

Placement Opportunities for Human Factors Engineering and Ergonomics Professionals

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During the period from January 2006 through December 2006, the Placement Service of Human Factors and Ergonomics Society distributed announcements describing 140 new positions available for human factors and ergonomics professionals. This paper focuses on the 124 placement opportunities for those in Industry and the government/military, and briefly addresses positions in Education. The attributes of the position descriptions examined include: employment sector, degree requirements, work experience, expertise, salary, and geographic location.

The employment sector type seeking the most employees was Consulting Firms that specialize in Human Factors with 29 positions (23 %). The degree required was usually a Masters (48 %) and the geographic area with the most jobs was the Midwest (N=16). The areas of expertise most frequently requested by employers were Engineering and Psychology.

During the period from January 2006 through December 2006, the Placement Service of the Human Factors and Ergonomics Society (HFES) posted job listings describing 140 new positions available for human factors and ergonomics (HF/E) professionals. Employers completed a "Job Listing" form, provided by the HFES Placement Service, on which they provided information on a variety of factors including: employment sector, degree requirements, required work experience, salary, geographic location, and area of expertise. The analysis of these 124 jobs is the basis for this article. Sixteen positions at academic were not included in the main analysis but are discussed briefly before the conclusion section.

Note that only data obtained for new positions in 2006 are analyzed in this article. Thus, positions listed prior to January 2006, which were still listed as positions available in the period following January 1, 2006, were not included. The placement listing was checked at least monthly, although most positions remain on the placement listing for longer periods. Readers should note that this analysis is not a complete listing of all the positions available to HF/E professionals. Related positions are also listed with other placement services, such as HFCareers.com.

Analysis of Placements Listed by the HFES Placement Service

Placement Opportunities by Sectors

The 124 positions discussed in this section were categorized into two employment sectors: Industry and Government/Military. The number of positions available in industry was 81 in the 2004 survey (Anderson, Bakowski, & Moroney, 2005), 96 in the 2002 survey (Voorheis, Snead, & Moroney, 2003), and 111 in the 2005 survey (Loomer, Kish and Moroney, 2005) and 113 in the current analysis. Overall there was a positive increase in the number of positions.

All positions were classified by the author according to employment sector, which was specified in the job or employer description portion of the position announcement. Some classifications were made easily (Honda within Automotive, Medtronic in Medical Systems) while others (e.g. Exponent were more difficult to classify. Positions requested in specific areas (e.g. Biomedical) were classified by that organization's type of industry.

Positions in Human Factor consulting firms accounted for 23 percent of the 124 position announcements. The fifteen percent of the positions in health care/ medical systems may reflect increased health care cost, health care product usability and the need to serve the aging population. The percent of positions in the Government/ Military sector appears to have stabilized. The nine percent (11 positions) for 2006 is similar to 2005 in which the Government/Military sector accounted for 10% (8 positions), and less than 2004 in which it accounted for 15% (Anderson, Bakowski, & Moroney, 2005) and 2003 in which it accounted for 13% (Voorheis, Snead, & Moroney, 2003). This decrease may reflect the government's outsourcing policy. The top seven employment sectors are listed in Figure 1.

Minimum Degree and Minimum Years Experience

In 2006, the degree most frequently specified in job announcements was a Masters (48%), followed by Bachelors (29%), and Doctoral (23%). The percent of positions open to master's degrees has remained fairly stable in recent years (45% in 2005, 44% in 2004). However the percent of positions available at the doctoral level increased from 16.5 in 2005 to 23 percent in 2006. This increase may reflect industry's recognition of the need for doctoral level work. However, additional data will be needed before a trend can be confirmed.

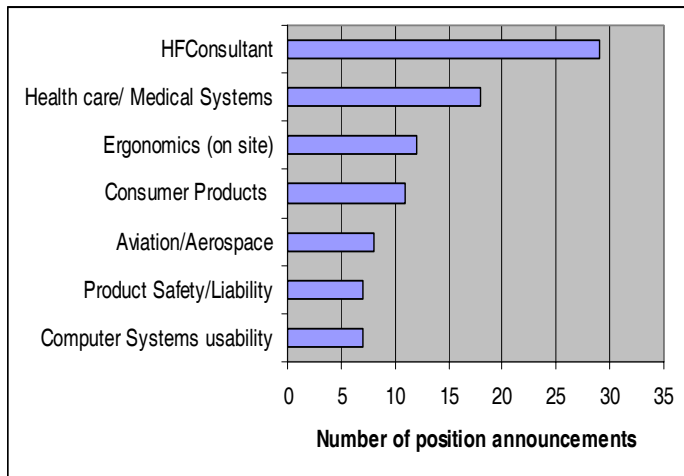


Figure 1: Number of employment sector announcements in 2006 by type of industry (Sectors with N < 7 are not presented)

The academic and experience requirements for placement opportunities within industry for 2006 and 2005 are provided below.

Table 1: A comparison of Years of Experience and Degree Requirement for Job Opportunities in 2006 & 2005.

Placement Opportunities 2006 -2005	Degree Required	Years of Experience Desired	
		Median	Range
Industry/Govt Mil 2006 (N=124)	Some College (N= 0)		
	Bachelor (N = 36)	4.0	0 to 10
	Masters (N = 59)	5.0	0 to 6
	Doctorate (N = 29)	5.5	0 to 6
Industry 2005 (N = 97)	Some College (N=3)	2.0	0 to 4
	Bachelor (N = 34)	5.0	0 to 10
	Masters (N = 44)	5.0	0 to 10
	Doctorate (N = 16)	5.0	0 to 10

Job Expertise Specification

The data used for 'area of expertise' were obtained from a job description of required skills. Employers were allowed to specify as many areas of expertise as necessary. Since these areas of expertise were not prioritized; it was not possible to assess the primary needs of the employer. Figure 2 denotes the fifteen leading categories of expertise specified by the employers.

The areas of expertise indicate the variety of skills required of human factors professionals, and it was difficult to account for all potential skill areas, within the 15 classifications that were used. Experimental Research was a classification of a field of expertise in which employers sought people with a wide variety of research experience to populate/lead research teams. The HCI area may be in a gradual decline with 41 positions specifying this skill in 2006, 43 positions in 2005 and 50 positions in 2004. However, the term interface design has become more inclusive over time and now includes non-HCI positions.

Salary

Seventy-five percent of the employers did not specify a salary in 2006. However, for the 31 positions for which a salary range was specified, the salaries ranged from a low of \$30,000 to a high of \$162,000 (compared to a range of \$30,000 to \$85,210 in 2004 (Anderson et al, 2005); \$30,000 to \$121,000 in 2002 (Voorheis et al, 2003); \$33,000 to \$95,000 in 2000 (Schoeling, Goliber, & Moroney, 2001); \$33,000 to \$100,000 in 1998 (Cummings-Hill, Means, Harrison, & Moroney, 1999)). In 2005, the median minimum salary was \$73,000 and the median maximum salary was \$100,000. These values decreased slightly for 2006, when the median minimum salary was \$65,000 and the median maximum salary was \$96,292. The fluctuation of the salary range (Figure 3) reflects the changes in the overall job market from year to year. While the minimum salary level has remained relatively flat, the maximum has generally increased since 1998.

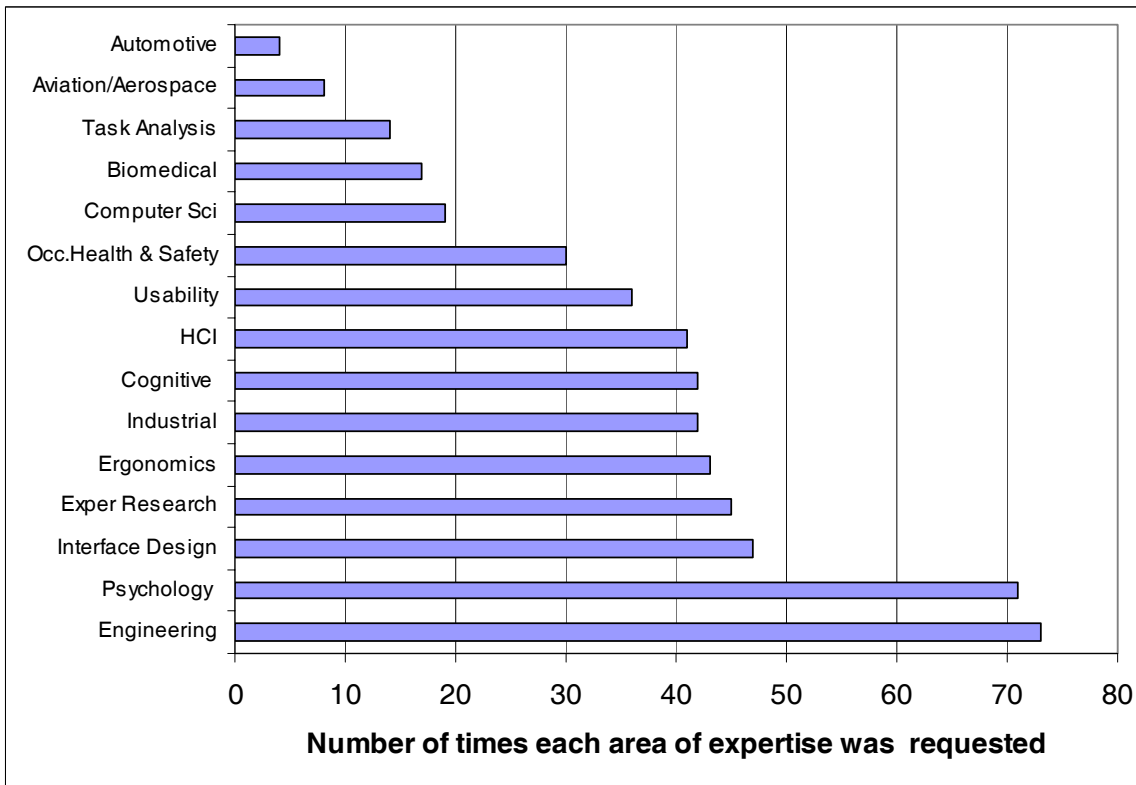


Figure 2: Areas of expertise requested for position in Industry and Government/Military as reported by HFES (N=124)
 Note: More than one area of expertise was usually specified for each position.

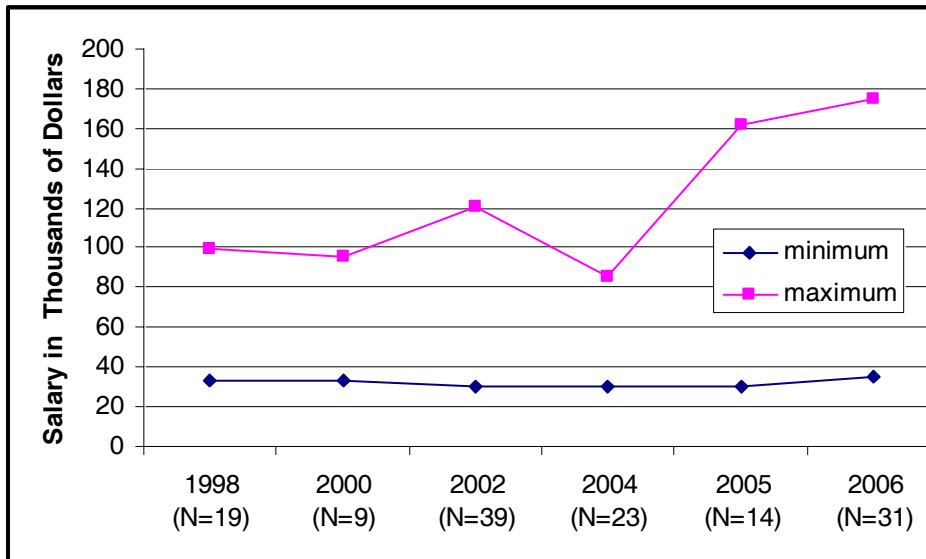


Figure 3: Changes in range of maximum and minimum salaries since 1998

Geographic Location

In 2006, the geographic areas with the most industrial openings were the Midwest (N= 16), California and the South East (N=15 each) and the Mid Atlantic (N=14). The East Central region had 12 openings, while the North East had 11. One position was available in Australia, one in Canada, and the remaining 22 were described a multiple positions available throughout the US. Table 2 identifies the states and the number of positions available within each geographic area. A graphic representation placement opportunities available within the United States is provided in Figure 4.

In 2005 the areas with the most openings were the Northeast (N=32), California (N=17), Mid Atlantic (N=16), and Midwest (N=14). South East and South West had 8 job announcements each. The East Central region had 7 listings, while the Mid Central and Northwest each had 3 listings. In both 2005 and 2006, California was in the top four regions offering positions. It was noted that there was one position in the New England area and there were two positions outside the US.

In 2005, only 3 positions were distributed across multiple areas of the US, unlike the 22 positions for which a specific geographic location was not specified in 2006. This may reflect the increased use of telecommuting and telecommunications.

Table 2: Placement Opportunities for Industry/Government/Military positions by Geographic Areas

Geographic Area	States within the geographic area *	Number of positions within each area
California	CA	15
East Central	IN, KY, MI OH	12
Mid Atlantic	MD, VA, DE, DC, WV	14
Mid Central	KS, MO AR, NE, OK	4
Mid West	IL, IA, MN, WI, ND, SD	16
New England	ME, NH, VT	0
North East	CT, MA, NJ, NY, PA, RI	11
North West	OR, WA, ID, MT, WY	6
South East	FL, GA, MS, NC, SC, TN, AL, LA	15
South West	AZ, CO, TX, NM, UT, NV	7
Other:	Australia	1
	Canada	1
	Location unspecified or multiple locations in US	22

* States in which positions were available are noted in bold.

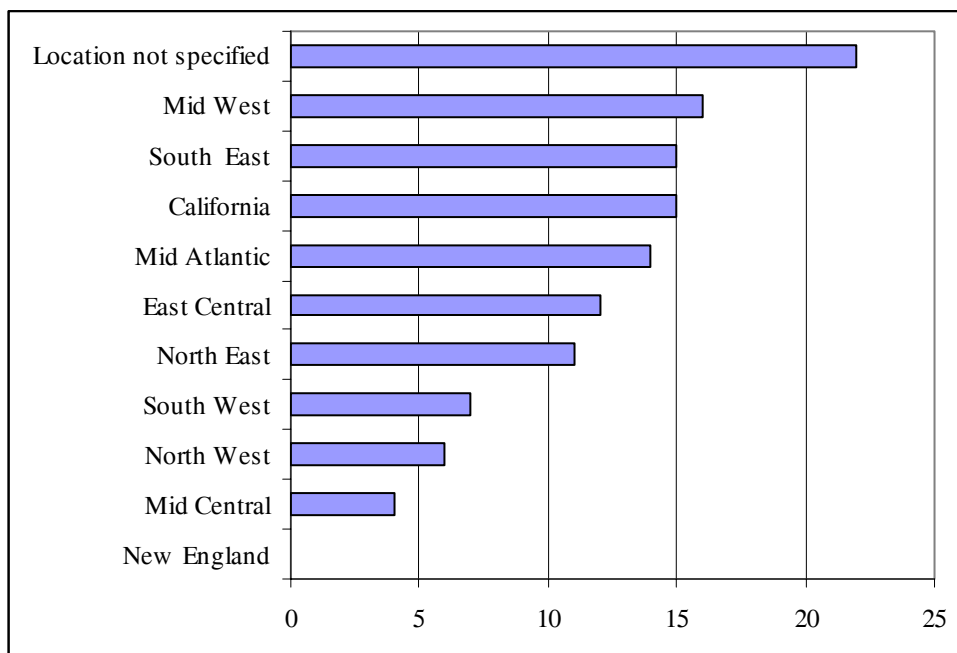


Figure 4: Number of positions available in USA by geographic region during 2006

ACADEMIC POSITIONS

Of the sixteen position announcements from academic institutions, 12 required a PhD, three required a Masters and one required for a Bachelors. Eight of the PhD positions were traditional teaching positions (5 at the Assistant Professor level; 2 at the Assistant/ Associate level, one was a Senior Lecturer position in Australia). Six of the positions were in Psychology, one was in Ergonomics, and the Senior Lecturer Position was in The Department of Aviation. The remaining four PhD positions were at university based research facilities, and sought individuals with backgrounds in modeling, simulation and visualization, cognitive ergonomics/HCI, driving simulation, or Human Systems Integration (HSI).

There were three masters position announcements from research institutes/facilities associated with academic institutions. One sought an individual with an MBA, another sought an individual to support a HSI effort, and the last sought research associates to work in the area of transportation. A bachelor's position was available for an individual interested in transportation.

CONCLUSION

Some of the highlights noted during this analysis were:

- 1) Firms that provide consultant services across a variety of domains had the greatest number of employment opportunities.
- 2) The continued decline in government related positions and the increase in the number of positions available in areas focused on healthcare/medical products and consumer products.
- 3) The presence of many positions at a variety of locations within the U.S., may reflect the increased use of telecommuting.
- 4) California is a consistently leader in the number of position offerings.

The author hopes that this analysis is helpful to individuals seeking positions in the field of human factors and ergonomics. It is also hoped that these data will be used by students as they plan their course work and will influence the educational opportunities provided to HF/E students by their academic institutions

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