

# Joel Galenson

---

CONTACT INFORMATION	1600 Amphitheatre Pkwy Mountain View, CA 94043	650-804-6870 <a href="mailto:jgalenson@gmail.com">jgalenson@gmail.com</a> <a href="http://jgalenson.github.io/">http://jgalenson.github.io/</a>
RESEARCH INTERESTS	Systems security, return-oriented programming, exploit development, malware detection Program synthesis, static and dynamic analysis, testing, compilers, language design	
EDUCATION	<b>University of California, Berkeley</b> Ph.D. Advisors: Rastislav Bodik and Koushik Sen	2014
	<b>Stanford University</b> B.S. (honors, distinction)	2008
HONORS AND AWARDS	2 <sup>nd</sup> place, LIVE 2013 Best Student Paper Award, ADKDD 08 Winner of 3D video game competition at Stanford Tau Beta Pi (junior year)	2013 2008 2007 2007
PUBLICATIONS	Joel Galenson, Cindy Rubio-González, Sarah Chasins, and Liang Gong. Research.js: Evaluating Research Tool Usability on the Web. In <i>Proceedings of the 5th Workshop on Evaluation and Usability of Programming Languages and Tools (PLATEAU 2014)</i> , Portland, Oregon, USA, 2014.	
	Joel Galenson. Dynamic and Interactive Synthesis of Code Snippets. Ph.D. Dissertation, 2014.	
	Joel Galenson, Philip Reames, Rastislav Bodik, Bjoern Hartmann, and Koushik Sen. CodeHint: Dynamic and Interactive Synthesis of Code Snippets. In <i>International Conference on Software Engineering (ICSE 2014)</i> , Hyderabad, India, 2014.	
	Mihai Budiu, Joel Galenson, and Gordon D. Plotkin. The Compiler Forest. In <i>Proceedings of the 22nd European conference on Programming Languages and Systems (ESOP 2013)</i> , Rome, Italy, 2013.	
	David Gay, Joel Galenson, Mayur Naik, and Kathy Yelick. Yada: Straightforward Parallel Programming. In <i>Parallel Computing</i> , Elsevier, 2011.	
	Rastislav Bodik, Satish Chandra, Joel Galenson, Doug Kimmelman, Nicholas Tung, Shaon Barman, and Casey Rodarmor. Programming with Angelic Nondeterminism. In <i>Proceedings of the 37th Symposium on Principles of Programming Languages (POPL 2010)</i> , Madrid, Spain, 2010.	
	Jason Auerbach, Joel Galenson, and Mukund Sundararajan. An empirical analysis of return on investment maximization in sponsored search auctions. In <i>Proceedings of the Second International Workshop on Data Mining and Audience Intelligence for Advertising (ADKDD 2008)</i> , Las Vegas, Nevada, USA, 2008.	
REFEREED PRESENTATIONS	CodeHint: Dynamic and Interactive Synthesis for Modern IDEs. Future Programming Workshop, SPLASH, 2014.	
	CodeHint: Dynamic and Interactive Synthesis for Modern IDEs. Future Programming Workshop, Strange Loop, 2014.	

Code Hint. First International Workshop on Live Programming, 2013.

## EXPERIENCE

**Software Engineer**, Google Spring 2017 - Present  
I am on the Android Platform Security team.

**Senior Engineer**, Qualcomm Research Silicon Valley Fall 2014 - Spring 2017

- I researched behavioral mobile security solutions to protect against malware and exploits. I have spent much of my time developing attacks on Android, including building real exploits that bypass SELinux and target Chrome and the Stagefright and Dirtycow bugs. I have handwritten ARM assembly and built a simple shellcode and ROP compiler to ease payload development. I developed and gave our lab a tutorial on memory error attacks and defenses, including building a sequence of ROP attacks from simple to complex.
- I worked on developing compilation techniques for programming special purpose accelerator architectures. Our compiler was based on LLVM, and I worked on the backend, including scheduling, software pipelining, optimizing individual instructions, co-designing new instructions, and numerous architecture-specific passes. I also worked on providing tools to understand and optimize the compiler output as well as improving our test infrastructure and tracking upstream development.

**Graduate Student Researcher**, University of California, Berkeley Fall 2008 - Summer 2014

I was a member of the Parallel Computing Laboratory (Par Lab) where I worked on program synthesis techniques to aid general-purpose programming. I built an Eclipse plugin that dynamically generated code snippets (along with a JavaScript port) and a graphical programming by demonstration tool.

**Teaching Assistant**, University of California, Berkeley Spring 2014  
Was a TA for CS 61B: Data Structures.

**Intern**, Microsoft Research Silicon Valley Summer 2011  
Worked on an architecture for modular cooperating compilers.

**Intern**, Microsoft Research Silicon Valley Summer 2010  
Worked on a new architecture for evaluating LINQ queries that encompasses DryadLINQ.

**Teaching Assistant**, University of California, Berkeley Fall 2009  
Was a TA for CS 164: Programming Languages and Compilers.

**Intern**, IBM T.J. Watson Research Center Summer 2009  
Worked on the constraint-based type system for the X10 language.

**Platform intern**, Mozilla Summer 2008  
Worked on a native code compiler for regular expressions.

**Section Leader for CS 106**, Stanford University Fall 2005 - Summer 2008  
Taught a section covering introductory programming topics, graded homework and exams, staffed a help desk.

**Researcher**, Stanford University Summer 2006 - Spring 2008

- Built a verifying compiler for Zohar Manna and Aaron Bradley.
- Worked on two static analysis tools for Zohar Manna.
- Investigated the properties of online ad auctions and bidder strategies with Tim Roughgarden.

- Developed methods to enable the use of remote computers to speed up data processing by a robot for Andrew Ng.
- Developed techniques for visualizing personal information spaces for Pat Hanrahan.

**Teaching Assistant**, Stanford University Winter 2008  
 Was a TA for CS 156: Calculus of Computation.

**Resident Computer Consultant**, Stanford University Fall 2006 - Spring 2008  
 Assisted undergraduates with personal computer problems and administered a dorm network.

PROFESSIONAL ACTIVITIES	Artifact Evaluation Committee: POPL	2015
	External reviewer: PLDI, CAV	2014
	External reviewer: ASPLOS, OOPSLA, VMCAI	2013
	Graduate Admissions Committee, UC Berkeley	2009
LEADERSHIP	Computer Science Graduate Student Association member	Fall 2013 - Spring 2014
	Graduate Assembly committee representative	Fall 2013 - Spring 2014
	Organized UC Berkeley Programming Languages seminars	Fall 2009 - Summer 2014
COMPUTER SKILLS	C, C++, Java, Scala, OCaml, C#, Python, JavaScript, ARM, L <sup>A</sup> T <sub>E</sub> X, HTML Linux, Android, return-oriented programming, gdb	
REFERENCES	<i>Available on request</i>	