Computing is a pervasive aspect of every day life (cellphones, social media, etc).

Some of the ways it interacts with graduate student life are very similar to other aspects of our lives (e.g. I text my students about meeting up at the pub)

Other ways require a bit of rational thought about what your particular computing profile is.

The University is by its definition a risk averse institution so there is a tension between modern computing and the things one is asked to do as a student.
Marek Stastna: Computing Profile

- I use Latex to prepare scientific documents and am starting to use bibliometric resources.
- I use local resources to perform small scale computations in Matlab (my strongest language).
- I use medium scale local resources to perform two and three dimensional simulations in fluid dynamics with the dual focus of quantitative analysis AND graphics (next slide).
- I supervise students who use Compute Canada through dedicated resources (beyond the standard allocation).
- I am part of projects that commit software to github and part of projects that maintain a web site.
- I use computing in my teaching (beyond LEARN).
- I do not have a large social media profile.
I use Latex to prepare scientific documents and am starting to use bibliometric resources.

All graduate students do this and can benefit from increasing their skill in Latex and the use of bibliometrics such as Mendeley (see Justin Shaw’s Presentation).

Examples of improvements I see down the line are: better ways to handle graphics for theses/papers

Formal ways to incorporate multi-media (movies) into theses.
Computing Profile: Commonalities and Differences

- I use local resources to perform small scale computations in Matlab (my strongest language).

- Many graduate students use some form of computing during their thesis work (Matlab, Maple, R) using high level software.

- The key here is to learn the particular strengths and weaknesses of each software package.

- For example vectorizing code in Matlab can increase performance by an order of magnitude.

- Improvements in the near future include better use of parallel/distributed resources (that MFCF has freely available) and building up libraries of relevant examples.
I supervise students who use Compute Canada through dedicated resources (beyond the standard allocation).

Some graduate students could use Compute Canada resources to help with computations in their thesis work.

Even those who may not need large resources could benefit from Compute Canada summer schools (free) and webinars.

For those needing resources they must be sponsored by their supervisor. This must be done for Compute Canada and then a particular resource hub (like SHARCNET, or SCINET) must be added.
Developing Resources

- Computing needs are highly individualized and change rapidly.
- MFCF is able to support many issues.
- MFCF can host new service types as user needs change.
- MFCF is also able to facilitate collaboration between people interested in similar things.

However, the missing ingredient is engagement.

Sessions like this can help, but we are also open to other ideas.
Resources

http://www.lib.uwaterloo.ca
https://www.computecanada.ca
https://www.sharcnet.ca/my/front/
https://uwaterloo.ca/math-faculty-computing-facility/