Project Summary for IAL Website

The following information is for publication on the IAL website. Please be reminded not to include any confidential information.

Project Title:	Course Suggestion for Career Planning: Evaluating Strategies to Support Lifelong Learning. A Pilot on Using Analytics to Recommend SkillsFuture Credit Courses
Project Number:	GA17-07
Year of Approval:	2018
Funding Source:	WDARF
Objectives and intended outcomes of the project:	(1) to use behavioural science to better understand how and why people pursue opportunities for lifelong learning, and (2) to develop technologies that can help people find, select, and complete programs that are suited to both their personal strengths and the needs of the broader Singapore economy.
Project Team	
Principal Investigator:	Prof Robert Kamei, Institute for Application of Learning Science & Educational Technology (ALSET) Dr Min-Yen Kan, NUS School of Computing
Summary of Project (up to 300 words)	
For people of all ages, choosing the right courses and training programs is essential for long-term success in the workplace. Yet even as lifelong learning becomes increasingly important in virtually every field, we still have limited understanding of what drives people to pursue learning opportunities at various stages of their careers. As the Singapore government enacts policies and funds programs that provide its citizens with these opportunities, it is essential to develop evidencebased theories that can guide these efforts. Since many of these programs come at considerable cost, it is also important to explore how new technologies can make them more efficient and powerful. Our study piloted the personalisation of SkillsFuture course recommendation, based on historical SkillsFuture reimbursement claims. We analysed the overall historical consumption patterns to whether the policies and goals of the SFC programme are being met. We successfully met our recommendation objectives, achieving a 10% performance increase in recommending relevant courses to target individuals, characterised both in simulation and further validated by a mediumscale human subject study.	
Summary of Project Findings, Deliverables and Impacts (up to 500 words)	
The project findings created deliverables and continues to impact Singapore in the following ways. Our initial project phase successfully analysed the SSG reimbursement data, confirming that subsidies effectively encourage the development of versatile skills applicable across various sectors. The analysis also highlighted age-related factors influencing decisions to invest in skill development, informing SSG's decision-making on subsidies and training inventory updates, and potentially impacting policy and practice in skill development. Specifically, our research outcomes informed SSG to consider a more fine-grained and iterative means for determining job skills, especially in the burgeoning Information Communications and Technology (ICT)	

sectors. This outcome adds to the cutting-edge research in job recommendation systems pioneered by the investigators.

The project delivered published freely-available training data and source code for job skill recovery / extract from job descriptions, available on the project's GitHub site, which has since been used in cited academic work and in commercial sectors.

The project created impact and brought in the wider stakeholders of the general public in both the project's engagement (input) as well as in its dissemination (output). The project also engaged multiple stakeholders, including SSG, private industry, and NUS, as well as over 400 students and alumni, to evaluate and disseminate the project's findings. The project research findings as output were disseminated through many channels, including blog articles, social media, presentations, a public demonstration website. These facilitated awareness and engagement with our research.

Our research also spawned new projects focused on course recommendation, skills policy efficacy, and psychological aspects of recommendation systems. These efforts aim to enhance course advising, skill demand forecasting, and privacy-sensitive recommendation systems.