

STEM Education and Workforce Development Minitrack

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Abstract

This short paper serves to introduce the minitrack on STEM Education and Workforce Development and to summarize its constituent proceedings articles.

1. Introduction

STEM Education and Workforce Development: Equity and Inclusion for Underserved Populations is a critical minitrack focusing on the prevalent lack of diversity and inclusivity in STEM fields. It addresses the urgent need to dismantle barriers to equity and social justice in STEM education and careers, particularly for underserved populations. This track is pivotal in highlighting the importance of cultivating interest among these groups in STEM and ensuring their access to high-quality education in these fields. It seeks to introduce and discuss innovative programs and initiatives designed to open up the world of STEM to these populations, equipping them with the necessary tools and resources for success.

In addition to fostering interest and access, the track delves into inclusive pedagogical and curricular innovations. It aims to provide a forum for scholars, educators, and practitioners from various disciplines and educational levels, from K-12 to post-secondary education, to share their experiences and insights on creating more inclusive and equitable learning environments in STEM education. This session is vital for exchanging ideas and practices that can transform the educational landscape in STEM.

The track also addresses the persistent systemic barriers that underserved populations face in STEM. Despite progress in some areas, these barriers continue to prevent many from achieving success in these fields. The discussion will revolve around strategies for addressing these barriers, including policy changes, community outreach, and mentorship programs. These efforts are crucial in creating a more level playing field for all aspiring STEM professionals.

Furthermore, the track emphasizes the need to advance opportunities for underserved populations in STEM careers. It explores innovative approaches to creating these opportunities, including internship and apprenticeship programs, career development workshops, and entrepreneurship initiatives. These sessions are designed to provide practical pathways for underserved individuals to forge successful careers in STEM.

Amplifying the voices of diverse individuals in STEM, especially those from underserved populations, is another critical aspect of this track. It aims to highlight the importance of diversity in STEM fields and showcase successful initiatives that have worked towards increasing representation and fostering inclusivity. The role of industry partners is also explored, highlighting the significant impact that collaborations between academic institutions, community organizations, and industry can have in promoting equity in STEM.

The track emphasizes the role of data and assessment in tracking progress and ensuring accountability for promoting equity and social justice in STEM education. It explores best practices for collecting, analyzing, and using data to inform decision-making processes and measure the effectiveness of various initiatives and interventions. This data-driven approach is essential for understanding the current landscape and for making informed decisions that can lead to meaningful change.

This minitrack presents a comprehensive and multifaceted approach to addressing equity and inclusion challenges in STEM education and careers. It offers participants a unique opportunity to gain insights into successful initiatives, discuss best practices, and build partnerships to advance these critical goals. This initiative is a significant step towards creating a more diverse, inclusive, and equitable environment in STEM fields, ensuring that all individuals, regardless of their background, have the opportunity to succeed and contribute to these vital areas of study and work.

2. Summary of Articles

The first paper scrutinizes the state of cybersecurity education at the secondary level, providing insights into the development and sustainment of high school programs that are inclusive of underrepresented groups.

Our second paper investigates the gender gap in data science through the lens of a learning initiative on Kaggle, shedding light on the disparate outcomes between gender groups in technically intensive domains.

The third contribution evaluates the role of chatbots in information systems education, examining their

impact on the gender gap by enhancing self-efficacy, particularly among female students.

Finally, the fourth paper presents a case study on the integration of the train-the-trainer and experiential learning models in computer skills training at a minority-serving institution, highlighting the evolution of student trainers through the learning process.

3. Publication Opportunities

Continuing our pursuit of academic excellence and impact, the minitrack papers may evolve into full articles for esteemed journals, amplifying the conversation on equity and inclusion in STEM education to a global scholarly audience.