James Bornholt

Contact

Computer Science and Engineering
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Education

University of Washington, Seattle, WA, USA
PhD, Computer Science and Engineering — September 2014 – present

- Advisors: Luis Ceze, Dan Grossman, and Emina Torlak
- Member of the computer architecture and programming languages groups

Australian National University, Canberra, Australia
Bachelor of Philosophy with First Class Honours and the University Medal — January 2010 – December 2013

- Majors in Computer Science and Mathematics
- Thesis: *Abstractions and Techniques for Programming with Uncertain Data*, advised by Steve Blackburn

Publications

Conference Papers

J. Bornholt, T. Mytkowicz, and K.S. McKinley. *Uncertain⟨T⟩: A First-Order Type for Uncertain Data*. In ASPLOS 2014, Salt Lake City, UT, USA, March 2014. *ACM SIGPLAN Research Highlight, November 2014. Selected for IEEE Micro's Top Picks from the Computer Architecture Conferences, 2015.*

Workshop Papers

J. Bornholt, N. Meng, T. Mytkowicz, and K.S. McKinley. *Programming the Internet of Uncertain ⟨T⟩hings*. In SCAW 2015, colocated with HPCA 2015, San Francisco, CA, USA, February 2015.

J. Bornholt, T. Mytkowicz, and K.S. McKinley. *There's Something About Bayes: Effective Probabilistic Programming for the Rest of Us*. In APPROX 2014, colocated with PLDI 2014, Edinburgh, UK, June 2014.

Posters

J. Bornholt. *Uncertain⟨T⟩: A First-Order Type for Uncertain Data*. In PLDI 2013, Seattle, WA, USA, July 2013. *Winner, PLDI Student Research Competition, 2013. Second Place, ACM Student Research Competition Grand Final, 2014.*

J. Bornholt, T. Mytkowicz, and K.S. McKinley. *The Model Is Not Enough: Understanding Energy Consumption in Mobile Devices*. In Hot Chips 24, Cupertino, CA, USA, August 2012.

Experience

Microsoft Research, Canberra, Australia
Software Engineer — January 2014 – September 2014

Implemented and extended Uncertain⟨T⟩ to handle more complex problems through Bayesian inference.

Microsoft Research, Redmond, Washington, USA
Research Intern, Research in Software Engineering (RiSE) group — November 2012 – February 2013

Designed Uncertain⟨T⟩, a first-order type for programming with probabilistic data (e.g. GPS data).

Microsoft Research, Redmond, Washington, USA
Research Intern, Research in Software Engineering (RiSE) group — November 2011 – February 2012

Designed and implemented a technique for profiling application energy usage on mobile devices.

Google Summer of Code
Jikes RVM — Summer 2011

Implemented the JVM Tools Interface (JVMTI) in Jikes RVM, an open source JVM written in Java.

Service

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*

Committee Membership

- PLDI Artifact Evaluation Committee, 2015

Reviewing

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

Awards

- IEEE Micro Top Picks from the Computer Architecture Conferences, for Uncertain$\langle T \rangle$, 2015
- ACM SIGPLAN Research Highlight, for Uncertain$\langle T \rangle$, 2014
- David Notkin Endowed Graduate Fellowship, University of Washington, 2014–2015
- Second Place, ACM Student Research Competition Grand Finals (undergraduate category), 2014
- ANU University Medal for Computer Science, 2013
- Winner, ACM PLDI Student Research Competition (undergraduate category), 2013
- ANU Erin Brent Computer Science Prize, 2013
- ANU College of Engineering and Computer Science Dean's Prize, 2013
- ANU Boyapati Computer Science and Mathematics Prize, 2010, 2011 and 2012

Technical Experience

Programming languages: Experience with Python, Java, and C. Familiarity with C++, C#, JavaScript.
Other: HTML and CSS; Mercurial, Git, and Subversion; Max OS X and Linux; LaTeX.