Natural Sciences and Engineering Research Council of Canada
Conseil de recherches en sciences naturelles et en génie du Canada

FORM 202 - PART II
Application for an Undergraduate Student Research Award

In accordance with the *Privacy Act,* this information will be accessible to the student. **Read the instructions before you complete this application.**

Family name of student/Reference No.	Given name	Initial(s) of all given names
Bartlett/473632	Ross	RJB

Name and title of proposed supervisor	E-mail of proposed supervisor
Ruhe, Guenther / 253454 Professor	ruhe@ucalgary.ca

Institution/Organization that will administer the award	Department
Calgary	Electrical and Computer Engineering

Grant application no. (proposed supervisor)	Personal identification no. (PIN) (proposed supervisor)
12345	**Valid** 253454

Address at location of tenure	Proposed Start Date
2500 University Drive NW Calgary AB T2N1N4 CANADA	2018/05/01
	Telephone 1-403-2207692
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PROPOSED RESEARCH PROJECT

Title of proposed research project	Research subject code
Analysis of software feature evolution	2700

Outline of proposed research project

The functionality of software-based systems can be described in terms of features (or user stories or epics). In the ongoing effort of developing software faster, more efficient and reliable, looking into the evolution of features is promising to optimize future development. In combination with the analysis of feature usage, it helps to decide which features should (i) be extended, (ii) revised or (iii) reduced/eliminated. It is known that evolving systems substantially increase maintenance effort and potentially reduce the software usability because of "gold plating".

The research internship is intended to analyze feature evolution. The data of the project comes from a NSERC Collaboration and Development project with Brightsquid (CRD-486636-15). The content of the research work includes data collection, data preparation (including resolution of inconsistencies), data analysis, reporting and interpretation.

Minimum viable products are one promising option to overcome the innovation risk challenge. The idea is concentrating on a smaller set of features offered in a product. The results of the USRA will be integrated into the bigger question of providing decision support for future development of functionality. This support helps the company in the need of entering a competitive market with innovative product ideas with the concurrent goal of short term revenue generation.

Outline of the student's role

The work of the student is crucial to get the methodology (i) customizable to other application scenarios, (ii) fine-tuned to achieve its full efficiency, and (iii) evaluated in terms of its effectiveness. Ross is expected to learn and collaborate with other team members towards achieving the stated goals. Main knowledge required is on computer programming and data analytics /descriptive statistics. There is a learning component designed for on more advanced new topics.