# Caroline Lemieux

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## Education

**University of British Columbia**                    *2012–Present (Expected 2016)*

  B.Sc. Combined Honours Computer Science and Mathematics
  Participant in program analysis reading group
  Took graduate level programming languages course
  Science One Class of 2013 (rigorous multi-disciplinary first year science program)

## Publications

[1]
pdf
Caroline Lemieux, Dennis Park, Ivan Beschastnikh. *General LTL Specification Mining.* In Proceedings of the 30th International Conference on Automated Software Engineering (ASE), November 2015. (Main Technical Track)

[2]
pdf
Caroline Lemieux, Ivan Beschastnikh. *Investigating Program Behavior Using the Texada LTL Specifications Miner.* In Proceedings of the 30th International Conference on Automated Software Engineering (ASE), November 2015. (Tool Demonstration Track)

[3]
pdf
Caroline Lemieux. *Mining Temporal Properties of Data Invariants.* In Proceedings of the 37th International Conference on Software Engineering (ICSE), May 2015. (ACM SRC Research Abstract; **won 1st place in Undergraduate Category**)

## Awards and Scholarships

### International

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|---|---|
| 1st Place Undergraduate, ACM Student Research Competition at ICSE 2015 | **2015** |
| Honorable Mention, CRA Outstanding Undergraduate Researcher Award | **2015** |

### National

| | |
|---|---|
| NSERC Undergraduate Student Research Award (supervisor: Ivan Beschastnikh) | **2015** |
| NSERC Undergraduate Student Research Award (supervisor: Ivan Beschastnikh) | **2014** |

### Institutional

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|---|---|
| Computer Science Scholarship | **2015** |
| Shirley Snelgrove and John Yule Scholarship | **2015** |
| Trek Excellence Scholarship for Continuing Studies | **2015** |
| Reginald Palliser-Wilson Scholarship | **2015** |
| Daniel Buchanan Scholarship in Mathematics (highest standing in Honours Math) | **2015** |
| Maureta Evelyn McDonald memorial Scholarship | **2014** |
| Reginald Palliser-Wilson Scholarship | **2014** |
| Trek Excellence Scholarship for Continuing Studies | **2014** |
| Charles and Jane Banks Scholarship | **2013** |
| Trek Excellence Scholarship for Continuing Studies | **2013** |
| Janus J Klawe Memorial Science One Scholarship | **2012** |
| Chancellor's Scholar Award | **2012** |

## Experience

**Research Assistant (USRA)** *2014, 2015*

Worked with Ivan Beschastnikh at UBC. Developed the Linear Temporal Logic (LTL) specification mining tool Texada and the data-temporal property mining tool Quarry. Texada takes as input some set of LTL formulas and a textual log (e.g., console log, syscall trace or stack trace) and outputs specifications which match the given LTL formula in structure but have events from the log in place of variables (given "$x$ is always followed by $y$", it could output "`open()` is always followed by `close()`"). Quarry builds on Texada; it uses Daikon to infer data invariants, places them back into their temporal context in a log, and then uses Texada to infer temporal relationships between these invariants (the data-temporal properties). Co-authored papers describing these tools.

**Research Assistant (Volunteer)** *2014*

Worked with Ivan Beschastnikh at UBC. Expanded functionality of the InvariMint tool implementation to allow for more flexibility in algorithm specification. Refactored existing mining algorithms to allow user to specify individual Synoptic property types or kTails on the command line (previously, Synoptic property types were bundled together and could not be used jointly with kTails).

**Undergraduate Academic Assistant** *2013-2014*

Worked with Gregor Kiczales at UBC. Video lecture editor and online teaching assistant (participated in student forums, developed peer-graded problems) for the Coursera offerings of Introduction to Systematic Program Design. Edited extra video lectures which were used as supplementary material in CPSC 110.

**Undergraduate Teaching Assistant** *2013*

In-class teaching assistant for CPSC 110 (UBC's introductory computer science course) taught by Meghan Allen. As in-class TA, helped students with in-class problems and monitored class for laptop policy violations. Also invigilated and graded mid-term exams.

## Software

**Texada**

Tool for inferring LTL program specifications from traces of system behavior.
Code: https://bitbucket.org/bestchai/texada/
Demo: http://bestchai.bitbucket.org/texada/

## Computer Skills

**Experienced**: Java, C++, HtDP Teaching Languages, LaTeX
**Intermediate**: C, Python
**Basic**: Racket, JavaScript

## Languages

French (Fluent), English (Fluent), Spanish (Basic)