

THE UNIVERSITY OF BRITISH COLUMBIA
Curriculum Vitae for Faculty Members

Date: May 13, 2017

Initials: R.G.

1. SURNAME: Garcia FIRST NAME: Ronald

2. DEPARTMENT/SCHOOL: Computer Science

3. FACULTY: Science

4. PRESENT RANK: Assistant Professor SINCE: July 1, 2011

5. POST-SECONDARY EDUCATION

(a) Degrees

University or Institution	Degree	Subject Area	Dates
Indiana University	Ph.D.	Computer Science	2008
University of Notre Dame	M.Sc.	Electrical Engineering	1999
University of Notre Dame	B.Sc.	Electrical Engineering	1997

Title of Dissertation: Static Computation and Reflection

Name of Supervisor: Andrew Lumsdaine

6. EMPLOYMENT RECORD

(a) Prior to coming to UBC

University, Company or Organization	Rank or Title	Dates
Carnegie Mellon University	Computing Innovation Fellow	2009-2011
Rice University	Post-Doctoral Research Associate	2008-2009

(b) At UBC

Rank or Title	Dates
Assistant Professor	July 1, 2011

7. TEACHING

(a) Areas of special interest and accomplishments

(b) Courses Taught at UBC

Number	Title
CPSC 110	Computations, Programs, and Programming
CPSC 509	Programming Language Principles
CPSC 411	Introduction to Compiler Construction

Session	Course Number	Scheduled Hours	Class Size	Hours Taught			
				Lectures	Tutorials	Labs	Other
2011-T1	CPSC 509	3	8	3/week			
2012-T1	CPSC 110	3	132	3/week			
2012-T2	CPSC 509	3	10	3/week			
2013-T1	CPSC 110	3	147	3/week			
2013-T2	CPSC 509	3	7	3/week			
2014-T1	CPSC 110	3	159	3/week			
2014-T2	CPSC 509	3	21	3/week			
2015-T1	CPSC 509	3	6	3/week			
2015-T2	CPSC 411	3	45	3/week			
2016-T1	CPSC 509	3	6	3/week			
2016-T2	CPSC 411	3	59	3/week			

(c) *Graduate Students Supervised and/or Co-supervised*

The start year indicates the year I began to supervise a student, not the year the student was enrolled in the program.

Student Name	Program	Year		Principal Supervisor	Co-Supervisor
		Start	Finish		
Joseph Eremondi	Ph.D.	2016		Ronald Garcia	
Rui Ge	Ph.D.	2016		Ronald Garcia	
Felipe Bañados Schwerter	Ph.D.	2014		Ronald Garcia	
Rui Ge	M.Sc.	2014	2016	Ronald Garcia	
Jonatan Milewski	M.Sc.	2014	2015	Ronald Garcia	
Felipe Bañados Schwerter ¹	M.Sc.	2012	2014	Éric Tanter	Ronald Garcia
Evgeny Roubinchtein	M.Sc.	2013	2015	Ronald Garcia	

¹Received M.Sc. from University of Chile, Santiago

Felipe Bañados Schwerter's M.Sc. thesis was awarded an Honourable Mention in the 2015 XLII Latin American Conference on Informatics (CLEI) Masters Thesis Competition.

After graduation, Jonatan Milewski became a software engineer at Amazon.Com in Seattle, WA. Evgeny Roubenchtein became a software engineer at MathWorks in Boston, MA.

(d) *Undergraduate Students Supervised and/or Co-supervised*

Student Name	Program	Year		Principal Supervisor	Co-Supervisor
		Start	Finish		
Khurram A. Jafery	B.Sc. Combined Honours (Math)	2016		Ronald Garcia	
Alison M. Clark	NSERC USRA	2016	2016	Ronald Garcia	
Alison M. Clark	B.Sc. Directed Studies	2015	2015	Ronald Garcia	
Khurram A. Jafery	B.Sc. Directed Studies	2015	2015	Ronald Garcia	
Alison M. Clark	NSERC USRA	2015	2015	Ronald Garcia	

(continued...)

Student Name	Program	Year		Principal Supervisor	Co-Supervisor
		Start	Finish		
Khurram A. Jafery	UBC Work Learn IURA	2015	2015	Ronald Garcia	
Cristina Teodoropol	B.Sc. Directed Studies	2014	2015	Ronald Garcia	
Victor Barua	B.Sc. Combined Honours (Physics)	2014	2015	Ronald Garcia	Steve Wolfman
Julia Litke	B.Sc. Cognitive Sciences	2014	2014	Ronald Garcia	Christopher Petersen
Ruiyuan Chen	NSERC USRA	2013	2013	Ronald Garcia	
Stephanie Van Dyk	B.Sc. Combined Honours (Math)	2012	2013	Ronald Garcia	Steve Wolfman
Ruiyuan Chen	B.Sc. Combined Honours (Math)	2012	2013	Ronald Garcia	

Stephanie Van Dyk was awarded the 2013 UBC Computer Science Rick Sample Memorial Research Award. Alison M. Clark was awarded an Honourable Mention in the 2016 Computing Research Association (CRA) Outstanding Undergraduate Researcher Award, and the 2016 UBC Computer Science Rick Sample Memorial Research Award. Khurram A. Jafery was awarded Winner of the 2017 CRA Outstanding Undergraduate Researcher Award Competition.

After graduation, Stephanie Van Dyk became a software engineer at Google in Mountain View, CA. Ronnie (Ruiyuan) Chen became a Ph.D. student in Mathematics at California Institute of Technology. Victor Barua became a software engineer at BitLit in Vancouver, BC. Cristina Teodoropol became a Ph.D. student in Computer Science at University of California, Berkeley.

(e) *Graduate Supervisory Committees*

Student Name	Program	Year	Role
Md Enamul Hoque Prince	Ph.D. Computer Science	2017	University Examiner
Mehul Solanki	M.Sc. Computer Science, UNBC	2016	External Examiner
Oliver Schneider	Ph.D. Computer Science	2015—2016	Thesis Committee Member
Yan Peng	M.Sc. Computer Science	2015	Second Reader
Nodir Kodirov	Ph.D. Computer Science	2014	Research Proficiency Exam Chair
Ryan Chung	M.Sc. Computer Science	2014	Second Reader
James Lo	Ph.D. Computer Science	2013	Research Proficiency Exam Committee
Layali Rashid	Ph.D. Electrical and Comp. Eng.	2013	University Examiner
Robin Salkeld	Ph.D. Computer Science	2011—	Thesis Committee Member
Matthew Brehmer	Ph.D. Computer Science	2012	Research Proficiency Exam Chair
Brad Bingham	Ph.D. Computer Science	2012	Proposal defense Chair

8. SCHOLARLY AND PROFESSIONAL ACTIVITIES

(a) *Areas of special interest and accomplishments*

(b) *Research or equivalent grants (indicate under COMP whether grants were obtained competitively (C) or non-competitively (NC))*

Agency	Title	Comp	\$/Year	Year(s)	PI (Co-PIs in italics)
NSERC	Extending the Theory and Practice of Gradual Typing	C	\$26,000	2012-2017	Ronald Garcia
Mozilla	Formalizing Traits for Rust	C	\$40,000	2014	Ronald Garcia
NSERC	Enhancing Support for Metaprogramming	C	\$22,000	2012-2017	Ronald Garcia

(c) *Invited Presentations*

- Invited Speaker. Dagstuhl Seminar #17051 on “Theory and Applications of Behavioural Types.” Wadern, Germany. January 2017.
- Invited Speaker. International Federation for Information Processing (IFIP) Working Group 2.8 on Functional Programming. Edinburgh, Scotland. June 2017.
- *Static and Dynamic Type Checking: A Synopsis*. Keynote Address. Symposium on Trends in Functional Programming. June 2016.
- *Gradual Type Inference*. Department of Computer Science Colloquium. University of Chile. December 2015.
- *Gradual Checking of Program Invariants*. School of Informatics and Computing (SoIC) Computer Science (CS) Colloquium. Indiana University. April 2015.
- *Gradual Effects*. NII Shonan Meeting on “Software Contracts for Communication, Monitoring, and Security”. Shonan, Japan. May 2014.
- *Gradual Effects*. IFIP WG2.16 Working Group on Language Design Annual Meeting. Aarhus, Denmark. August 2013.
- *Combining Static and Dynamic Types*. IFIP WG2.16 Working Group on Language Design Annual Meeting. Austin, Texas, USA. December 2012.
- *Gradual Typestate*. LogicBlox Inc. Atlanta, Georgia, USA. March 2012.
- *Toward Foundations for Type-reflective Metaprogramming*. University of British Columbia, Vancouver, British Columbia, Canada. April 2010.
- *Physically Safe Computing*. National Workshop for Research on High-Confidence Transportation Cyber-Physical Systems: Automotive, Aviation and Rail. Washington, DC, USA. November 2008.
- *Computing While Compiling: Reasons and Methods for Compile-time Metaprogramming*
 - University of Oregon. Eugene, Oregon, USA. May 2008.
 - Rice University. Houston, Texas, USA. May 2008.
 - Argonne National Laboratory. Naperville, Illinois, USA. January 2008.
 - Wesleyan University. Middletown, Connecticut, USA. December 2007.
- *Compile-time Metaprogramming*. Connecticut College. December 2007.
- *Static Computation and Reflection: Practice and Theory*.
 - LogicBlox Inc. Researchers Symposium. Atlanta, Georgia, USA. September 2007.
 - Summer School on Generative and Transformational Techniques in Software Engineering, Participants Workshop. Braga, Portugal. July 2007

(d) *Other: Software released publicly through my research*

2002–Now **The Boost MultiArray Library**. A generic C++ library for computing with multi-dimensional arrays. Available at www.boost.org.

(e) *Conference Participation (Organizer, Keynote Speaker, etc.)*

2017 **Co-Chair, Publicity** Systems, Programming, Languages and Applications: Software for Humanity (SPLASH) (with Eric Walkingshaw).

2016 **Chair** Workshop on Scripts to Programs (STOP).

- 2016 **Co-Chair, Publicity** Systems, Programming, Languages and Applications: Software for Humanity (SPLASH) (with Tijs Van Der Storm).
- 2016 **Chair, Doctoral Consortium Committee** ACM Richard Tapia Celebration of Diversity in Computing (TAPIA).
- 2015 **Co-Chair, Tutorials** Systems, Programming, Languages and Applications: Software for Humanity (SPLASH) (with Romain Robbes).
- 2015 **Co-Organizer** First Programming Languages Mentoring Workshop at ICFP (PLMW@ICFP) (with Stephanie Weirich).
- 2015 **Deputy Chair, Doctoral Consortium Committee** ACM Richard Tapia Celebration of Diversity in Computing (TAPIA).
- 2015 **Local Arrangements Chair** International Conference on Functional Programming (ICFP).
- 2012 **Co-Organizer** First CDC/CRA-W and SIGPLAN Programming Languages Mentoring Workshop (PLMW@POPL) (with Kathleen Fisher and Stephanie Weirich).
- 2012 **Co-Chair** 2012 ACM SIGPLAN Workshop on Generic Programming (WGP) (with Andres Löh).

9. SERVICE TO THE UNIVERSITY

(a) *Memberships on committees, including offices held and dates*

- 2011–Now **Member, Computer Science Graduate Recruiting and Admissions Committee.**
- 2015 **Member, Computer Science Head Search Committee.**
- 2013 **Member, Computer Science Merit Review Committee.**

(b) *Other service, including dates*

10. SERVICE TO THE COMMUNITY

(a) *Memberships on scholarly societies, including offices held and dates*

- 2005–Now **Association for Computing Machinery(ACM), Special Interest Group on Programming Languages (SIGPLAN),** member.
- 2007–Now **Institute for Electrical and Electronics Engineers (IEEE),** member.

(b) *Memberships on scholarly committees, including offices held and dates*

- 2017 **Chair, Steering Committee** SIGPLAN Programming Languages Mentoring Workshop Series.
- 2016 **Judge** ICFP 2016 Student Research Competition.
- 2015–2016 **Interim Chair, Steering Committee** SIGPLAN Programming Languages Mentoring Workshop Series.
- 2013–2015 **Steering Committee,** CDC/CRA-W and SIGPLAN Programming Languages Mentoring Workshop.
- 2012–2015 **Steering Committee,** ACM SIGPLAN Workshop on Generic Programming.

(c) *Memberships on other committees, including offices held and dates*

2005–Now **Review Coordinator, Boost C++ Libraries Project.** Boost is the pre-eminent collection of open source C++ libraries, and a common source for new additions to the C++ standard library. In this role, I am responsible for arranging and reporting on Boost library reviews.

2003 **Graduate Student Representative, Computer Science Task Force on Undergraduate Curriculum and Women.** This task force investigated how Indiana University’s undergraduate computer science curriculum and related departmental processes affected the enrollment and retention of women. We provided an advisory report to the computer science department.

(d) *Reviewer (journal, agency, etc., including dates)*

(d).1 Conference Program Committees

2017,11 ACM SIGPLAN International Conference on Functional Programming (ICFP)

2017 ACM SIGPLAN Symposium on Principles of Programming Languages (POPL)

2013,16 ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation (PEPM)

2016 European Conference on Object-Oriented Programming (ECOOP)

2015 Workshop on Evaluation and Usability of Programming Languages and Tools (PLATEAU)

2015 International Workshop on Scripts to Programs (STOP)

2013 International Symposium on Practical Aspects of Declarative Languages (PADL)

2012 International Workshop on Foundations of Object-Oriented Languages (FOOL)

2011,13 Workshop on Scheme and Functional Programming (SCHEME)

2012 ACM SIGPLAN Conference on Programming Language Design and Implementation (External Review Committee) (PLDI)

2009,10,12 International Conference on Generative Programming and Component Engineering (GPCE)

2011 ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation (PEPM)

(d).2 Journal Reviewer

2007,08,14 Science of Computer Programming (SCP)

2014 Transactions on Programming Languages and Systems (TOPLAS)

2014 Journal of Object Technology (JOT)

2008,09,14 ACM Transactions on Mathematical Software (TOMS)

2012 ACM Transactions on Software Engineering and Methodology (TOSEM)

2011 ACM Transactions on Computational Logic (TOCL)

2009,10,11 Journal of Functional Programming (JFP)

2010 Software: Practice and Experience (SPE)

2003 Higher-Order and Symbolic Computing (HOSC)

(d).3 Conference Reviewer

2016,17 European Symposium on Programming (ESOP)

2010,13 International Conference on Functional Programming (ICFP)

2009 International Conference on Typed Lambda Calculi and Applications (TLCA)

2008 ACM SIGPLAN Workshop on Partial Evaluation and Program Manipulation (PEPM)

2006 European Symposium on Programming (ESOP)

2005 International Conference on Generative Programming and Component Engineering (GPCE)

11. AWARDS AND DISTINCTIONS

1. 2013 Nominee, UBC Killam Teaching Award for Science Instructors.
2. 2009-11 CRA/NSF/CCC Computing Innovation Fellowship.

THE UNIVERSITY OF BRITISH COLUMBIA
Publication Record

SURNAME: Garcia **Date:** May 13, 2017 **Initials:** R.G.
FIRST NAME: Ronald

1. REFEREED PUBLICATIONS

In programming languages, authors are generally in the order of contribution to the publication from most to least. Exceptions are where order is alphabetical (authors marked with a †). I have placed the name of students and postdocs I have supervised or co-supervised in bold. Other students and postdocs are in italics. Select publications are starred (★).

I list citation counts for publications with at least 10 citations. All citation counts are from Google Scholar as of September 2016.

(a) Journals

- ★ 1. **Felipe Bañados Schwerter**, Ronald Garcia, and Éric Tanter. Gradual Type-and-Effect Systems. *Journal of Functional Programming (JFP)*. To Appear. 2016.
2. Ronald Garcia, Éric Tanter, *Roger Wolff*, and Jonathan Aldrich. Foundations of Typestate-Oriented Programming. *ACM Transactions on Programming Languages and Systems*, 36 (4), 12:1–12:44. 2014. (20 Citations).
3. *Donghoon Kim*, Emerson Murphy-Hill, Chris Parnin, Christian Bird, and Ronald Garcia. The Reaction of Open-Source Projects to New Language Features: An Empirical Study of C# Generics. *Journal of Object Technology*, 12(4): 1: 1–31. 2013.
4. Ronald Garcia, Andrew Lumsdaine, and Amr Sabry. Lazy Evaluation and Delimited Control. *Logical Methods in Computer Science*, Special Issue: Selected Papers of the Conference “Principles of Programming Languages 2009.” 2010.
5. Ronald Garcia[†], *Jaakko Järvi*[†], Andrew Lumsdaine[†], *Jeremy Siek*[†], and *Jeremiah Willcock*[†]. An Extended Comparative Study of Language Support for Generic Programming. In *Journal of Functional Programming*, 17 (2), 145–205. 2007. (79 Citations).
6. Ronald Garcia and Andrew Lumsdaine. MultiArray: A C++ Library for Generic Programming with Arrays. In *Software—Practice and Experience*, 35 (2), 159–188. 2005. (21 Citations).

(b) Conference Proceedings

- ★ 1. Ronald Garcia, **Alison M. Clark**, and Éric Tanter. Abstracting Gradual Typing. In *POPL '16: 43rd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*. January 2016. 429–442. (Acceptance Rate: 23% (59/253)).
2. Jeremy Siek, *Michael M. Vitousek*, *Matteo Cimini*, Sam Tobin-Hochstadt, and Ronald Garcia. Monotonic References for Efficient Gradual Typing. In *ESOP '15: European Symposium on Programming*. April 2015. 432–456. (Acceptance Rate: 29% (33/115)).

3. Ronald Garcia and *Matteo Cimini*. Principle Type Schemes for Gradual Programs. In *POPL '15: 42nd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*. January 2015. 303–315. (Acceptance Rate: 23% (52/226)).
- ★ 4. *Esteban Allende*[†], *Johan Fabry*[†], Ronald Garcia[†], and *Éric Tanter*[†]. Confined Gradual Typing. In *OOPSLA '14: ACM SIGPLAN Conference on Object-oriented Programming, Systems, Languages, and Applications*. September 2014. 251–270. (Acceptance Rate: 28% (52/186)).
5. **Felipe Bañados Schwerter**, Ronald Garcia, and *Éric Tanter*. A Theory of Gradual Effect Systems. In *ICFP '14: 19th International Conference on Functional Programming*. September 2014. 283–295. (Acceptance Rate: 29% (28/97); 19 Citations).
- ★ 6. Ronald Garcia. Calculating Threesomes, with Blame. In *ICFP '13: 18th International Conference on Functional Programming*. September 2013. 417–428. (Acceptance Rate: 30% (40/133); 10 Citations).
7. *Roger Wolff*, Ronald Garcia, *Éric Tanter*, and *Jonathan Aldrich*. Gradual Typestate. In *ECOOP '11: 25th European Conference on Object-Oriented Programming*. July 2011. 459–483. (Acceptance Rate: 26% (26/100); 54 Citations).
8. *Jonathan Aldrich*[†], Ronald Garcia[†], *Mark Hahnenberg*[†], *Manuel Mohr*[†], *Karl Naden*[†], *Darpan Saini*[†], *Sven Stork*[†], *Joshua Sunshine*[†], *Éric Tanter*[†], and *Roger Wolff*[†]. Permission-Based Programming Languages. In *ICSE '11: 33rd International Conference on Software Engineering: New Ideas and Emerging Results (NIER) track*. May 2011. 828–831. (Acceptance Rate: 23% (46/198)).
9. Ronald Garcia and Andrew Lumsdaine. Toward Foundations for Type-Reflective Metaprogramming. In *GPCE '09: Eighth International Conference on Generative Programming and Component Engineering*. October 2009. 25–34. (Acceptance Rate: 29% (18/62); 10 Citations).
10. Jeremy Siek, Ronald Garcia, and Walid Taha. Exploring the Design Space of Casts. In *ESOP '09: 18th European Symposium on Programming*. March 2009. 17–31. (Acceptance Rate: 27% (27/98); 39 Citations).
11. Ronald Garcia, Andrew Lumsdaine, and Amr Sabry. Lazy Evaluation and Delimited Control. In *POPL '09: ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*. January 2009. 153–164. (Acceptance Rate: 23% (36/160); 25 Citations).
12. Ronald Garcia[†], *Jaakko Järvi*[†], Andrew Lumsdaine[†], *Jeremy Siek*[†], and *Jeremiah Willcock*[†]. A Comparative Study of Language Support for Generic Programming. In *OOPSLA '03: ACM SIGPLAN Conference on Object-oriented Programming, Systems, Languages, and Applications*. October 2003. 115–134. (Acceptance Rate: 18% (26/147); 177 Citations).

(c) *Refereed Workshop Proceedings*

1. *Robin Salkeld* and Ronald Garcia. Essential Retroactive Weaving In *The 2005 Foundations of Aspect-Oriented Languages Workshop*. March 2015. 52–57.
2. Ronald Garcia and Andrew Lumsdaine. Type Classes Without Types. In *The 2005 ACM SIGPLAN Workshop on Scheme and Functional Programming*. September 2005.

(d) *Peer-reviewed Posters*

Jonathan Aldrich[†], Robert Bocchino[†], Ronald Garcia[†], Mark Hahnenberg[†], Manuel Mohr[†], Karl Naden[†], Darpan Saini[†], Sven Stork[†], Joshua Sunshine[†], Éric Tanter[†], and Roger Wolff[†]. Plaid: a Permission-Based Programming Language. In *OOPSLA '11: Companion to the 26th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications*. October 2011. 183–184.

2. NON-REFEREED PUBLICATIONS

(a) *Journals*

Kathleen Fisher[†], Ronald Garcia[†], Stephanie Weirich[†]. Nourishing the Future of the Field: the Programming Language Mentoring Workshop 2012. In *ACM SIGPLAN Notices* 47 (4a), April 2012. 14–15.

(b) *Workshop Proceedings*

Jeremy Siek, Ronald Garcia. Interpretations of the Gradually Typed Lambda Calculus. Invited Tutorial. In *The 2012 ACM SIGPLAN Workshop on Scheme and Functional Programming*. September 2012.

(c) *Posters*

1. Ronald Garcia, Roger Wolff, Eric Tanter, Jonathan Aldrich. Gradual Typestate. In *The CDC/CMD-IT/CAHSI/AccessComputing Academic Career Workshop for Underrepresented Participants*. March 2012.
2. Ronald Garcia, Roger Wolff, Eric Tanter, Jonathan Aldrich. Gradual Typestate. In *The CRA/CCC Computing Innovation Fellows Research Meeting and Career Mentoring Workshop*. December 2010.
3. Ronald Garcia. A Principled Approach to Compile-time Metaprogramming. In *The CRA/CDC Programming Languages Summer School*. May 2007.

(d) *Technical Reports*

1. Jeremy Siek, Douglas Gregor, Ronald Garcia, Jeremiah Willcock, Jaakko Järvi, and Andrew Lumsdaine. Concepts for C++0x. ISO/IEC JTC 1, Information Technology, Subcommittee SC 22, Programming Language C++. Report number N1758=05-0018. 2005. (35 Citations).