

**Preparing For Your Career:
Learn From the Past 50 Years As You Prepare For the Next 50**

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Welcome to the Thirteenth Annual Human Factors and Ergonomics Society Student Career Panel. This year's paper emphasizes the importance of career planning and preparation throughout the graduate school experience. It addresses tried and tested techniques as well as new ideas for finding the ideal career path and position. Early career preparation (or even taking remedial action) both enhances the graduate school experience and helps to secure the ideal job. Beyond the position statements found below, the panel itself will address questions from the audience about career preparation. A second paper will be produced, based upon the panel presentations and discussion, and will be available upon request to session attendees and included alongside this paper in the 2007 edition of the Career Resource Guide.

**LESSONS FROM THE PAST, TRENDS OF
TODAY, AND DREAMS OF THE FUTURE**

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In line with the theme of this year's career panel, my goal in this essay is to remind you of the seminal career preparation guidelines that still hold true today, while at the same time, acknowledging some emerging trends and future conditions. My main contention is that your career preparation or job seeking must utilize a careful blend of tried and true practices coupled with some new-age approaches. The HF/E job market is constantly changing, as is the use of technology in the job listing and seeking process. Those who adapt to the changes, and can accurately predict new trends and job market conditions, will be most successful in obtaining their desired job. Now, let's cook up a winning strategy!

Ingredient #1: Don't Forget the Classics

No new information here, but rather confirmation of selected classic career preparation guidelines that you should adhere to.

First on the list is your academic agenda. Take courses that expand both your knowledge of human factors and the skills relevant to entering the professional field. The latter may include such topics as computer programming, business communications, marketing and computer illustration/prototyping.

Second on your list is resume building. Keep it current as you progress through school and try to turn significant class projects into collateral material that can supplement your resume. Remember to document the process (typically with images) you carry out in the course of a given project, not just the end-product. Finally, remember to build your relationships, both personal and professional, with your professors. They are your key references when seeking your first job and

your goal -- beyond absorbing their knowledge, experience and wisdom -- is to make it easy for them to write a reference letter for you that will stand above the typical “template” version.

Ingredient #2: Include Today’s Trends

Today, more than ever, employers are looking for experienced people, even at the entry level. The time-scale of the current product market is such that most companies need instant results from their human factors hires. The way to be in a position to satisfy this requirement is to obtain one or more internships during school or immediately after you graduate. Internships are the best way to gain exposure to the working world, without the pressures typically associated with a full-time position. And, don’t be afraid to intern more than once. In fact, it is the best way to explore two completely different domains (e.g., medical vs. software) or activities (UI design vs. usability testing) for the purposes of deciding which one best suits you.

Beyond gaining practical experience and (hopefully) learning from your mentors through internships, another current trend is to showcase your skills via a digital portfolio. This is most commonly carried out in the form of a personal website where you can present your resume in a more visual and interactive form, and provide other examples of your HF-relevant skills, experiences and philosophies.

Ingredient #3: Predict the Future

This is the hard part, but perhaps the most valuable. You not only have to predict the future of how human factors professionals will be used in the marketplace (e.g., what new domains may emerge in need of our skills), but also what new skills or attributes may be needed for those domains. Keep abreast of the latest HF/E trends on the Web and keep a constant watch on the industries and companies hiring HF/E professionals or touting the human factors, usability or ergonomic attributes of their products. There’s an old saying that “the best way to predict the future is to create it.” With this in mind, I encourage you to start your own trend, break into a new industry or create a blog about

usability issues for a class of products in need of attention by our profession (and by those who make the products!).

The Mix

The main theme of this essay is to acknowledge that trends of all kinds change over time. Career preparation strategies are no exception. Clearly, there are some seminal approaches to career preparation and job seeking that you should not ignore, but there are also some emerging trends (which translates into employer expectancies) that you must adapt to. What the future holds is a mystery to us all, but those who at least think about it usually gain valuable insights. Best of luck to you all!

The ABCs of Career Development: Attitude, Basics, and Communication

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The ABCs of career development are fundamental to any career, including one in human factors and ergonomics (HF/E). While many consider them “common sense”, as we hear time and again, “common sense” is not very common, so they bear repeating in any session such as this.

Attitude

“Hire for attitude, train for skills” is a phrase I heard some years ago and have come to believe and embrace in my company. People with bad attitudes destroy teams and companies. Bad attitudes are contagious and bring everyone down. When you join an organization, first and foremost, make sure it’s one that you can commit to and believe in. If you do this you can bring the right attitude to it and become an integral part of the spirit, experience, future of it as well as the daily project effort. When you leave an organization, it should be for the right reasons, and it should hurt if you have the right attitude. Demonstrate from the outset that your attitude will strengthen the organization and raise the bar on customer relations and quality of performance. Don’t let “entitlement” or any hint of “I’m here for me” creep into the equation. The

right attitude is reflected in understanding that making the organization, your manager and colleagues, and your client look good is the best strategy for all. It is also the shortest distance between where you start and where you want to be one day.

Basics

HF/E is a field with very broad application. Essentially, any situation in which humans and technology interact is a focus for our field. Because of this breadth and diversity, the Basics are critical to success. By Basics, I am referring to the fundamental tools, techniques, skills, and knowledge that are the underpinnings of our discipline. Knowledge of human beings includes capabilities and limitations, behavioral and cultural stereotypes, anthropometric and biomechanical attributes, motor control, perception and sensation, cognitive abilities, and, most recently, emotional attributes addressed by affective human factors. The knowledge of a broad range of tools and techniques such as task analysis, link analysis, contextual inquiry, workload analysis, signal detection theory and a myriad of others give us the ability to identify, collect, analyze, and interpret data, both qualitative and quantitative in nature in any domain. This is powerful and transportable throughout a career. The understanding of and ability to apply methods and methodology to any domain involving people and technology is even more powerful. Learn the basics. Too often, HF/E professionals coming from engineering know too little about methodology and measurement, while those coming from psychology know too little about technology and engineering methods. Learn a broad set of Basics and keep learning throughout your career. This will keep your professional face fresh and your mind up-to-date.

Communication

The ability to communicate effectively in both verbal and written modes is vital to a successful career. Yes, verbal communication is intimidating but only by getting up and speaking in front of people, does this skill improve. Writing effectively is difficult. Editing effectively even more so. Grab a copy of Strunk and White and learn the

fundamentals of good writing and practice them when you write. Take opportunities to communicate in writing and verbally as serious challenges and work hard at doing them well. Do not be afraid of creativity, humor, or originality when it is appropriate. Even scientific writing need not be drudgery to produce or read. Remember that the best ideas and most lucid thoughts can be lost in poor presentations, boring talks, and incomprehensible manuscripts. Well communicated, ideas take on energy and life and opportunities find the light of day when they otherwise might have been lost in the fog of poor communication.

The ABCs of career development are important and represent elements that throughout one's career will have an influence on its trajectory and you.

Human Factors in the Real World

Mica R. Endsley

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Human factors graduate programs in the U.S. do a wonderful job of preparing students with basic knowledge on human characteristics and capabilities, human factors and experimental design. This knowledge is most appropriate for those will continue to pursue basic research in their professional practice. Human factors, however, is also very much about using this knowledge to solve problems for users in various types of industrial settings. For this, the primary aim of the profession, several additional skills and sets of knowledge become extremely important, and can make the difference in being successful in having human factors incorporated into systems design efforts.

Human Factors in the real world is largely about interface design and how that process integrates into the larger engineering design practice. While some programs do a better job than others of giving students a chance to do design projects, much more is needed.

The larger issues of systems engineering design are also unfortunately rarely taught in graduate school,

but instead have to be picked up on-the-job. Without understanding how our efforts have to integrate with those of other engineers, we stand much less chance of getting our designs implemented.

(1) Requirements – engineers are almost completely driven by the stated requirements of the project. They will often only implement exactly what the requirements list, even if you can demonstrate that your design ideas are valid and will create a better system for the user. Sometimes you can get changes to the requirements made later on in a project, but it is an uphill battle and often frustrating. The best way to get good human factors implemented is to affect the project at the outset through helping to establish the requirements themselves up-front.

(2) Specifications – While human factors people are often very comfortable with tests to determine if A is better than B, they are less well trained in how to translate this knowledge into a set of design specification that engineers can work to. There is an entirely different mindset and process that engineers building hardware and software have for developing systems.

(3) Test & Integration - Human factors professionals actually have a lot to contribute to this portion of the systems engineering process, but often are not included as it can be very focused on software testing (in exclusion of actual users). Usability testing tends to be a separate effort.

Many human factors professionals have learned to be very effective in the real world by learning how their fellow engineers work and adapting human factors to fit within that process. This is an additional skill set that you will need to develop as you transition from school to industry.

Plan Your Attack: A Proactive Approach for Landing Your First Job

Julie T. B. Naga
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Taking a pro-active approach to landing your first job is the key to success. Consider your search an offensive campaign. You will need to take considerable initiative in order to secure initial employment in the human factors (HF) industry. Your first job, after all, will be an important foundation in your career, so it's essential that you find a job that will allow you to grow in the direction you desire.

The basic notions listed here are offered from the perspective of a human factors professional one year after the transition from student to professional. The following tools were found crucial to timely success in pursuing a burgeoning HF career and can help ensure your victory.

Strategy: Plan It Backwards

Start with the date on which you want to be working full time and work backwards. Backwards planning from the time and goal you wish to achieve is a great way to figure out how to get there. By asking yourself, "What do I need to do in order to start work on said day?" Line up goals and the tasks required to complete them with realistic dates: graduation, interviewing, applying, internships, resume preparation, gaining hands-on experience, discover what type of work you want to do, etc.

Spend time mapping out your battle plan. Envision all the steps needed to gain experience, compose your resume, and prepare for interviewing. Plan to work on your battle plan a couple hours a month, instead of in just one big session. As changes occur and opportunities unfold you can adjust easily.

Battle Tested: Relevant Experience

You may find that most employers are looking for HF types with 3+ years of experience – if someone is going to take a chance on you, they want assurance that you can perform.

Illustrate that you are actively pursuing professional avenues. Participation in professional societies, conference attendance, presentations, site visits or performance in studies and analyses are all positive efforts that demonstrate commitment.

Plan to complete two internships, instead of one, in order to get more and varied experience. Job fairs in the region where you will work are a great place to start. Speaking face-to-face with a recruiter can make all the difference. Take note of the companies who are represented at the fairs, engage human factors and have internships available.

The Bomb: Your Perfect Resume

Whether it is the university job center, resume prep books or free advice; use all possible resources to make your resume have impact. Ask not only peers, but professors and professionals to review your resume. How about asking someone at a local HFES or UPA meeting to take a glance at it? Professionals like to help those aspiring in their field.

Attack: The Pro-Active Interview

Research the company with whom you are interviewing. Use the web. Seek out publications and activities in which they are involved. Remember that you are interviewing them too and you want to find out where this work may lead your career. Ask yourself, "How is work they are doing/planning similar to what I have done?" Share your answer with your interviewer. In personal experience, the interview was a conversation about me, the job and the company. Be prepared to ask thoughtful questions to show your sincere interest and give you a sense of the organization. Also, consider contacting groups that are hiring full time HF professionals – they may entertain the idea of an intern or part-time help to aid their work. Ask them. It worked for me.

In conclusion, remember the time and effort you put into preparation for finding your first job will pay off. It may sound severe to compare preparations for your career as a human factors professional to an attack, but when you consider its importance - there is no better approach.

Academics, Employment, Networking, and Work-Life Balance

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All of us face the pressure of work-life balance as a student and as a professional. To optimize this balance for your particular needs you need to think about where you want to live and how many hours per week you would like to work early on in graduate school. Then, you need to select an appropriate specialization. I've had a number of people in the past year tell me that they want to work in a specialty that is just not available in the area where they want to live. They then needed to make some difficult tradeoffs. You should avoid this problem by doing early work-life balance planning. Avoid disappointment later.

Once you figure out what you would like to do, network to meet people that do what interests you. Learn all about there work. Eventually, this networking may lead to a mentorship or an internship or maybe even a job. Networking is sometimes stressful, but it is really easy and fun. Just say hello to the people sitting near you at HFES sessions while waiting for the session to start. Sit near people, not the empty part of the room. Volunteer to help at HFES meetings. Volunteer to help at the National Ergonomics Month (NEM) session. Volunteers at that session have gotten job offers and offers to become more involved in HFES from people watching the program (ask Julie!). When traveling back to the airport share a vehicle. I once met a leader in our field ride sharing.

Internships are a lot of work, but a good internship is a great deal of fun. You can truly contribute to product design and development. You can see your ideas emerge as products or offerings. You may get to travel, manage a budget, and influence a company. Perhaps, you'll even get some experience leading a team. If you really like the work, and your colleagues really like you, and business conditions permit, you may end up with a great job offer—with minimal anxiety. So, plan now, network now, and avoid the job search stress later.

NOTE

The views expressed in this paper are those of the individual participants only and do not necessarily reflect the views of their employers.