

# Debugging the Diversity Tech's Gap through (Re-)entry Initiatives in Emerging Technologies for Women

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## ABSTRACT

Studies suggest women dropout of college and leave the workforce due to their family, finances, and military duty. However, women interested in (re-)entering the tech fields can be the largest untapped talent pool that may fulfill the needs of the future computing workforce. In this panel, five passionate women will share their experiences with identifying the challenges for women to re-enter emerging technology professions and the role of industry-academic relationship in facilitating such initiatives in order to develop future relevant initiatives.

## CCS CONCEPTS

- Social and professional topics → Computing education programs.

## KEYWORDS

Emerging technologies; re-entry; women in tech; diversity

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## 1 SUMMARY

The disparity of women in technology field is quite evident [1]. Some areas within tech fields, such as Emerging Technology (EmTech), like cybersecurity, data science, mobile development, machine learning, AI, and cloud computing, are expected to experience increases in job opportunities more quickly than traditional areas. Even though there has been a push towards bringing individuals of marginalized gender and race into tech, one untapped population that is less represented in tech field are women who are interested in (re-)entering the tech field.

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While a variety of solutions are necessary to address the growing workforce needs in the EmTech industry and to attract and retain women in the profession, one novel intervention strategy is the (re-)entry program model. (Re-)entry program models of academia and returnship of industry help women from all backgrounds interested in EmTech to successfully acquire skills for employability in high demand in a short period of time [2].

<https://doi.org/10.1145/3408877.3432563> Without incorporating (re-)entry initiatives as part of the overall academic program's curriculum, academia will never be able to graduate those who are workforce ready in EmTech fields. And without incorporating (re-)entry programs as part of the overall recruitment strategies in industry, organizations risk ignoring a valuable and largely unexplored source of talent. In addition, diversifying talent pipelines and increasing gender diversity not only addresses labor shortages, but it also fosters innovation and increases competitiveness in the global marketplace. Hence, this panel focuses on identifying the challenges for women to re-enter emerging technology professions and the role of industry-academic relationship in facilitating such initiatives in order to help the audience understand how to avail them.

## 2 PANEL STRUCTURE

The planned time frame for this panel is for 75 min, to be delivered, virtually if required.

- **10 mins - Opening Remarks** – the moderator and panelists will introduce themselves and each provide a brief overview of their (re-)entry initiative in EmTech fields.
- **20mins - Moderator Questions for Panelists** – the moderator will ask a set of questions to the panelists regarding their experiences with re-entry pathways in EmTech fields. Panelist will share their experiences to answer the questions.
- **20 mins - Moderator Questions for Audience** – The moderator will pose questions for the audience about their experiences with challenges for women to re-enter emerging technology. Panelists can also contribute answers to these questions as appropriate.
- **20 mins - Audience Questions for Panelists** – The moderator will facilitate questions from the audience to each of the panelists. Ideally, we will use virtual chat, shared google document, online poll and twitter handle to collect questions from audience.

- **5 mins – Closing Remarks** – the moderator will summarize key points, follow-ups, and wrap up the session. All the summaries will also be updated in a shared document.

The panelists each bring a different experience in enabling women to re-enter the EmTech professions: Dr. Billionniere, Dr. Marshall, Dr. Rahman and Dr. Seo are faculty members who can speak to the efforts that faculty members can make toward developing re-entry initiatives, formal and informal, for women. They can also shed lights on how intersectionality of women adds on more unique challenges as they navigate the re-entry pathways. They will be critical in identifying what sort of industry relationship is lacking in academia to prepare the women interested in re-entering the technology professions. Ms. Forman and Dr. Marshall are industry leaders who will talk about the existing re-entry programs by different programs and how women can prepare for such opportunities.

*The following are questions for the panelists in Segment #2:*

- (To all panelists) What sort of (re-)entry programs are available across the EmTech fields?
- (To all panelists) Do traditional recruitment practices have hidden bias that work against the women's re-entry?
- (To all panelists) What are the literacy and challenges facing the current workforce in obtaining emerging technology skills?
- (To faculty panelists) How important is the continuous learning in the EmTech fields to broaden the participation of women?
- (To faculty panelists): What sort of academic re-entry initiatives are available for women to return to EmTech?
- (To faculty panelists): Even though the academic re-entry initiatives are well-intentioned, in what ways do they fail and can industry play a role in making them more successful?
- (To industry panelists): How can organizations help mitigate the challenges to make it easier to target low-income populations?

*Attendees will leave with takeaways that include:*

- Common challenges to (re-)enter EmTech professions
- Strategies for (re-)entering EmTech professions
- Existing (re-)entry programs in industry and academia
- Techniques to develop more symbiotic relationships between academia and industry to create successful (re-)entry pipelines

### 3 PANELIST BIO

**Dr. Farzana Rahman (Moderator)**, Associate Professor at Syracuse University, is an expert in CS education who is passionate about broadening participation in computing, integrating best practices in undergraduate research, and exploring how different pedagogical practices can increase diversity in Computing. Her research has been funded federally and through industry to explore the impact of active learning pedagogy in undergraduate computing and broadening participation of women and underrepresented students in computing courses. As the PI for the NSF RESET, she is investigating effective re-entry strategies for retuning women to re-enter the EmTech academic and professional pathways.

**Dr. Elodie Billionniere**, Associate Professor at Miami Dade College, has helped her college secure over \$2.2 million in federal

funding the past three years for STEM and emerging technology education programs as well as a collaborative high-tech learning hub with the aim of providing further opportunities to underrepresented populations to meet local and national workforce needs. With industry partners, Dr. Billionniere has been instrumental in the creation of new educational pathways in enterprise cloud computing, which are unique in the state of Florida. Her leadership and mentoring have been recognized on several occasions with the most recent national award 2019 Educational Leadership – College-Level Promotion of Education by Women of Color in STEM.

**Dr. Brandeis Marshall**, Founder and CEO of DataedX CEO, is a CS scholar, educator and strategist who supports organizations in making their data processes more equitable to communities of color. Her work focuses on the racial, gender and socioeconomic impact of data in technology, including designing data science pedagogy for minoritized communities and assessing the socio-technical implications of BlackTwitter. She participates in increasing data literacy and understanding and broadening participation in computing and data science through speaker and workshop leader engagements. She co-created and co-led the blackcomputeHER Data Science Executive Program which increased knowledge of core data science concepts, awareness and interest in data science careers for tech Black women professionals at various stages in their careers.

**Dr. Hyunjin Seo**, Associate Professor and Founding Director of Center for Digital Inclusion at the University of Kansas, is leading a National Science Foundation-funded program offering evidence-based technology education to women who were formerly incarcerated and are now restarting their lives outside the criminal justice system. Through this three-year project, her team is developing curriculum and online modules to broaden technology education to this and other underserved populations who are re-entering the tech workforce and education pipeline. The Association for Education in Journalism and Mass Communication named Dr. Seo an Emerging Scholar in recognition of her research on social media and social change.

**Ms. Tami Forman**, Founding Executive Director of Path Forward, is building this organization from the ground up, working with donors, partners and participants to fulfill the organization's mission. Path Forward is a nonprofit organization that creates mid-career internship programs to ease the transition back to work for women (and men) after taking a break for raising children or other caregiving responsibilities. Path Forward trains HR teams and hiring managers on how to support these programs successfully and provides support to participants to make the experience successful. Before that she worked in book publishing at Simon & Schuster and Houghton Mifflin and held senior-level web editorial positions at iVillage and News Corporation.

### REFERENCES

- [1]. National Science Board. Science and Engineering Indicators. 2018.
- [2]. Billionniere, E., Rahman, F., Brown, Q., and Seo, H. Role of Academia to Create Re-entry Pathways in Computing. In Proceedings of the 5th IEEE International Conference on Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT '20). 2020.