Challenges in Cyber Security Education[*]

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Abstract

Cyber security education is an important and pertinent topic as it plays a major role in mitigating the risks caused by a global shortage of cyber security experts. In order to better support this crucial function, a cyber security skills framework needs to be agreed upon by academics in this field, along with an increase in the visibility of cyber security education and training. Without these, there is likely to be a long-term shortfall between the number of skilled cyber security professionals and demand, potentially leaving organisations, institutions, and governments vulnerable. Our contribution to this challenge is threefold. Firstly this article addresses the development of a cyber security skills framework and its applicability. Secondly, we have analysed a sample of 87 study programs in order to produce an overview of cyber security topic areas. Moreover, the collected data are visualized in an interactive map, i.e. a dynamic web application with the aim to help students in their search for a cyber security study program. Finally, a cyber security curricula designer tool is proposed; this application would serve as a guideline for cyber security curricula designers.

Index terms: cyber security, education, cyber security taxonomy, cyber security framework, cyber education map, cyber security curricula design

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