Title: Towards Diversity in Computing and IT: Understanding the impact of the undergraduate student experience on retention of women

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The proportion of women in the undergraduate computer science population in Australia has remained low over an extended period of time, with only 17% of domestic information technology student enrolments women in 2017, representing a decline of nearly 2% since 2007. We identify 2 broad aims for addressing the disproportionately small number of females in undergraduate Computing and IT subjects. These are:

(1) Broadening participation and diversity

(2) Maximising the retention and persistence of those already in the discipline

In order to achieve the first aim, a critical need is success on the second aim: once students from underrepresented groups have been encouraged to join the discipline, having them drop out represents a substantial loss. Attrition is a significant problem for women in STEM in Australia, and Computer Science is no different.

We therefore focus our project on trying to understand the factors that contribute to attrition, with particular emphasis on the early undergraduate experience. This experience, including the learning environment and culture, has been identified as a key factor impacting women in STEM generally and CS specifically. We will gather background data from a number of Australian Universities in order to gain insight into the current situation with respect to the experience of underrepresented groups — focusing primarily on undergraduate women — and to identify recent trends and changes, as well as the factors that may underpin and interact with these trends. A number of themes are common across the anecdotal evidence known in the sector, and it is important to examine the strength of this evidence and to focus our attention on initiatives which may help to make a difference.

We will follow up on the survey by conducting focus groups at several different universities in Australia, to initiate a meaningful conversation between teachers and learners about what works in how we are engaging our students, where we might improve, and how we might change the learning environment. A key output of the project will be a report summarising the findings, with recommendations for strategies to improve the undergraduate learning experience for the specific objective of increasing the retention of women in CS education.