UNIVERSITY of GUELPH

COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

MSc Seminar

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Evaluating the Changing Soft Skills Requirements in Tech-Related Co-op Job Postings

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Abstract:

The Canadian labour market is changing, especially in data-driven processes where the adoption of Artificial Intelligence(AI) has fuelled the shift to automated tasks. To keep up with the changes and to remain competitive, companies need to constantly align their search for candidates to best meet evolving qualifications needed. For job seekers, demonstrating only “hard” skills (i.e. technical and domain-specific skills needed to accomplish a specific job) is no longer sufficient to be successful. Recruiters are looking for job candidates to also demonstrate mastery of “soft” skills (also known as foundational or transferrable skills), from the abilities that help people interact well with others such as empathy, communications and teamwork, to skills that can help them adapt quickly to dynamically changing job requirements. The changing demand can also be observed by the fast and vast adoption of remote work caused by the COVID-19 pandemic.

While the demand for soft skills is rising, no standard definition of soft skills has been adopted. Furthermore, there is little known as to whether different job types require particular soft skills, or how the need for them has changed over time. Such insights could be used to help inform curriculum design in higher education.

This research will analyze the soft skills listed in Co-operative Education job descriptions to understand how their perceived importance has evolved. The goal is to identify what are the most in-demand soft skills in the job market. This information could help inform educators on how to update their course curricula to better prepare their students. A change in curricula, inspired by the findings of this research, could also enable students to develop high-demand soft skills and to adapt their resumes to ensure they capture the attention of prospective employers.

We analyze categorized soft skills using a dataset from a medium sized university in Southern Ontario, Canada, where students have access to two portals for Co-op and non-Co-op jobs. For this study, we only consider data from the Co-op portal for tech-related jobs posted between January 1st, 2016, to September 30th, 2022, inclusive. Term Frequency - Inverse Document Frequency (TF-IDF), which measures the importance of words in documents, is used for information retrieval, as it is often applied in data mining and topic modelling tasks.