On-Ramps into Academia

Working to increase the ranks of women faculty

Dr. Mihaela van der Schaar spent seven years in industry before deciding that if she wanted unencumbered, groundbreaking research, then a university might be the better place to be. Likewise, Dr. Lisa Julian spent almost three and a half years in industry as a medicinal chemist, designing and synthesizing small molecule therapeutics, before realizing that she too missed the advantages of teaching at a university.

They're not alone. It's not uncommon for those with doctorates who have ventured away from academic research institutions to discover that they miss that environment.

For Julian, a driving force was the feeling that in industry "you become somewhat removed from science as you move up the management chain." For van der Schaar, it was the desire to pursue research that she felt "would be more rewarding as you are truly able to invent the future without considering your company's profile or backwards compatibility to current engineering products and standards."

Finally, and perhaps most importantly, they both missed teaching, especially their interactions with students who are often, as van der Schaar says of her Ph.D. candidates, "highly motivated, highly intelligent, and eager to invent a new world."

Those who have spent time in industry often worry that they have traveled down a one-way road, but as van der Schaar, a professor in the University of California, Los Angeles' electrical engineering department, and Julian, a postdoc at the University of Illinois, both demonstrate, it is possible to find one's way back to a university.

The University of Washington's (UW) On-Ramps into Academia workshop, a two-day program that focuses on providing professional development and support to women scientists and engineers who are considering transitioning from industry to academia can be helpful to someone contemplating such a career move. It was at the 2009 On-Ramps that van der Schaar, a presenter, had the opportunity to meet and share her experiences with workshop participant Julian.

The On-Ramps Idea Takes Root

As it turns out, science and engineering professionals who are returning from industry to join the ranks of faculty find themselves in a unique and potentially favorable position. For one, those who have been active in research and publishing and those who hold patents and intellectual property are primed for success at a research institution. In addition, those with alternate career experience can provide a bridge between industry and education for students in what can sometimes be an insular academic environment.

Participant Lisa Julian (seated, left) and presenter Ayanna Howard (first row standing, left) gather for a group picture with fellow participants and presenters at the 2009 On-Ramps.

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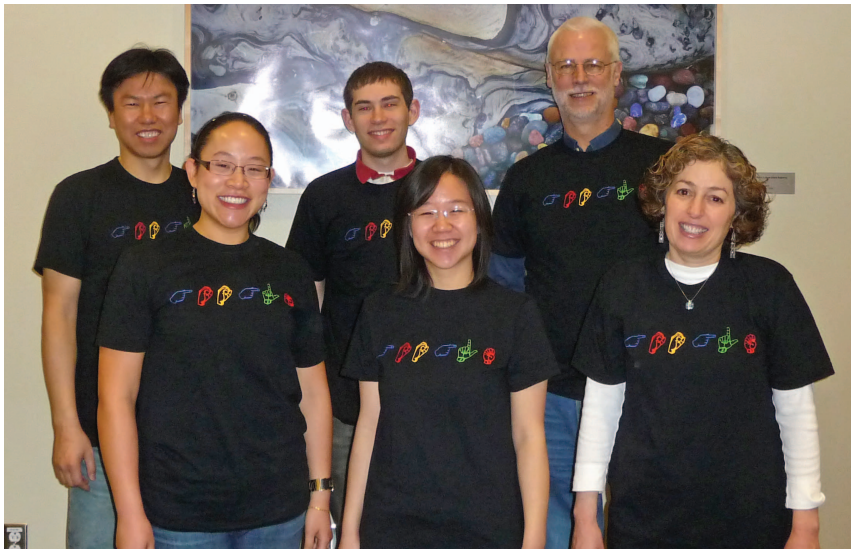

Dr. Eve Riskin (first row, right) and the MobileASL research group have developed software to enable people who are deaf to use video cell phones. Of her love of teaching Riskin says, "It is rewarding to watch students develop from junior researchers into confident Ph.D. graudates."

The UW's Eve Riskin is one of a growing number of academics to have noticed this overlooked pool of applicants (be they consultants, government researchers, or industry professionals) and to have taken steps to promote not just the hiring of exemplary candidates, but also, in Riskin's case, to hire women in particular.

On-Ramps validates the industry-to-academia path and shows women that such a career change is possible.

Riskin wears many hats at UW. She has been a professor of electrical engineering for 20 years, associate dean of engineering for five, and she also heads up the university's Center for Institutional Change (CIC), which was formed when the university received a 2001 National Science Foundation ADVANCE grant to implement programs to help women advance in science, technology, engineering, and math (STEM) disciplines.

In 2007 Riskin noticed that some of UW's faculty who had come from industry were performing exceptionally well. As she says, they came in and hit the ground running. "They were a little more mature than someone straight from university, and they had ties back to industry so they were able to bring funding and contacts as well as connections for internships," Riskin says. In addition, they often had experience with budgets and timelines, offered great mentoring with their dual industry/academic perspective, and were able to demonstrate practical application of course material.

This sparked an idea for Riskin—an untapped pool of bright and qualified female faculty applicants—and so the three members of the CIC, Program/Research Manager Dr. Joyce Yen, Research Associate Coleen Carrigan, and Riskin, sat down and hammered out a National Science Foundation proposal for a series of workshops aimed at "growing a national cohort of women faculty for all universities to hire." It was a win-win-win idea that would benefit the new faculty, their students, and universities alike.

As they researched their proposal, Riskin says the team "sat down and compiled a list of women who had made this trip." The team contacted 11 different women and listened to their career stories. And, Riskin says, there were some rock stars, including Dr. Ayanna Howard, who moved from NASA's Jet Propulsion Laboratory to associate professor at the Georgia Institute of Technology, and chemical engineer Dr. Suzie Pun, now an associate professor at UW.

The 11 role models offered input as to what workshop topics might be most useful to other women contemplating the same path. From the proposal process alone, the CIC was able to compile an agenda, reserve some of the interviewees as speakers, and place some on their advisory board. Not surprisingly, Riskin speaks fondly of the proposal process, as the camaraderie and excitement generated by the CIC team (which also includes Program Operations Specialist Kristin Hofmeister) seemed to be indicative of the atmosphere Riskin was striving to create with the workshops themselves.

In 2008, the CIC won a three-year National Science Foundation grant to implement On-Ramps into Academia.

A Collegial Environment

Of the many benefits offered by On-Ramps is that it validates the industry-to-academia path and shows women that such a career change is possible. Then there is the workshop itself. Participants workshop their CVs and discuss issues such as the work-life balance, why academia is a rewarding place to work, how to leverage an industrial position to bring funding, how to get teaching started efficiently, and how to apply for academic jobs. In summarizing her On-Ramps experience, Julian says, "The

IEEE FELLOWS ARE WELL REPRESENTED AMONG ON-RAMPERS

April Brown
Ingrid Daubechies
Jelena Kovacevic
Leda Lunardi
Karen Panetta
Keren Bergman
Lih Lin
Mihaela van der Schaar

workshop helped me to realize the true worth and value of my industrial experience and how to leverage this experience when applying for academic positions."

Each year, presenters represent some of the best and brightest in their fields. The 2011 workshop presenters include Cherry A. Murray, dean of the Harvard School of Engineering and Applied ciences and former principal associate director for science and technology at Lawrence Livermore National Laboratory; Claire Gmachl, professor of electrical engineering and director of an NSF engineering research center at Princeton University and formerly at Bell Labs; and Presidential Early Career Award for Scientists and Engineers winner Cecilia Aragon, associate professor of human-centered design and engineering and computer science and engineering at UW, formerly at Lawrence Berkeley National Laboratory, and 2009 On-Ramps participant.

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The workshops follow a single-slide model, which Riskin borrowed from Dr. Yen's successful Women Evolving Biological Sciences workshops. In this model, each presenter speaks for five minutes with a single slide before the room is opened to discussion. This leads to a true workshop setting of almost all conversation. Participants swap stories and ask questions instead of being held captive by "deadly" lecturing. The tone of the two-day event is collegial, friendly, and supportive, with networking a high priority. As Julian says, "It's not often that you get to see so many intelligent, successful, and motivated women in one room."

As the proposal promises, the benefits extend beyond the two day workshop: On-Ramps attendees and speakers do indeed "form a community who can support each other during the job application period, the interview process, the start-up negotiations, and the first years in academia." For van de Schaar, presenting at On-Ramps helped her understand the importance of outreach and giving back, and she is now editor-in-chief of *IEEE Transactions on Multimedia*. She is also Distinguished Lecturer for the IEEE Communications Society, where she hopes to "spread the research bug to many motivated students, many of them women, in various countries and continents."

Filling a Critical Need

To a young woman studying science or technology, a female role model can make all the difference. In a field dominated by men, there is something nice, albeit not necessary, about having that mentor. To a female junior professor trying to advance in academia, that relationship is also critical, yet even harder to find.

At this point, women are still underrepresented among university faculty in STEM fields. While the percentage of doctorates in the physical sciences and engineering earned by women may be increasing, many of those women are choosing employment outside of academia. In order to increase the number of women studying in STEM disciplines, there is a need to increase the number of women faculty. As Riskin points out, if universities simply hire away one another's faculty, the labor pool might shift, but it is not growing. On-Ramps into Academia is one proven way to attract more women to the field.

—Katianne Williams

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