

# Ellen Arteca

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## Education

- 2018–date **PhD in Computer Science**, *Northeastern University*, Boston, USA.  
Current work: Program analysis to detect oversynchronization in async/await JavaScript code  
Supervised by Dr. Frank Tip
- 2016–2018 **MMath in Computer Science**, *University of Waterloo*, Waterloo, Canada.  
Thesis: Formal Semantics and Mechanized Soundness Proof for Fast Gradually Typed JavaScript  
Supervised by Dr. Gregor Richards
- 2012–2016 **Bachelor's of Computer Science, Major in Mathematics**, *Laurentian University*, Sudbury, Canada.  
Thesis: Modular Algorithms for Computation of Groebner Bases  
Supervised by Dr. Stephanie Czapor

## Relevant Professional Experience

- Summer 2019 **Research Engineer Intern**, *Semmler*.
  - Static analysis for bug detection in use of event-driven APIs in JavaScript
    - Building a model of the API through large-scale analysis of package use
    - Automatically determining incorrect event listener registrations
- Fall 2014 **UCOSP: Umple Model-Oriented Programming**, *University of Ottawa*.
  - Implementation of UML compositions in Umple compiler and addition to UmpleOnline interface
- Summer 2014 **Research Assistant (USRA)**, *Laurentian University*, Funded by NSERC.
  - Modelling in computational physics, simulating particle interaction dynamics in large enclosed systems
- 2013–2016 **Research Assistant**, *Laurentian University*.
  - Modelling in computational ecology, simulating fruit fly populations under variable environmental conditions
    - Numerical approximations for populations as systems of coupled DEs
    - Multithreading in Java and C++
    - Large-scale data storage and analysis
- 2013–2019 **Teaching Assistant**.
  - Marking and running tutorials for a variety of 1st-3rd year computer science and math courses

## Publications

- 2019 Turcotte, Alexi, Ellen Arteca, and Gregor Richards. *Reasoning About Foreign Function Interfaces Without Modelling the Foreign Language*. ECOOP 2019 European Conference on Object-Oriented Programming, 2019.
- 2017 Richards, Gregor, Ellen Arteca, and Alexi Turcotte. *The VM Already Knew That: Leveraging Compile-Time Knowledge to Optimize Gradual Typing*. Proceedings of the ACM on Programming Languages, OOPSLA (2017).

- 2017 Langille, Aaron, Ellen Arteca, and Jonathan Newman. *The impacts of climate change on the abundance and distribution of the Spotted Wing Drosophila (Drosophila suzukii) in the United States and Canada*. PeerJ 5 (2017).
- 2016 Langille, Aaron, Ellen Arteca, Geraldine Ryan, Lisa Emiljanowicz, and Jonathan Newman. *North American invasion of Spotted-Wing Drosophila (Drosophila suzukii): a mechanistic model of population dynamics*. Ecological Modelling (2016).

## Posters

- 2017 Arteca, Ellen and Alexi Turcotte. *Modified Constrained Blind Amplitude Reconstruction*. Poster session presented at the EQuALS Conference (May 2017).
- 2017 Turcotte, Alexi and Ellen Arteca. *Multiobjective Root Growth Optimization*. Poster session presented at the EQuALS conference (May 2017).

## Professional Development

- 2020 ISSTA Artifact Evaluation Committee
- 2020 ECOOP Artifact Evaluation Committee
- 2019 PhD Curriculum Committee, Northeastern University
- 2018 ECOOP Summer School
- 2017 Programming Languages Implementation Summer School (audit)

## Languages

- Programming Java, C++, C, Python (with matplotlib, numpy, pandas), Matlab/Octave, Maple, Coq, TypeScript/JavaScript, Racket, QL
- Natural English (native), Spanish (fluent), French (fluent)

## Misc

- Github/ bitbucket emarteca
- Citizenship Canadian
- Hackathons A variety of game design hackathons during undergrad!
- NSERC Currently holding the NSERC PGS-D scholarship