Maxime Lavigne

2174 Joliette, Montreal, Québec, Canada, H1W 3G6, (514) 623-0940, maxime.lavigne@mail.mcgill.ca

Software engineering graduate specialized in clinical informatics.

Education

- **Bachelor of Software engineering (B.Eng.)** 2012

  Polytechnique Montréal, Montréal, Québec, Canada

Work experience

- **McGill Clinical and Health Informatics** *Research* **April. 13 – Present**
- **GoSecure Inc.** *IT Security* **May 12 – Nov 13**
- **Research Auxiliary, IRIC** *Research* **May. 11 – Jan. 12**
  - Processed Next-Gen sequencing data.
  - High-throughput system architecture.
  - Analysis and optimization of medical file format.
- **Software engineering Intern, Google Inc.** *Open source software* **April - August 2010**
  - Implementation of a client side security component in Chrome.
  - Worked with distant teams.
  - Worked with highly multithreaded and distributed software.
  - Aided in the development of a product with 100M+ active users.
- **Web application architect and programmer,** *Education* **Nov. 09 – Mar. 10**
- **Programmer-Analyst, FX Innovation** *Health Administration* **April – August 2009**

Technical abilities and skills

During my four year stay at Polytechnique, I acquired an award winning background in theoretical computer science, software architecture and optimization. I used the same passion and determination specializing myself in clinical informatics. These fields however, constitute a minute part of my skill set. I also feel confident using my experience in distributed computing, IT security, user experience engineering, database design, quality assurance and project management. Since I spend most of my time working in multidisciplinary teams, communication and vulgarization is part of my day to day routine.

C, C++, Java, C#, JavaScript, PHP, SQL, ASM, Go, Haskell, (Web Languages)

Extracurricular activities

In my forth semester, I occupied the position of teaching assistant on a course in human machine interfaces. I also spent my forth year on the academic council of the software engineering department. On this council, I helped in the design of new courses and the evaluation process of the others. I was the voice of the students when it came to interacting with professors and the department.

At Polytechnique, we take pride in our "sociétés techniques"; they represent the highest level of competition available to students. They compete against other universities and organization on an international level. I was the director of one of them, *Polyhack*, for 2 years. *Polyhack* works in the field of IT security with the goal of building an expertise and to raise awareness towards this problematic in the general population. I spent the next two years in *Poly eRacing*, the first SAE/Student formula in America. I wrote, tested and packaged software systems like data acquisition, drive control, battery management and others into a coherent package suitable for racing.

One of the best ways for me to see my progression was to enter yearly competitions in computer science. I joined the CS Games delegation four years in a row. The CS Games is the biggest and most renowned undergrad computer science competition in North America. They test skills such as: relay programming, algorithms, web programming, artificial intelligence and many others. I also competed 2 years in IEEEXtreme, a global challenge in which teams of students compete in a 24-hour against the clock challenge to solve a set of problems related to optimization, operational research and algorithms. I participated in the CII, an intra-mural event focusing on solving algorithmic challenges in a highly constraint environment; memory, space, and such. Finally, I was chosen in my forth year to be the leader of a team representing Polytechnique Montréal in a virtual reality competition in France.

CS Games	1st / 28	**IEEEXtreme**	49th / 970
CII	2nd / 250	**Laval Virtual**	3rd / 25

Publications and awards

- Maxime Lavigne, Arash Shaban-Nejad, Anya Okhmatovskaia, Luke Mondor, David L. Buckeridge, *A Hybrid Natural Language Approach to Manage Semantic Interoperability for Public Health Analytics*, 12th International Semantic Web Conference
- Arash Shaban-Nejad, Christian Jauvin, Maxime Lavigne, Masoumeh T. Izadi, Luke Mondor, Anya Okhmatovskaia, David L. Buckeridge, *PopHR: An Integrated Semantic Framework for Population Health Surveillance*, 4th International Conference on Biomedical Ontology
- Research funding in 2011, from the Institute for Research in Immunology and Cancer (IRIC).

Interest and future plans

A long time ago, I had to choose between medicine and engineering, and the choice I made then reflect my vision of the future of medicine. We came to a time in which medical innovations are no longer made by physician working alone but by multidisciplinary teams including engineers, physicians and biomedical scientist. I always was fascinated by diagnostic medicine and kept learning on multiple subjects such as biochemistry, immunology and pathology. Having said that, it seems obvious that our main problem right now as a society is to adjust to our time and introduce information technologies in the process we use to take care of patients and of our population as a whole.

It is in order to fulfill this ideal of computerized medicine that I am now working with and learning about the semantic web, ontologies, reasoning and system that support decision making in general. Medicine changed drastically in the last 10 years; data driven medicine is now more important than at any other point before. We need to start converting all the data we have been accumulating for all those years into useful information and make this information available to everyone.