1. 
**Industry Client:** Workers Health & Safety Legal Clinic  
**Project Supervisor:** TBD  
**Computer Science Student needed:** 1  
**Project Title:** A Mobile App to Assist Workers in Selecting Personal Protective Equipment to Protect from Workplace Chemical Exposures

**Project Description:**

Material Safety Data Sheets (MSDSs) contain important information and are an important documents when it comes to the safety of workers. However while MSDSs list the attributes of said substance, selecting the appropriate safety equipment to counter these effects are less transparent.

Our thought is to have a design which works to eliminate this confusion. Instead of having to check if the safety equipment is indeed effective against certain hazards, a master list of substances will be provided with the equipment itself references the MSDs of the substances in question – a reverse MSDS of sorts.

As an introductory guideline, our thoughts is to categorize numerous substances by their physical and chemical properties (hazards) and linking them to the appropriate piece of equipment require in a software design which can be easily update at the user’s discretion.

2. 
**Industry Client:** Defence Research and Development of Canada  
**Project ID:** DRDC  
**Supervisor:** Professor Stark Draper  
**Computer Science Student needed:** 1  
**Project Title:** Improving Current Version of a Browser-Based Tool (Sharik)

**Project Description:**

Sharik (SHAring Resources, Information, and Knowledge) is a browser-based tool designed to support collaborative sensemaking among all-source intelligence analysts in distributed or co-located intelligence analysis locales. All-source analysts receive different types of information from collators or collection assets, and then integrate the information items to produce intelligence products. Sharik is designed to support analysts and/or collators working together on different aspects of an intelligence problem by providing them with a means by which intelligence production can happen effectively, and in a collaborative fashion. The current version of Sharik needs to be improved based on the results of a usability study. The improvements would involve the re-design and redevelopment of the tool. Sharik has been built on top of Drupal with various code patches involving Javascript and PHP. Some of the current features of Sharik include: Posting and sharing INT Notes, posting and sharing Propositions, generating interactive graph visualizations, generating Entity Wiki pages, generating INT Brief presentations in a semi-automated way, messaging, commenting, and chatting.
Top computer engineering and computer science students who have web-development and user-centered design skills can provide us with unique and novel ideas to address the existing design and development issues in Sharik.

3. **Industry Client:** CPP Investment Board  
   **Project ID:** CPPIB  
   **Supervisor:** Professor Roy Kwon  
   **Computer Science Student needed:** 1

**Project Title: Total Portfolio Simulation Tool**

The CPP Investment Board manages a large portfolio with a significant proportion of illiquid private assets. In order to maintain a set of desired exposures, the portfolio is managed daily in response to new private deals and market movements by buying and selling liquid public assets, subject to a number of business constraints.

Given the large uncertainty over the timing and size of the private deals, as well as the uncertainty in market conditions, the team would like to design and develop a portfolio simulation tool to explore the dynamics of the evolution of the portfolio through time.

The main preliminary objectives of the project are:

1) Prototype a user friendly, flexible, modular, and robust simulation framework.

2) Test one or more methodologies to model the uncertainty in the timing and size of private deals, and market conditions.

3) Provide a mechanism to report and analyze a set of standard portfolio metrics such as risk, return, and liquidity measures.

The CPP Investment Board is excited to engage the minds of the talented engineers of the University of Toronto. As this is a true practical need for the organization, the team is interested to explore and learn from the innovative approaches the students will take to overcome any or all of the statistical, computational, design, and user experience challenges of the problem.