

## Stop Chasing Unicorns in the Global Gig Economy

A [PEARC19](#) Panel Submission by Ben Rogers (University of Iowa)  
Venue: Chicago Hyatt Regency Hotel (151 E. Wacker), July 28-August 1, 2019.

Most research computing center directors realize there's a global shortage of skilled personnel; they devote more time searching for qualified staff than they'd like to. Energy spent chasing unicorns could otherwise be used to support life-saving and transformative research. But since most directors ultimately compete for the same finite pool of financial and human resources, some might be reluctant to talk about their problems; they may fear it would expose a perceived weakness. But if these problems aren't addressed, they will have a detrimental impact on global research outcomes, national economic competitiveness and security, if they haven't already.

This 90-minute panel discussion will explore recruiting and retention challenges faced by center directors who are willing to show their hands.

### Format:

Panelists will present 10-minute talks on novel strategies they've used to attract, train and retain a larger pool of prospects. These lightning talks will be followed by a moderated Q&A for the balance of time.

### The crux of the matter:

HPC systems administrators, cybersecurity specialists, scientific software analysts, network engineers, and systems architects with three or more years of experience are in high demand. Specialists who work for universities or government agencies are aggressively recruited from within and by commercial enterprises that can afford to pay twice as much and offer more attractive benefit packages.

At the same time, the workforce lacks diversity. Decades of broader engagement efforts have only been marginally successful. Most believe we should enlist a broader pool of prospects, and engage them earlier; make the workplace more welcoming for women, minorities, people with disabilities and veterans so more will feel comfortable entering and staying in the academic and government cyberinfrastructure workforce. Statistically, many drop out for various reasons.

This panel will foster continued discussion about certain themes identified during the 2016 "Advancing Research Computing on Campuses (ARCC) conference panel titled, "[A New Career Path: The Cyberinfrastructure Professional](#)." ARCC16 was held on the University of Illinois Urbana-Champaign campus at the National Center for Supercomputing Applications. The panel was moderated by Gwen Jacobs (U-Hawaii); with panelists Elizabeth Leake (STEM-Trek); Ruth Marinshaw (Stanford); John Towns (NCSA/XSEDE); and Paul Wilson (UW-Madison). Attendees agreed that it had become increasingly difficult for campus-based centers to recruit and retain skilled staff.

Universal demand for advanced skills peaked as university enrollments declined, federal government investments waned and state belts tightened. Corporate salaries increased, while university wages stagnated and new employee benefits were trimmed. To make it even worse, as soon as specialists are trained well enough to manage a trusted research computing environment—even student workers with a year or two of experience noted on their LinkedIn profiles—they are increasingly targeted by corporate recruiters and become a flight risk.

Since the ARCC panel in 2016, others have noted that the situation hasn't improved; in fact, it's worse in regions where employment upon graduation is uncertain, and more continue to live with their parents well into their 30's. Some students are even tempted to drop out of school and enter the workforce if they're approached by recruiters. They may have a difficult time visualizing the longitudinal benefits of a college degree. This situation presents a moral dilemma for university supervisors, advisers and parents who hope their students will graduate on time, but they also realize that attractive salary and benefit packages are difficult to refuse when many early-career professionals are under- or unemployed and defaulting on student loans.

But from a global workforce preparedness standpoint, once a specialist departs from academia, they leave a huge void; the ripple effect is felt around the world. With a graduating class of 200 computer science majors, you might only find two or three good candidates. University HPC sysadmin-trainers have an opportunity to reach students—they can identify and engage the needle-in-the-haystack prospects and guide them toward the career track.

For history and context, please read Leake's February 13 and May 30, 2019 articles in *HPCwire*.

<https://www.hpcwire.com/2019/02/13/iowa-grows-its-own-to-fill-the-hpc-workforce-pipeline/>

<https://www.hpcwire.com/2019/05/30/you-can-lure-unicorns-to-water-but-you-cant-make-them-drink/>



**Moderator: Elizabeth Leake (University of Iowa/STEM-Trek).** Leake has been a member of the global HPC community since 2008, and has participated on between two and seven conference planning committees each year since then, including SC, DEISA/PRACE, ISC, SIAM-CSE, TeraGrid/XSEDE, IDW, PEARC and CHPC. In 2012, she founded STEM-Trek, a global, grassroots NGO that supports HPC workforce development.

#### Panelists:



**Ben Rogers (University of Iowa).** Iowa is employing a “Grow Your Own Unicorn” strategy of developing Research Computing specialists with a goal of helping those individuals grow their careers at Iowa or beyond. Meanwhile the team at Iowa is exploring ways to make the workplace more appealing to a broader range of prospects with flexible workplace options, investment in junior staff development, assignments that appeal to individual strengths and interests, and more.



**Hakizumwami Birali Runesha (University of Chicago).** Runesha is the founding director of the Research Computing Center (RCC) in Hyde Park, a south-side Chicago suburb. Within a commutable distance, there are two national laboratories, the tech corridor and home offices of many Fortune 500 companies that compete for the same prospect pool. Since its creation, the RCC has had to fill a growing number of open positions.



**Ruth Marinshaw (Stanford University).** In the shadow of – or sharing the limelight with - Silicon Valley, Stanford has unique recruitment and retention challenges. While Marinshaw’s team comprises outstanding talent, recruitment is difficult given the allure and deep pockets of local commercial ventures. And the shockingly high cost of living typically makes it impossible to recruit from outside the vicinity. Retention is also a concern, as it’s very easy for Stanford employees to flee; they don’t even have to uproot their families.



**Preston Smith (Purdue University).** At Purdue University’s central Indiana campus, the relative proximity to Chicago and Indianapolis provides strong competition for talent in many IT fields. Purdue’s research computing team has invested in developing a stable of HPC unicorns from the population that has proven its willingness to reside in West Lafayette: Purdue students. Coupled with the student development program, Purdue’s team also has leveraged the university’s dual-career program to recruit faculty partners to work in HPC.



**Mike Papka (Argonne National Laboratory).** A senior scientist, senior leader, and supercomputing center director, Papka helps manage one of the nation’s top research organizations operated by the U.S. Department of Energy. Argonne’s capabilities and facilities attract top researchers as users, but there are challenges to hiring staff from this same talent pool. National Labs are part of the research community they serve, so the goal is to make access open while at the same time secure.