



INSIDE HFES

At the Forefront of Human Factors

By Patricia R. DeLucia, Editor in Chief

In January, I started my term as editor in chief of *Human Factors*. In partnership with an outstanding Editorial Board, I hope to build on the initiatives of Bill Marras and prior editors to advance the journal to further levels of success. I am very pleased that the following scholars will serve as associate editors: Michael Byrne, Rakie Cham, Nancy Cooke, Kermit Davis, Mark Draper, Barry Goettl, William Horrey, Peter Keir, John Lee, Daniel Morrow, Penelope Sander-son, Nadine Sarter, Mark Scerbo, Kim-Phuong Vu, Joel Warm, and Matthew Weinger.

The focus of my tenure as editor in chief will be to solicit and publish the highest-quality scientific papers. I have already begun to engage in outreach to solicit manuscripts and to encourage scholars in the field to choose *Human Factors* as the first place to submit their best papers. I also plan to make the submission and review processes more efficient for associate editors, reviewers, and authors. My goal is to shorten the time to first decision to less than 60 days for more than 90% of submissions.

Toward these aims, several changes have been initiated. A new emphasis is being placed on triage. Associate Editors will assess new manuscripts for fit and writing/format issues before deciding whether to send the paper to reviewers. This will allow reviewers to focus primarily on evaluating the science and innovation in the manuscripts, which should reduce reviewer fatigue. In addition, a new submission requirement will be introduced: Every manuscript must include an explicit and clear discussion of practical implications. This is in response to the substantial number of papers that are rejected because of questionable practical relevance. Attempts also are being made to decrease delays that occur throughout the review process and to make Manuscript Central, the publication's document submission system, more user-friendly.

The Editorial Board will monitor trends regarding open access. Currently, authors have the option to publish open-access articles in *Human Factors* for \$1,500. Other online enhancements, such as allowing authors to include supplemental online materials, are being considered.

I have begun soliciting submissions for an exciting new feature: *At the Forefront of Human Factors/Ergonomics*. These invited articles will present brief mini-reviews by leading scholars in the field. The purpose of the mini-reviews is to provide concise, focused, expert reviews of emerging areas in HF/E. Rather than present empirical research or new data or a comprehensive archival review, the mini-reviews will provide summaries of previously published work, with clear implications for theory and practice and recommendations for future research. *At the Forefront* will be accessible to a broader audience than the typical article published in *Human Factors*, including HF/E scholars outside the article's primary focus area and graduate students.

Additionally, I will continue two initiatives that were developed by Bill Marras:

1. The *Human Factors* Prize recognizes excellence in HF/E research through an annual competition in which authors are invited to submit papers on a specific topic. The recipient of the prize receives a cash award of \$10,000 and publication of the paper in *Human Factors*. The

recipient also presents the work at the HFES Annual Meeting. This year, the topic of the competition is human-automation interaction/autonomy, and submissions may be uploaded between April 1 and June 30. In 2015 and 2016, the topics will be sustainability and big data/analytics, respectively.

2. Robert Radwin will continue to serve as the journal's Reviews Associate Editor. He will invite comprehensive reviews that scientifically analyze a body of literature and synthesize the information in an original manner. These reviews will replace chapters previously published in *Reviews of Human Factors/Ergonomics*, which is being discontinued.

I welcome your input on how to further improve the impact and reputation of the journal and streamline the review process. I also strongly encourage you to volunteer as a reviewer for *Human Factors*, which is a vital component of maintaining the high quality of the journal. If you are interested in serving in this capacity, contact me at psychology.hfeditor@ttu.edu.

I am excited about serving the HF/E community in my role of editor in chief, and I am especially optimistic about the future of *Human Factors*.

Human Factors Considerations in Commercial Space Operations

By *Celena H. Dopart, Brian D. Kidwell, and Haydee M. Cuevas*

A panel was held at the 2013 HFES International Annual Meeting to discuss human factors in commercial space operations (CSO) involving human crew and passengers. The panel, which included representatives from academia and industry, drew from the panelists' varied experiences to offer their insights and perspectives on this topic. Following presentation of the panelists' commentary, audience members were invited to pose questions and share their own viewpoints. Below are six major issues gleaned from this open-forum discussion.

Cognitive and collaboration challenges. Passenger and crew interactions will be an important human factors/ergonomics (HF/E) issue for any new population going to space. Entertainment seekers, in addition to more traditional scientific researchers, comprise two distinct populations of future space travelers, each with unique goals, motivations, and limitations. CSO companies must offer accelerated yet effective training that teaches these novices how to deal with the effects of spaceflight on cognitive processes and group dynamics.

Physiology. The physiological effects of spaceflight will become even more of a concern than is now the case with astronauts, given that CSO companies offer this opportunity to almost anyone who can afford it. Most paying customers will not have the same level of preparation as astronauts. The challenge, therefore, is how to adequately prepare these novice space travelers for the physiological stresses of spaceflight without making the training so demanding or time-consuming that it becomes impractical.

Safety. Another issue is ensuring the safety of the vehicles and spaceflight systems developed by CSO companies. The design of systems as seemingly simple as harnesses and seatbelts will be an important concern. Another safety issue will be intra-vehicular activity space suits in case of sudden cabin depressurization. Additionally, how to respond to health emergencies will need to be addressed. CSO companies must find a way to strike a balance between giving their passengers the freedom to experience spaceflight and ensuring their safety.

Spaceflight regulation and policy. Commercial aviation is regulated closely, with the Federal Aviation Administration (FAA) managing U.S. airspace. Currently, no equivalent regulation exists for CSO. Technological and operational issues notwithstanding, the spaceflight industry will become viable only if regulatory and policy issues are addressed; as in the FAA, a civilian equivalent for spaceflight will be required. Granted, the flip side of this issue is the concern that regulations will impose too many limitations, thereby threatening the success of CSO companies.

Commercial versus scientific drivers. Unfortunately, in CSO it will be difficult to separate for-profit entertainment motives from pure science and exploration motives. Profit drives every commercial industry, and commercial spaceflight will be no exception.

Missions. The types of missions pursued by CSO companies will heavily influence all five of the issues previously discussed. Currently, CSO companies are focused primarily on offering suborbital flights to space travelers. With continued interest and greater accessibility and affordability, those companies will expand to orbital flights and eventually might advance toward destination spaceflight (e.g., trips to the moon). For each mission type, the target populations and their HF/E and safety needs must be identified and addressed.

A major goal of the 2013 discussion panel and this follow-up article is to stimulate further work in this area, including, but not limited to, empirical investigations of these issues, targeted workshops, and presentations at future HFES Annual Meetings. Involvement of HF/E researchers and practitioners from academia, industry, and government will be required to support the safe and efficient advancement of commercial human space operations.

Celena Dopart is an aeronautics and astronautics master's candidate in the Man Vehicle Laboratory at MIT. Brian Kidwell is a doctoral student in the Human Factors and Applied Cognition PhD Program at George Mason University. Haydee Cuevas is an assistant professor in the Department of Doctoral Studies at Embry-Riddle Aeronautical University.

HFES Online Graduate Directory

Students are critical to the current and future vitality of the Society and the HF/E profession. To continue fostering this special relationship, HFES provides a number of free resources for students in addition to regular membership benefits (complimentary subscriptions, discounts on other publications and annual meeting registration fees, and free résumé posting).

One of these resources is the online Directory of Human Factors/Ergonomics Graduate Programs in the United States and Canada. This directory assists prospective graduate students with information to make a preliminary selection of graduate programs for further consideration.

If you have a graduate program listing in the directory, or one you would like to list, please provide entries and updates to [Steve Stafford](#). To submit a new program for consideration, download, complete and return the [listing form](#).

Member Milestones: Xidong Xu

HFES member Xidong Xu, a systems engineer at Boeing, was presented with the Research Leadership Award at the 28th Annual Black Engineer of the Year Awards (BEYA) STEM Conference in February. The conference, which took place in Washington, DC, is a multicultural event that unites students, college administrators, recruiters, engineering and IT professionals, scientists, and high-level decision makers from the corporate, government, and military communities, in an effort to broaden diversity in the country's technical and scientific workforces.

The 2014 conference honored successful modern-day inventors, technical innovators, gifted scientists, budding engineers, and high-level managers and executives whose careers are "Going Beyond the Limits" and who are living proof of the benefits of opening doors to opportunity. Congratulations to Xidong for this special achievement!

HFES Award Nominations Due March 31

If you are a Full Member, Fellow, or Emeritus Fellow in good standing, HFES invites you to nominate worthy candidates for eight Society awards, which will be presented at the 2014 Annual Meeting in Chicago.

Candidates need not be HFES members, and may self-nominate (if a member of HFES) or ask colleagues to submit nominations on their behalf. The deadline for award submissions is **March 31**.

To submit a nomination for one of the awards, the nominating member must

- submit the candidate's résumé or curriculum vitae, a nominating letter, and at least two and not more than three letters of support from individuals who know the candidate well enough to assess his or her candidacy in terms of the award's criteria; and
- send all nomination packages via email to [Lynn Strother](#). Please submit the package as a single file in PDF format.

For full details about each award and a list of past winners, visit the [HFES Awards Web page](#).

Diversity in HFES

To keep HFES as healthy and vibrant as possible, the Society's leadership would like to better understand the nature of the diversity of the HFES membership. The HFES Task Force on Diversity is keenly interested in not only understanding the diversity of the organization but also identifying any issues that may exist.

Please take a moment to update the demographic information in your HFES member record. All demographic information is confidential and will not be sold or shared with outside parties. To access your demographic information, simply log in to your member record at hfes.org, click on "View/change my membership information," and click the "Demographics" tab at the top.

Voting System Design Competition

By Arathi Sethumadhavan, Chair, Outreach Division

Are you creative? Are you a design thinker? Are you a problem-solver? Do you have a strong theoretical foundation in human factors/ergonomics? If so, the HFES Outreach Division invites you to participate in the "Design of the Voting System of Tomorrow" competition. This is your opportunity to showcase your talent while solving some of the problems in the current voting system. The competition seeks a cutting-edge, innovative, and interactive user experience that would redefine the future of voting.

Recommendations from the selected team will be provided to the Electoral Commission. Also, the team will be recognized during the HFES 2014 Annual Meeting in Chicago. HFES members and nonmembers are welcome to take part in this competition. To participate, complete the application form by May 1. Final submissions are due on October 3. Refer to the [call for proposals](#) for the application form and more details.

Transitioning from Service to Outreach: Leveraging Student Activities with the Working World

By James Chandler Cunningham

This is the second of three articles summarizing Student Career and Professional Development Day at the 2013 Annual Meeting. The theme of the day was transitions. Panelists represented both recent graduates and successful professionals from universities, industry, and government agencies.

Getting the most out of being a student is not easy. It can be difficult, time-consuming, and confusing trying to figure out which actions help achieve the most from an education. Even if the classwork, homework, and studying feel perfect, it always seems like something is missing and more can be done. Students join professional organizations, participate in university clubs and student chapters, and volunteer for anything and everything! But upon graduation, the obvious question remains: What now?

Luckily for new graduates, many who have faced the same question are more than willing to share their experiences and advice. The second panel of Student Career and Professional Development Day was created to help give professional advice to the imposing challenge of what to do. Panel chair Frank Lacson (Pacific Science and Engineering Group) and panelists Petra Alfred (Pacific Science and Engineering Group), Dan Nathan-Roberts (University of Wisconsin-Madison), and Shanqing “SQ” Yin (Changi General Hospital, Singapore) discussed how students can benefit professionally from their student service and volunteering.

Adaptation

Lacson started the panel by introducing the theme of adaptation, where one integrates volunteer activities as part of a global, personal plan. He noted that matching goals, constraints, and opportunities is a challenge, but successfully doing so and learning how to adapt in different situations is the most helpful skill in preparing for the future. Volunteering is great for learning how to adapt because it gives exposure to novel challenges. The main challenges described by the panelists can be separated into four groups:

1. learning to manage time
2. exposing oneself to mistakes
3. learning to network
4. learning how to get jobs.

Overcoming these hurdles inevitably leads to new opportunities for growth. Adaptation becomes easier from this growth and in turn allows a career path to develop from otherwise difficult situations.

Time Management

One big challenge volunteering offers is the opportunity to learn how to balance time. Lacson rated time as a person’s number-one resource. Because time is such a critical commodity, the panelists all mentioned ways volunteering can help foster time management. Alfred mentioned a perk of time management is being able to go the “extra mile,” which benefits students in the long run by providing new opportunities. She stressed the point that time becomes even more limited with more responsibilities, so it is beneficial to learn how to use time effectively early in one’s career. Yin advised students to make time to take opportunities to serve when they can. Students

should try not to decline opportunities to volunteer because, depending on where one works and lives, there may not be as many options to be exposed to new opportunities in the future. His example was that in Singapore, where work in human factors is almost nonexistent, he was the first person to volunteer to work on human factors issues in his hospital. Because he seized the opportunity to volunteer, he was able to write his own job description when a position became available at the hospital.

Error Cycling

A few of the panelists mentioned that by finding time to perform service and volunteer work, students have opportunities to make errors in low-stakes environments. Although this may sound undesirable at first, the panelists emphasized that the benefit of making mistakes is learning how to not make the same mistakes in the future when the stakes might be much higher. Nathan-Roberts called this process “accelerating the failure-cycle,” or in other words, “getting through all the hiccups as quickly as possible.” He stated that failure helps find and test upper limits, and only by experiencing slips and follies can solutions be found to overcome them in the future. Lacson agreed that volunteering is a great way to “seek mistakes” for this same reason. Later in the panel discussion, a graduate student asked for examples of learning from errors in volunteering. In response, Yin pointed out that any service and volunteering position provides the opportunities for learning how to maintain professionalism. Both Alfred and Nathan-Roberts said volunteering also allows students to explore different fields of HF/E. This can help students organize and focus their career path. Lacson said volunteering helps individuals to set realistic expectations because, “sometimes the mistake is internal... knowing when you’re expecting too much (or too little) from yourself and knowing when you’re expecting too much (or too little) from others.”

Networking

The importance of networking often pops up in talks about careers, but how often do networking opportunities arise? Volunteering exposes students to people, and in turn, challenges them to network. All of the panelists stressed to continue trying new methods of networking to create opportunities for employment, other challenges, and growth. An audience member asked the panelists how to start networking or finding opportunities to volunteer. The panelists offered the following suggestions:

- Join and participate in an HFES technical group
- Join and participate in other HF/E-related groups
- Go to local events inside and outside HF/E
- Join a [Meetup.com](https://www.meetup.com) group
- Go to Ignite/TEDx talks or events
- Participate in professional organizations
- Put together your own panel session
- Talk to someone and ask them what their job entails and how to best prepare for it

Getting a Job

One of the more noticeable benefits of volunteering is setting oneself apart from others in the job market, not only by the skills learned while volunteering (how to work with or lead a group, how to stay organized, how to speak in front of people, etc.) but also by receiving job offers from the people for whom you volunteered. The panelists emphasized that most jobs in HF/E are found in untraditional ways. Collecting business cards from people you meet at conferences and sending them e-mails saying you were glad to have met them may open up opportunities for employment.

By volunteering, students are able to work with people who can guide them to jobs; they can also find mentors that can assist them in their careers. In regards to skills learned from volunteering, most of the panelists agreed that knowing the field in which you want to work helps attain the skills necessary to work in that field. These skills may help students stand out among other job applicants without such experience.

Do it!

Volunteer, because doing so gives you the abilities to adapt to the future. From volunteering comes the ability to know what your time is truly worth. By being exposed to the novel experiences and opportunities volunteering provides, mistakes can be dealt with and learned from. Volunteering also provides networking, which opens up opportunities for more volunteering as well as employment.

In their closing remarks, the panelists summed up their advice to students. Alfred advised students to step into volunteer work by knowing what you want and learning what volunteer positions have to offer. She advised students always to take initiative and let people know they are willing to do extra work. Nathan-Roberts stressed that graduate students are going to school to get a job and should volunteer accordingly. He emphasized that if students know what field they are entering, it helps to gain a depth of experience in volunteering related to that field. Yin said to “always step up to the plate [and] create your own opportunities,” because the opportunities that will help students grow the most may have to be created. Lacson advised to volunteer for “things you love and that will carry you very far.”

James Chandler Cunningham is a master's student in the human factors program at California State University, Long Beach. He currently works in the Center for Human Factors in Advanced Aeronautics Technologies (CHAAT), where he helps ongoing research measuring human performance in complex systems, such as the Next Generation Airspace Transportation System (NextGen). Post-master's, James plans to continue working in aerospace technologies; in particular, developing flight decks for spacecraft.

CALENDAR

July

[78th National Environmental Health Association \(NEHA\) Annual Educational Conference \(AEC\) & Exhibition](#) July 7–10, 2014, Las Vegas, NV.

[2014 Digital Societies and Social Technologies \(DSST\) Summer Institute](#) July 8–10, 2014, Columbia, MO.

[2014 User Experience Professionals Association \(UXPA\) Conference](#), July 21–24, 2014, London, UK.

August

[32nd International System Safety Conference](#), August 1–10, 2014, St. Louis, MO.

[122nd Annual Convention of the American Psychological Association](#), August 7–10, 2014, Washington, DC.

[Society for Information Display \(SID\) Display Week 2014 International Symposium, Seminar and Exhibition](#), June 1–6, 2014, San Diego, CA.

[Public Risk Management Association \(PRIMA\) 2014 Annual Conference](#), June 8–11, 2014, Long Beach, CA.

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