

Cultivating Next Generation Emerging Technology Workforce through Academia-Industry Partnerships

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ABSTRACT

The technology workforce education system has changed dramatically in recent years, where the tech industry is offering certification-based academic programs to train future EmTech workforce. These programs usually work in collaboration with a non-profit university to provide specific skill training to different types of learners. In this Extended Abstract paper, we briefly highlight few of the most successful academia-industry partnership-based programs that have imparted important technical skills to thousands of learners to land jobs in EmTech.

CCS CONCEPTS

• **Social and professional topics** → **Computing education programs.**

KEYWORDS

Programming; non-traditional students; diversity; CS1

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1 Academia-Industry Collaboration in EmTech and Recommendations

With the tech job industry projected to grow much faster than other industries over the next 10 years [1], some niches within the emerging technology (EmTech) field, such as cloud computing, machine learning, data science, cybersecurity, mobile computing, AI/ML and etc., are expected to grow job opportunities more quickly than others. Such rapid growth in the EmTech industry sectors will require large numbers of technically sound specialists with the skills in individual specific sector to maintain and enhance development of future technologies as well as to educate future generation on implementation and applications of EmTech.

The EmTech field is also a domain with a fast-paced innovation of new paradigms, and academic curricula on the one hand offer

foundational knowledge about a discipline that does not always translate to practical hands-on skill set required by the tech job market. Although academic degree programs have been the primary source of tech workforce development so far, the academic process has not been nimble enough to accommodate the fast rate of innovation in EmTech fields. Traditional higher education tracks are very expensive and can take many years of study, making it an unappealing for many non-traditional or even traditional students.

Few of the most successful academia-industry partnership-based programs that have imparted important technical skills to thousands of learners to land jobs in EmTech are as follows - **Amazon Web Services (AWS) Academy** provides a million-dollar opportunity to various kinds of learners to upgrade their skills and build their capacities to contribute in cloud computing domain [2]. **IBM Skills Academy** offers a chance for educators to advance their skills and pass it on to their students for which they can get worldwide recognition [2]. **Google** has created last year a subsidized online IT automation certificate program [4] and Google Career Certificates program, which has potential to change next generation workforce in the next five years in computing, engineering and technology disciplines. Few recommendations for fruitful industry-academia collaboration are- 1) There has to be a critical mass of faculties, who are willing to learn and deliver the industry demanded content and willing to maintain the accreditation, 2) The leaders in this sphere need to devise policies to increase innovation, protect the interests of the students, and to preserve the culture of freedom and inquiry, even though the educational contents are mostly driven by the industry, 3) The offered courses through the partnership should provide opportunity to cultivate critical thinking skills, engage in discussions of ethical frameworks and ethical approaches to problem solving, and drive true efficacy, and 4)

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