

# Marianna Rapoport

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Type systems, program verification, static analysis, and functional programming.

[github.com/amaurremi](https://github.com/amaurremi)

[gitlab.mpi-sws.org/amaurremi](https://gitlab.mpi-sws.org/amaurremi)

## Work experience

- Jul '21-date **Amazon AWS**, Toronto, ON. Applied scientist II / automated reasoning in AWS Identity
- 2020-21 **Concordium**, Aarhus, Denmark. Software engineer / work on consensus implementation & smart-contract framework of Concordium blockchain (Haskell/Rust)
- Summer '19 **Amazon**, Seattle, WA. Research intern with Rustan Leino / work on Dafny & Boogie programming languages
- Summer '18 **Max Planck Institute for Software Systems**, Saarbrücken, Germany. Research intern with Derek Dreyer / add prophecy variables to Iris framework
- Summer '15 **IBM T.J. Watson Research Centre**, Yorktown Heights, NY. Research intern with Stephen Fink's group / large-scale static-analysis on Android applications
- Fal '13 **Twitter, Inc.**, San Francisco, CA. Software engineer intern / back-end of the direct-messaging & tweet services

## Education

- 2014–2019 **PhD in Computer Science**, *University of Waterloo*, supervisor Ondřej Lhoták, thesis topic: formalizing a core calculus for Scala using fully path-dependent types.
- 2012–2014 **MMath in Computer Science**, *University of Waterloo*, co-supervisors Ondřej Lhoták and Frank Tip, thesis title: Precise data flow analysis in the presence of correlated method calls.
- 2008–2012 **BSc in Computer science**, *Moscow Institute of Radioelectronics, Engineering and Automation*, thesis title: ideah, a Haskell language plugin for IntelliJ IDEA, supervisor Oleg Sobolev.

## Peer-reviewed publications

- 2020 Abel Nieto, Marianna Rapoport, Gregor Richards, Ondřej Lhoták, *Blame for Null*, ECOOP'20.
- 2020 Ralf Jung, Rodolphe Lepigre, Gaurav Parthasarathy, Marianna Rapoport, Amin Timany, Derek Dreyer, Bart Jacobs, *The Future Is Ours: Prophecy Variables in Separation Logic*, POPL'20.
- 2019 Marianna Rapoport, Ondřej Lhoták, *A Path to DOT: Formalizing Fully Path-Dependent Types*, OOPSLA'19. **(distinguished artifact award)**
- 2017 Marianna Rapoport, Ifaz Kabir, Paul He, Ondřej Lhoták, *A Simple Soundness Proof for Dependent Object Types*, OOPSLA'17. **(distinguished artifact award)**
- 2017 Marianna Rapoport, Ondřej Lhoták, *Mutable WadlerFest DOT*, FTFJP'17
- 2017 Marianna Rapoport, Philippe Suter, Erik Wittern, Ondřej Lhoták, Julian Dolby. *Who You Gonna Call? Analyzing Web Requests in Android Applications*, MSR'17
- 2015 Karim Ali, Marianna Rapoport, Ondřej Lhoták, Julian Dolby, Frank Tip, *Type-Based Call Graph Construction Algorithms for Scala*, TOSEM'15
- 2015 Marianna Rapoport, Ondřej Lhoták, Frank Tip, *Precise Data Flow Analysis in the Presence of Correlated Method Calls*, SAS'15. **(best paper award)**
- 2014 Karim Ali, Marianna Rapoport, Ondřej Lhoták, Julian Dolby, Frank Tip, *Constructing Call Graphs of Scala Programs*, ECOOP'14. **(distinguished artifact award)**

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## Theses

- 2019 *A Path to DOT: Formalizing Scala with Dependent Object Types*, PhD thesis, University of Waterloo, November 2019.
- 2014 *Data Flow Analysis in the Presence of Correlated Calls*, Master thesis, University of Waterloo, August 2014.

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## Open Source

- IDE algorithm An implementation of the Interprocedural Distributive Environment algorithm using the WALA framework for static analysis on Java bytecode
- ideah A Haskell language support plugin for IntelliJ IDEA

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## Languages

- programming Scala, Rust, Haskell, Coq, Dafny, Scheme, Java, C#, C.
- natural German, native; Russian, native; English, fluent; French, beginner; Spanish, beginner

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## Awards

- 2019 David R. Cheriton scholarship, University of Waterloo
- 2018 David R. Cheriton scholarship, University of Waterloo
- 2017
  - Distinguished Artifact Award (ECOOP)
  - Ontario Graduate Scholarship
  
- David R. Cheriton scholarship, University of Waterloo
- 2016 David R. Cheriton scholarship, University of Waterloo
- 2015 Radhia Cousot best young researcher paper award, Symposium on Static Analysis
- 2014
  - David R. Cheriton scholarship, University of Waterloo
  - Provost doctoral entrance award, University of Waterloo
  - International Doctoral Student Award, University of Waterloo
  
- 2012–2014
  - International masters award, University of Waterloo
  - Mathematics graduate experience award, University of Waterloo
  - Graduate research studentship, University of Waterloo
  
- 2007–2012
  - Russian government scholarship for academic excellence
  - Moscow government nominal scholarship

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## Service

- 2020 International Workshop on Aliasing, Capabilities and Ownership (IWACO) 2020 PC member
- 2019 Programming Languages Mentoring Workshop (PLMW) @SPLASH co-chair
- 2018 International Conference on Functional Programming (ICFP) student volunteer
- European Conference on Object-Oriented Programming (ECOOP) artifact evaluation committee (AEC) co-chair
- Proof artifact guidelines for Artifact Evaluation Committees (used for the first time at ECOOP'18)
- 2017 Object-Oriented Programming, Systems, Languages & Applications (OOPSLA) AEC member
- OOPSLA student volunteer
- 2016 OOPSLA AEC member
- OOPSLA student volunteer
- Programming Languages group at Waterloo: organizing type-and-effect systems reading group, created group website
- 2015 OOPSLA student volunteer
- 2014 ECOOP student volunteer