

James Bornholt

Contact	Computer Science and Engineering Box 352350 Seattle, WA 98195-2350	bornholt@uw.edu https://homes.cs.washington.edu/~bornholt/
Education	University of Washington <i>PhD in Computer Science and Engineering</i> <i>Masters of Computer Science and Engineering</i> <ul style="list-style-type: none">Advisors: Emina Torlak, Dan Grossman, Luis CezeMember of the programming languages and computer architecture groups Australian National University <i>Bachelor of Philosophy with First Class Honours and the University Medal</i> <ul style="list-style-type: none">Majors in Computer Science and MathematicsThesis: <i>Abstractions and Techniques for Programming with Uncertain Data</i>, advised by Steve Blackburn	Seattle, WA, USA September 2014 – present March 2016 Canberra, Australia January 2010 – December 2013
Awards	<ul style="list-style-type: none">IEEE Micro Top Picks from the Computer Architecture Conferences, for DNA storage, 2017OSDI Best Paper Award, 2016IEEE Micro Top Picks from the Computer Architecture Conferences, for Uncertain$\langle T \rangle$, 2015ACM SIGPLAN Research Highlight, for Uncertain$\langle T \rangle$, 2014David Notkin Endowed Graduate Fellowship, University of Washington, 2014–2015Second Place, ACM Student Research Competition Grand Finals (undergraduate category), 2014ANU University Medal for Computer Science, 2013Winner, ACM PLDI Student Research Competition (undergraduate category), 2013	
Publications	Conference and Journal Papers <i>Push-Button Verification of File Systems via Crash Refinement.</i> H. Sigurbjarnarson, J. Bornholt, E. Torlak, and X. Wang. OSDI 2016. <i>Best Paper Award.</i> <i>Disciplined Inconsistency with Consistency Types.</i> B. Holt, J. Bornholt, I. Zhang, D. R. K. Ports, M. Oskin, and L. Ceze. SoCC 2016. <i>Specifying and Checking File System Crash-Consistency Models.</i> J. Bornholt, A. Kaufmann, J. Li, A. Krishnamurthy, E. Torlak, and X. Wang. ASPLOS 2016. <i>A DNA-Based Archival Storage System.</i> J. Bornholt, R. Lopez, D. M. Carmean, L. Ceze, G. Seelig, and K. Strauss. ASPLOS 2016. <i>IEEE Micro's Top Picks from the Computer Architecture Conferences, 2017.</i> <i>Optimizing Synthesis with Metasketches.</i> J. Bornholt, E. Torlak, D. Grossman, and L. Ceze. POPL 2016. <i>Uncertain$\langle T \rangle$: Abstractions for Uncertain Hardware and Software.</i> J. Bornholt, T. Mytkowicz, and K. S. McKinley. IEEE Micro, vol. 35, no. 3, pp. 132–143, May–June 2015. <i>Hardware–Software Co-Design: Not Just a Cliché.</i> A. Sampson, J. Bornholt, and L. Ceze. SNAPL 2015. <i>Uncertain$\langle T \rangle$: A First-Order Type for Uncertain Data.</i> J. Bornholt, T. Mytkowicz, and K. S. McKinley. ASPLOS 2014. <i>ACM SIGPLAN Research Highlight, November 2014.</i> <i>IEEE Micro's Top Picks from the Computer Architecture Conferences, 2015.</i>	

Workshop Papers

Scaling Program Synthesis by Exploiting Existing Code.

J. Bornholt and E. Torlak. ML4PL 2015 (colocated with ECOOP 2015).

Approximate Program Synthesis.

J. Bornholt, E. Torlak, L. Ceze, and D. Grossman.

WAX 2015 (colocated with PLDI 2015).

REACT: A Framework for Rapid Exploration of Approximate Computing Techniques.

M. Wyse, A. Baixo, T. Moreau, B. Zorn, J. Bornholt, A. Sampson, L. Ceze, and M. Oskin.

WAX 2015 (colocated with PLDI 2015).

Programming the Internet of Uncertain $\langle T \rangle$ hings.

J. Bornholt, N. Meng, T. Mytkowicz, and K. S. McKinley.

SCAW 2015 (colocated with HPCA 2015).

There's Something About Bayes: Effective Probabilistic Programming for the Rest of Us.

J. Bornholt, T. Mytkowicz, and K. S. McKinley.

APPROX 2014 (colocated with PLDI 2014).

Posters

Uncertain $\langle T \rangle$: A First-Order Type for Uncertain Data.

J. Bornholt.

PLDI 2013.

Winner, PLDI Student Research Competition, 2013.

Second Place, ACM Student Research Competition Grand Final, 2014.

The Model Is Not Enough: Understanding Energy Consumption in Mobile Devices.

J. Bornholt, T. Mytkowicz, and K. S. McKinley.

Hot Chips 24, 2012.

Experience

Microsoft Research

Software Engineer

Canberra, Australia
January 2014 – September 2014

Microsoft Research

Research Intern, Research in Software Engineering (RiSE) group

Redmond, WA, USA
November 2012 – February 2013

Microsoft Research

Research Intern, Research in Software Engineering (RiSE) group

Redmond, WA, USA
November 2011 – February 2012

Presentations and Seminars

Programming with Estimates

Programming Languages Mentoring Workshop at PLDI 2016, Invited Talk

Optimizing Synthesis with Metasketches (for Automated Approximate Programming)

Dagstuhl Seminar 15491 (Approximate and Probabilistic Computing), Invited Talk

Teaching

Teaching Assistant, University of Washington

- CSE 507 (graduate Computer-Aided Reasoning for Software), Winter 2017
- CSE 507 (graduate Computer-Aided Reasoning for Software), Spring 2016

Tutor, University of Washington

- CSE 341 (undergraduate Programming Languages), 2015

Guest Lectures

- *Memory Consistency Models*
CSE 451 (undergraduate Operating Systems), University of Washington, Autumn 2016
- *Practical Applications of SAT*
CSE 507 (graduate Computer-Aided Reasoning for Software), University of Washington, Spring 2016
- *Memory Consistency Models*
CSE 451 (undergraduate Operating Systems), University of Washington, Autumn 2015

- *Program Verification*
COMP 1140 (undergraduate honors intro CS), Australian National University, Autumn 2015

Service

Committee Membership

- PLDI 2017 External Review Committee
- POPL 2016 Artifact Evaluation Committee
- PLDI 2015 Artifact Evaluation Committee

External Reviews

- CAV 2015
- ACM Transactions on Embedded Computing (TECS) 2015
- ASPLOS 2015

Department Service

- UW CSE Graduate Admissions Committee, 2017
- UW CSE Prospective Student Committee Co-Chair, 2016
- UW CSE Prospective Student Committee, 2015–present

Students Advised

- Emily McAlister, B. Software Eng., ANU, 2014 (co-advised with Steve Blackburn and Kathryn McKinley)
Thesis: *The Relationship Between Software and Hardware Energy Consumption on Android Mobile Devices*