

Faculty of Computer, Communication,  
and Information Science  
EPFL  
Station 14  
1015 Lausanne  
Switzerland

Phone: +41 78 625 20 23  
Fax: +41 21 693 66 60  
heather.miller@epfl.ch  
<http://heather.miller.am>

## HEATHER MILLER

Research Interests	Programming language and library design; language support for concurrency and distribution; type systems; reactive programming	
Education	<p><i>EPFL, Lausanne, Switzerland</i> 2009 –</p> <p>Ph.D. in Computer Science</p> <p>Advisor: Martin Odersky 2011 –</p> <p><i>University of Miami, Coral Gables, FL</i> 2006 – 2009</p> <p>BSEE in Electrical Engineering, Audio Engineering, <i>with honors</i>, May 2009</p> <p><i>Cooper Union for the Advancement of Science and Art, New York, NY</i> 2004 – 2006</p>	
Academic Service	<p><b>Committees:</b> Scala 2014 (co-chair), Scala 2013 (co-chair)</p> <p><b>Reviewer for:</b> ECOOP 2013, Scala 2013</p>	
Publications	<p><b>Functional Programming For All! Scaling a MOOC for Students and Professionals Alike</b> ICSE 2014 Heather Miller, Philipp Haller, Lukas Rytz, Martin Odersky <i>ACM SIGSOFT International Conference on Software Engineering</i></p> <p><b>RAY: Integrating Rx and Async for Direct-Style Reactive Streams</b> REM 2013 Philipp Haller, Heather Miller <i>Workshop on Reactivity, Events and Modularity</i></p> <p><b>Instant Pickles: Generating Object-Oriented Pickler Combinators for Fast and Extensible Serialization</b> OOPSLA 2013 Heather Miller, Philipp Haller, Eugene Burmako, Martin Odersky <i>ACM SIGPLAN Conference on Object Oriented Programming, Systems, Languages and Applications</i></p> <p><b>FlowPools: A Lock-Free Deterministic Concurrent Dataflow Abstraction</b> LCPC 2012 Aleksandar Prokopec, Heather Miller, Tobias Schlatter, Philipp Haller, Martin Odersky <i>International Workshop on Languages and Compilers for Parallel Computing</i></p> <p><b>Tools and Frameworks for Big Learning in Scala: Leveraging the Language for High Productivity and Performance</b> BigLearn 2011 Heather Miller, Philipp Haller, Martin Odersky <i>NIPS Workshop on Parallel and Large-Scale Machine Learning</i></p> <p><b>Parallelizing Machine Learning – Functionally: A Framework and Abstractions for Parallel Graph Processing</b> Scala 2011 Philipp Haller, Heather Miller <i>Scala Workshop</i></p>	
Awards	<p>US National Science Foundation Graduate Research Fellowship 2011 – 2014</p> <p>EPFL Outstanding Teaching Award 2012</p> <p>EPFL Computer Science Fellowship 2009 – 2010</p> <p>Most Outstanding Audio Engineering Student, University of Miami 2009</p> <p>Most Outstanding Eta Kappa Nu Student, University of Miami 2009</p> <p>Information Technology Scholarship, University of Miami 2006 – 2009</p>	

	John Farina Family Scholarship, University of Miami	2006 – 2009
	Eta Kappa Nu	2008
	Tau Beta Pi	2008
	SMART US Department of Defense Scholarship Alternate	2007
	Cooper Union Full Tuition Scholarship	2004 – 2006
Teaching Experience	<b>Lead Teaching Assistant</b> , <i>Functional Programming Principles in Scala</i> Popular Coursera MOOC on functional programming in Scala, with >100,000 participants to date <ul style="list-style-type: none"> <li>• Lead TA organizing a team of graduate students, editing lecture videos, managing content production, designed course exercises with cloud-hosted grading, etc</li> <li>• Created extensive course evaluations with interactive visualizations; led to a publication at ICSE'14</li> </ul>	2012 – 2014
	<b>Instructor</b> , <i>Scala as a Research Tool</i> ECOOP Tutorial	2013
	<b>Lead Teaching Assistant</b> , <i>Programming Principles</i> EPFL Undergraduate course on functional and logic programming	2012
	<b>Teaching Assistant</b> , <i>Programming Principles</i> EPFL Undergraduate course on functional and logic programming	2011
Open Source	<b>Scala Programming Language</b> , <i>member of the Scala team</i> <ul style="list-style-type: none"> <li>• <b>Scala Spores</b> (<a href="#">Scala Improvement Proposal SIP-21</a>), <i>project lead</i> novel type-based abstraction for using closures safely in concurrent and distributed settings</li> <li>• <b>Scala Pickling</b>, <i>project lead</i> novel framework for fast, boilerplate-free, extensible serialization</li> <li>• <b>Scala Futures and Promises</b> (<a href="#">Scala Improvement Proposal SIP-14</a>), <i>team member</i> unified non-blocking concurrency substrate for Scala, Akka, Play, and others</li> <li>• <b>Scala Documentation</b>, <i>creator, writer, lead maintainer</i> a central website for community-driven documentation for the Scala programming language and core libraries</li> <li>• <b>Scaladoc</b>, <i>co-maintainer</i> documentation tool for Scala's official API documentation</li> </ul>	2011 –
Selected Talks	<b>Academese to English: Scala's Type System, Dependent Types and What It Means To You</b> New York, NY, USA. March 1, 2014	<i>NEScala 2014</i>
	<b>Instant Pickles: Generating Object-Oriented Pickler Combinators for Fast and Extensible Serialization</b> Indianapolis, IN, USA. October 30, 2013	<i>OOPSLA 2013</i>
	<b>PL Abstractions for Distributed Programming: Pickle Your Spores!</b> Bloomington, IN, USA. October 25, 2013	<i>Indiana University (invited)</i>
	<b>Spores: Distributable Functions in Scala</b> St. Louis, MO, USA. September 19, 2013	<i>Strange Loop 2013</i>
	<b>Open Issues in Dataflow Programming</b> Montpellier, France. July 1, 2013	<i>LaME 2013 (invited)</i>
	<b>Scala as a Research Tool</b>	<i>ECOOP 2013 Tutorial</i>

Montpellier, France. July 1, 2013

**On Pickles & Spores: Improving Scala's Support for Distributed Programming**  
New York, NY, USA. June 12, 2013

*ScalaDays 2013*

**Futures & Promises in Scala 2.10**

Philadelphia, PA, USA. April 2, 2013

*PhillyETE 2013*  
*(invited)*

Selected  
Broader  
Service

**EPFL Computer Science Faculty Council, *PhD Student Representative***

2012 –

Members include the dean of the college as well as representatives from every branch of the college, administrative, PhD, faculty, etc Quarterly meetings to steer the college and introduce new initiatives.

**EPFL CS Graduate Student Association, *President***

2009 – 2011

Volunteer student organization with a mission to foster a sense of community and collaboration between different research groups in the college. Initiatives led/introduced:

- **Research Day:** college-wide showcase of labs' research activities
- **PhD Student Open House:** main recruiting event for CS doctoral program
- **Social Events:** aperós, ski trips, outings

**EPFL CS Graduate Student Mentor**

2010 – 2012

One-on-one mentoring of incoming doctoral students, aided students in integrating into EPFL's research environment and Switzerland as a whole.