Bettina Bair Interview for ACM-W Connections, March 2016

A role model, mentor and coach for women in computing at Ohio State, Bettina Bair works tirelessly to help attract and retain more women in computing majors. Working side-by-side with students while rounding up corporate support, she founded and supervises the group TWICE, The Women in Computer Engineering. She also founded a student chapter of ACM-W.

Bair has in the past been an active member of ACM-W, serving as part of a committee that developed recruiting materials to encourage middle- and high-school girls to consider careers in computing. Taking a passionate leadership role, Bair organized the first ACM-W Ohio Celebration of Women in Computing, held in 2005. Approximately 100 young women from 13 colleges and universities around Ohio and Michigan attended event.

Bair has guest-written articles for the Columbus Dispatch highlighting the gender imbalance in computing and some of the local efforts to help correct the problem; participated in Women in Engineering workshops; taken young women to the Grace Hopper Celebration of Women in Computing Conference; and presented papers and posters at international conferences while encouraging undergraduate women to do the same. She informs her students through organization and classroom listservs about interesting opportunities and encourages them to apply for grants, scholarships, jobs, conferences and school organizations.

Bettina you have worked extensively both in industry and in academia. What are some of the advantages and disadvantages of working in each?
I left the "real world" in 1997 (after nearly 20 years) and have never felt tempted to return. So I obviously prefer academia, but I'll try to do a fair comparison. Industry careers offer a lot of variety in assignments, good compensation, benefits, security, and a career path without a lot of obvious obstacles. During my 20 years in industry, I changed jobs every year or two, and had a steady increase in responsibilities and compensation. I moved from being an individual contributor to being a manager, and from there to bigger functional and physical territories, with correspondingly large budgets. In academia, I have had the same job, title and general responsibilities for more than 15 years. Advancement is not possible, unless I want to stop doing the teaching work I enjoy. Advantage: Industry

On the other hand, teaching in academia offers me all of the flexibility and autonomy of being my own boss. When I worked in industry, even at higher levels, I was constantly being supervised. Political maneuvering was an increasingly important part of my responsibilities as I advanced. For example, I needed to be sly to get resources so that my people could finish their projects. And I needed to be protective of my employees so that they didn't get abused or stolen by other managers. But, like many women in business, I was criticized for being too aggressive and, oddly, too smart. Academia seems to be much more of a meritocracy. Advantage: Academia

Finally, I should say something about the class system that persists in academia. There is a real difference between being a professor and being a lecturer. That is, lecturers are often treated like itinerant workers who provide the least skilled and least valued services in the academic world. Lecturers are usually part time, adjunct employees of the university or college, with low pay and minimal benefits. Ironically, they also serve the majority of the students, teaching most of the general education and major requirements courses to undergraduates. Professors (and everyone on the tenure-track) are valued for the grants and research dollars they bring to the institution, and so they can "buy" their way out of teaching classes. So be kind to your lecturers. They are really (truly!) working for the love of it.

You have worked hard to overcome the gender imbalance in the computing field. What do you feel are the key factors that cause women to shy away from this field? What do you believe are the best ways to address this imbalance?
It's a very complicated issue. There are probably many factors, from natural disposition, to access to technology and training, as well as social pressures. Some people agree with Harvard President Lawrence Summers, who famously said that there are three reasons why so few women succeed in math and science: women can't balance family and the demands of such careers, there aren't enough women interested in such a career, and women do not have the innate ability to do the work, based on the biology of their brains.

And with smart people at very high levels thinking that women just can't do math and science, it becomes a bit of a self-fulfilling prophecy. But there is nothing in the research to support the idea that women lack the brainpower to write programs. Women have been pioneers of computing since the very beginning. Ada Lovelace wrote her famous notes on how to use the Analytical Engine to calculate Bernoulli numbers in 1843. The first ENIAC programmers were all women. Admiral Grace Hopper was a programmer who invented the compiler. And today there are places in the world where women are encouraged to pursue technology careers, because it's a safe job that offers a lot of flexibility.

Certainly social pressures are a very big determinant in career choice among young people. There is an entire "brogrammer" culture that makes computing seem very unfriendly to outsiders. And popular media, starting with the Dilbert cartoon, uses easy tropes to make desk jobs look like drudgery.

Making social change is hard, but possible. There are some encouraging signs in TV and film: increasingly more programs feature smart women who use their tech skills in exciting ways to solve mysteries, help their communities and fight crime. And back in the real world, there are many programs that are bringing technology training to schools, and encouraging women to try computing, and then stick with it. Organizations like ACM-W, ABI, NCWIT, CSTA, and TECH CORPS are doing excellent work at all levels. Schools like Harvey Mudd College and Georgia Tech have created innovative courses and curricula that have proven that the right design and context can increase the number of women in computing.

For anyone who wants to see more diversity in computing, I suggest that they start by finding an ACM-W chapter in their area. If you can't find one, start one. ACM-W chapters are a great way to build a professional network, and bring attention to the issue of underrepresentation. Recruiters like to connect with the ACM-W chapter in order to arrange special sessions. ACM-W clubs can provide social events like Nerdy Movie Night and sponsor teams for local Hackathons. ACM-W chapters are also the starting point for Regional Celebrations of Women in Computing, like the Grace Hopper Celebration, but closer, more intimate, and less expensive.

Bettina, you obviously have a great love for computer science, what advice would you give to young people considering careers in computing?
Don't hesitate. Jump in now and check out all of the options. There is so much going on in computing now, and it changes so fast, you will find something exciting to work on soon. Computing is fundamental to almost every aspect of human life these days, so no matter what you're interested in, your technology skills will open doors for you.

Everyone loves a geek who wants to help them.

Computing is constantly evolving, with many new disciplines being added. If you were starting over as a computer science student today, what discipline(s) would you want to study?
One of my students just asked me that! I had to think about it for a while. There's so much going on right now, it would be hard to pick just one thing. In my early career, I was very interested in computer graphics. In those days, the field was very limited by the available hardware. Most of the work involved trying to wring a little more performance out of the processors and display units.

I continue to be very interested in low-level programming, systems architecture and device drivers. So maybe I would work on something in robotics or microprocessors (like the arduino or raspberry pi). But I like learning about most new gadgets and applications as they become available.

In regards to the computing field, what is the one thing that you are most proud of about yourself?
I am very proud that my students are making the world safer, more efficient, faster, smarter, and more beautiful.