to an entire lab setup just for that. The drawbacks were I intend to, as you probably notice with having part with the university and part on my own, I'm not a big red tape kind of person and the red tape drove me nuts in a large company. Sometimes it can be overwhelming. To get something done that you think simple and logical may require days or weeks or months of finagling and political clout -- where I tend to like to get things fast and move onto the next one -- next interesting thing."

### **Interview:**

Daniel Baker has his own biomedical engineering consulting firm, Kinetic Research and Design. He describes his work as "everything from surgical instrument design to going out and helping companies integrate people into manufacturing systems by basically trying to [adapt] things for people to use instead of having people trying to adapt [themselves] to a certain technique or a certain object." Baker explains that when a tool is the proper size or the setup is appropriate for the user, he or she is much less likely to tire. If "people are able to use the instruments without great fatigue, they also have improved dexterity, so they are able to do the task. . . much better and much quicker."

### **"Profiles of Industrial Engineers"**

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But finding his present career was not easy for Baker. "As an undergraduate at the University of Michigan, I was taking classes in industrial engineering and mechanical engineering, and I was sort of a little bit lost. . .not knowing what to do or what to take because the classes, a lot of the homework, and the required work didn't really make sense to me."

Baker's studies came into focus, however, when he found the right field. "I took an engineering course one time. . .where you applied engineering principles to how a human being acts or interacts with their environment or their work environment or the world around them. All of a sudden, it became clear that the engineering principles were able to give you very specific answers [to a problem], but that the same person on different days or at different times would give different answers." The human variable fascinated Baker. He continues, "The insight into how a human being actually performs. . .gave me the impetus to really study a lot harder and gave me a new way of looking at the same types of classes that I was taking. My studies really improved at that point."

The second crucial influence in Baker's life was his mentor. As an undergraduate, Baker learned that one of his professors was looking for a student to work in a small business he owned. "I volunteered to work for his company over spring break and ended up working [there] for about two years. That was really my first engineering job which I had before I even had my engineering degree. . . .He convinced me that I had enough going for me that I should go for a master's degree, and he helped me get into the master's program." In the master's program, Baker finally moved into human physiology and its connection to engineering: his own career path.