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# Katrina Hoffert

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<https://katrinahoffert.github.io>

## Education

### University of Saskatchewan

- Final year computer science student in the honours program
- In top 15% academic standing for my program
- 82% overall average, 85% for CS classes

### Aberdeen Composite School

- Graduated with 90% average
- Honour roll in all years
- Served as vice president of the student representative committee (along with other previous positions)

## Relevant past employment

### University of Saskatchewan CS department

Saskatoon, SK

Teaching Assistant

January 2017 - Present

- Lead labs for two first year courses utilizing Python.
- Staffed open help desk for students requiring assistance.
- Paid tutoring work on the side.

### iTracks

Saskatoon, SK

Software Developer Intern

May 2015 - August 2016

- Worked with established C# ASP.NET application.
- Extensive work related to handling media (particularly videos), including various challenges related to real-time video chat, as well as the usage of WebRTC.

### Updex Solutions

Saskatoon, SK

Full-stack developer

October 2014 - April 2015

- Created web application using the Play Framework.
- Worked with backend using Scala, Slick, and PostgreSQL as well as front end with HTML, CSS, and JavaScript (using variety of libraries including JQuery and Datatables).

### University of Saskatchewan CS department

Saskatoon, SK

Software engineer

March 2014 - August 2014

- Worked on large Java simulation system.
- Introduced best practices to an existing code base, including use of version control (git), build tools (Maven), testing (JUnit, Mockito, and PowerMock), and continuous integration (Jenkins).

## Language proficiencies

Ordered (top to bottom) in approximate order of experience. I am able to learn new languages quickly, and have experience with several types of languages, including object-oriented, procedural, functional, and logical.

- |              |                  |           |          |
|--------------|------------------|-----------|----------|
| • C#         | • SQL (Postgres) | • Bash    | • Prolog |
| • Java       | • Python         | • PHP     | • Lua    |
| • Scala      | • C++            | • MATLAB  | • TXL    |
| • JavaScript | • C              | • Haskell |          |

## Framework, API, and extension interface proficiencies

Ordered in approximate order of experience. I'm able to learn new libraries, frameworks, and other development tools quickly and have experience with various REST APIs. Not counting standard libraries.

- |                         |                             |                              |
|-------------------------|-----------------------------|------------------------------|
| • Play Framework        | • Bootstrap                 | • MediaWiki                  |
| • ASP.NET (MVC, WebAPI) | • Simple Machines Forum     | • And many smaller libraries |
| • IceChat               | • Google and Bing Maps APIs |                              |
| • jQuery                | • Unity3D                   |                              |

## Projects

### EatSafe Saskatchewan

- CMPT 371 project done with large group. Allows the search of health inspection records for the province.
- Utilized data from existing, poorly structured application.

- Uses responsive design so-as to function well on both mobile and desktop environments.
- Includes admin interface (with authentication) for CRUD operations.
- Includes interactive map functionality with clustering of markers.
- <https://github.com/KatrinaHoffert/EatSafe>

### **File Backup and Management System (FBMS)**

- A Java program (using an SQLite database) that works like a local Dropbox, backing up a folder to a local path (possibly on a remote drive).
- Only stores file diffs and is capable of comparing files and restoring files at certain times.
- <https://github.com/KatrinaHoffert/fbms>

### **SimpleBudget**

- Android app for quick and easy budget tracking.
- Allows easy modification of entries and categories, as well as viewing statistics on spending in a date range.
- <https://github.com/KatrinaHoffert/SimpleBudget>

### **Fingerprint Anonymizer**

- Experimental Chrome extension for thwarting browser fingerprinting.
- According to a web application created by the EFF, the browser went from uniquely identifiable to 1 in 2042 (from over 4 million browsers tested).
- <https://github.com/KatrinaHoffert/FingerprintAnonymizer>

### **Added features to MegaGlest**

- MegaGlest is a free and open source, real time strategy game (coded in C++).
- I've added several features including the ability to raise attack speeds with "auras", looting resources from dead enemies, starting units with certain health and energy stats, and more.
- I've also modded the game, adding new playable factions.
- <https://github.com/MegaGlest/megaglest-source>

### **Administrates the MegaGlest forum**

- This is the forum for the MegaGlest project and the main source of communication for the community. Powered by Simple Machines Forum.
- I designed and maintain the theme, as well as have made changes to the PHP source code in the form of a plugin for better password requirements.
- I do some degree of server administration for the forum and its associated wiki (using MediaWiki).
- <https://forum.megaglest.org>

### **Knowledge and experience**

- Variety of algorithms and data structures, as well as techniques for developing novel ones
- Testing techniques and approaches, continuous integration, and techniques for minimizing bugs
- Design practices, methodologies, and general modern best practices for software engineering
- Understanding of hardware implications (eg, branch prediction, memory caching, etc)
- Extensive full stack web development experience with modern technologies
- Information security (proper password storage, best practices for securing web applications, understanding of common exploit vectors)
- Computer vision and image processing (filtering, segmentation, classification, etc). My honours project was in this domain.
- Fundamentals for language theory, including parsing and transforming languages, interpreting
- Machine learning (implementation of neural networks, applying linear/logistic regression, performance evaluation)
- GUI design (front-end web development, Java's Swing, usability testing, UX)

### **Awards and commendations**

- Three first place wins in the U of S Programming Contest (spring 2014, winter 2014, winter 2015) and one third place win (winter 2016). This is the ACM-ICPC Programming Contest qualifier in the winter.
- Departmental Undergraduate Student Research Award (2014)
- Aberdeen Composite School Technology Award (2010 and 2011)

### **Volunteer work**

- Regular Ladies Learning Code mentor (and other similar "getting people into coding" events).
- Volunteered with U of S Pride Centre and Women's Centre

### **References**

Available on request