



Jennifer Flexman

landing a job in industry

Your work is going to fill a large part of your life, and the only way to be truly satisfied is to do what you believe is great work, and the only way to do great work is to love what you do. If you haven't found it yet, keep looking, and don't settle.

—Steve Jobs, Commencement Speech at Stanford University, 2005

Thanks, Steve, but how do I actually get that job? “Landing a job in industry” is the first survey in a three-part series on making the jump from university to various career paths. Look for the next article in July on how to climb the academic ladder.

The Big Search

To a student, graduation can be a time of great anxiety and excitement. The anxiety stems from a fear of the unknown, while new opportunities and a major life change drive the feeling of excitement. I researched landing a job in biomedical engineering so that you, as a student, can be equipped with the knowledge you need to face the job search without trepidation.

This article surveys industry professionals in the Seattle area, but their pearls of wisdom apply to any job market. Representatives from junior to senior levels and in positions from product development to entrepreneurship weighed in to give you an idea of the many options available to biomedical engineers after graduation, as well as some strategies on how to get the job you want.

Where Do You Start?

Starting a job search in industry can be daunting: where are the best opportunities? Recognize that the job search can begin well before you are actually done

with school. Many jobs come from networking and previous internships. For example, Dawn Jorgenson transitioned easily from her graduate work in bioengineering to a job in medical systems through the industry partners she had worked with in university. Jennifer Osborn, who started as a research associate at NanoString Technologies after graduation with her bachelor's in bioengineering, had worked with the com-

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pany during her senior year. Target your skills toward a particular employer or industry; John Donahue tailored his senior year to make him appealing to Immunex, his target employer, and waited ten months for his ideal job to open up. When it did, his perseverance paid off and he got the job.

Of course, not everyone targets a job that far in advance. Perry Hargrave, a newly minted bioengineer, said that he was successful in getting plenty of interviews from applying to jobs he found on the internet. He said that it was helpful to get job information from his previous department and suggested Web sites such as www.sciencecareers.org, www.monster.com, and post-

ings through a local biotechnology association. Other strategies for gaining access to people in industry include noting prominent industry speakers at conferences and targeting the hiring managers themselves as opposed to the human resources department.

Go Big or Go Small

Not all work environments are the same, so identify the size of company that suits your personality. Companies come in all shapes and sizes, but for the sake of simplicity let's categorize them as small or large, based on number of employees and business maturity. Size affects the range of tasks you are expected to accomplish, compensation and benefits you receive, and level of job stability. Naturally, small companies tend to require a greater flexibility in their employees, where the only certainty may be change. Larger companies generally offer narrower job descriptions with more opportunities for formal training.

John Donahue reflects from his experience at Amgen that a big company may have more bureaucracy but also job security, a great opportunity to learn and share best practices, and a chance to interface with people from a variety of backgrounds. Jennifer Osborn's experience at NanoString Technologies, a small company, taught her to play many different roles in her job, with more hands-on learning. Perry Hargrave feels that his current position in a small company gives him a better sense of ownership of his projects than a large company would have.

So, You Want to Be an Entrepreneur?

Working in a start-up environment, regardless of your intention to be the entrepreneur yourself, is a different game for graduating students. Joe

Eichinger, who has founded four different companies, states that he usually hires students with a master's or Ph.D., and he prefers at least a small amount of work experience. He lists three essential characteristics for hiring: 1) requisite design skills and education requiring minimal on-the-job training; 2) a high level of motivation; and 3) ability to work well in a team environment.

If you want to be the entrepreneur, Joe Eichinger suggests starting in a larger company to get operational experience, the ability to work in mixed teams, and the experience of working in a disciplined project environment. It can be difficult to obtain these skills in a small start-up company, but they will provide a solid foundation for your career. Above all, "experience under good leadership seems to be the best [experience]," Joe states, and "an MBA is great, but not needed," pointing to Bill Gates as a prime example of entrepreneurial success without formal business training.

The Soft Skills: Not So Mushy

Is this someone you'd like to go to lunch with? Employers often ask themselves this during interviews. Technical knowledge is the bare minimum; personality sets you apart in a successful interview.

Dorin Panescu lists communication skills and initiative as key characteristics of a potential hire. Joe Eichinger stresses that public speaking is very important in your career, since "one often needs selling or persuasive skills to move an idea forward." It is important to sound confident and be comfortable talking about yourself favorably.

The best way to make this a natural part of your interview is to practice: learn how to articulate your message clearly and persuasively. Remember, you are your own best salesman, and acquiring these skills will serve you well not only in job applications but also throughout your career. To acquire these skills, join a public speaking club or pursue extracurricular activities that allow you to show leadership (for example, start up an EMBS student club or chapter!).

How to Get an Edge

How can you stand out in a crowd? Here are some strategies to get an edge on the competition, such as seeking out training and experience particularly valued in an industry. For example, knowledge of clinical or regulatory affairs appeals to a company involved in commercial applications in biomedical engineering. Dorin Panescu notes that students should get "as much hands-on engineering design as you can," such as through a senior design project, advanced research, or an internship.

Further education can give you an edge, but be aware of the norms in the industry in which you would like to work. Having a Ph.D. can mean the difference between pipetting the days away and leading research initiatives; however, it may not be necessary for rising up through the company, and it is pursued at the cost of work experience. In whatever career you pursue, education and technical know-how will only be part of the package you offer; do not underestimate the power of holding a diverse set of skills and being able to work with other people productively. Good luck with your job search!

By the way, Mr. Jobs, are you hiring?

Editor's Note: *I would like to thank the following individuals who generously shared their experiences in industry, either through personal correspondence or through the career panel organized by the Biomedical Engineering Society (BMES) at the University of Washington.*

- Joe Eichinger has a B.S. in mechanical engineering, is the president and director of CoAptus Medical Corporation and AcousTx Corporation, and has over 25 years of experience in the medical imaging and device industries. He is the co-founder of four companies and has experience in venture capital and investment banking.
- Dorin Panescu obtained a Ph.D. in electrical and computer engineering. With more than 125 issued U.S.

patents to his credit and more than 15 years of medical device research, his experience covers fields such as keratoplasty, cardiac ablation, cardiac pacemakers, and defibrillators. He is currently a principal staff scientist with St. Jude Medical.

- Dawn Jorgenson has a Ph.D. in bioengineering. She is a senior research scientist at Philips Medical Systems where she works in product development, clinical and preclinical trials, and post-market studies with a focus in cardiac electrical therapy.
- Perry Hargrave is a recent graduate with a B.S. in bioengineering. He currently holds the position of biomedical engineer at Blood Cell Storage, a medical device company, where he has many roles, such as in assay development, prototyping, programming, and manufacturing.
- Jennifer Osborn has a B.S. in bioengineering and worked as a research associate at NanoString Technologies, where she researched surface chemistry and microfluidic technologies. She is now working in point-of-care diagnostics as a research associate at the University of Washington.
- John Donahue has a B.S. in chemical engineering and worked for several years as a process development engineer in the Cell Sciences Department at Immunex Corporation, now Amgen. He is currently a senior manager of manufacturing at Amgen's Washington Cell Culture Facility, which produces therapeutic proteins for clinical trials.

Jennifer Flexman is currently studying at the University of Washington, Department of Bioengineering (Image Computing and Systems Laboratory/Neuroimaging and Biotechnology Laboratory), toward a Ph.D. in bioengineering. She graduated with a B.Eng. in electrical engineering from McGill University in 2000 and worked as a wireless test engineer for two years.