Ali Sinan Köksal

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Research Interests

Programming language design, software verification and synthesis, and computational systems biology.

Education

2011-present **Ph.D., Computer Science**, *University of California, Berkeley*, Berkeley, CA.
Advisor: Rastislav Bodík. Thesis topic: "Program synthesis for systems biology."

2009-2011 **M.Sc., Computer Science**, *Swiss Federal Institute of Technology (EPFL)*, Lausanne, Switzerland.
Advisor: Viktor Kuncak. Thesis: "Constraint programming in Scala."
Ranked first in the Section of Computer Science and second in the School of Engineering.

2006-2009 **B.Sc., Computer Science**, *Swiss Federal Institute of Technology (EPFL)*, Lausanne, Switzerland.
Bachelor's project advised by Viktor Kuncak.
Ranked first in the Section of Computer Science.

Publications

CAV 2015 Steven Woodhouse, Nir Piterman, Ali Sinan Köksal, Jasmin Fisher. **Synthesising Executable Gene Regulatory Networks from Single-Cell Gene Expression Data**. *27th International Conference on Computer Aided Verification*, 2015

REGSYSGEN 2014 Ali Sinan Köksal, Anthony Gitter, Kirsten Beck, Aaron McKenna, Saurabh Srivastava, Nir Piterman, Rastislav Bodík, Alejandro Wolf-Yadlin, Ernest Fraenkel, Jasmin Fisher. **Synthesizing signaling pathways from temporal phosphoproteomic data (Abstract)**. *RECOMB/ISCB Conference on Regulatory and Systems Genomics*, 2014

POPL 2013 Ali Sinan Köksal, Yewen Pu, Saurabh Srivastava, Rastislav Bodík, Jasmin Fisher, Nir Piterman. **Synthesis of Biological Models from Mutation Experiments**. *ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, 2013

POPL 2012 Ali Sinan Köksal, Viktor Kuncak, Philippe Suter. **Constraints as Control**. *ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, 2012

SAS 2011 Philippe Suter, Ali Sinan Köksal, Viktor Kuncak. **Satisfiability Modulo Recursive Programs**. *International Static Analysis Symposium*, 2011

CADE 2011 Ali Sinan Köksal, Viktor Kuncak, Philippe Suter. **Scala to the Power of Z3: Integrating SMT and Programming**. *International Conference on Automated Deduction Tool Demo*, 2011

ICFP 2010 Gilad Arnold, Johannes Hölzl, Ali Sinan Köksal, Rastislav Bodík, Mooly Sagiv. **Specifying and verifying sparse matrix codes**. *ACM SIGPLAN International Conference on Functional Programming (ICFP)*, 2010

Awards and honors

2013 Microsoft Research PhD Fellowship Program finalist

2011 EPFL "SIA Vaudoise - Ingénieurs" prize for the second best Master average for Master studies in engineering

2011 EPFL "ELCA Informatique" prize for the best Master average in the Computer Science section

2009-2011 EPFL Excellence Scholarship at the Master Level for outstanding academic record

Work experience

Summer 2013 **Research intern**, *Microsoft Research*, Cambridge, UK.
Developed algorithms for signaling pathway discovery from high-throughput data using Scala and JavaScript with Jasmin Fisher and Nir Piterman.

Summer 2010 **Intern**, *Swiss Federal Institute of Technology (EPFL)*, Lausanne, Switzerland.
Developed local theory extensions for automated reasoning using Scala with Swen Jacobs in the Laboratory for Automated Reasoning and Analysis (LARA).

Teaching experience

Fall 2014 **Teaching Assistant, Programming Languages**, *University of California, Berkeley*.
Instructor: Rastislav Bodík

Spring 2013 **Teaching Assistant, Programming Languages**, *University of California, Berkeley*.
Instructor: Rastislav Bodík

Fall 2010 **Teaching Assistant, Compiler Construction**, *Swiss Federal Institute of Technology (EPFL)*.
Instructor: Viktor Kuncak

Spring 2009 **Teaching Assistant, Advanced Theoretical Computer Science**, *Swiss Federal Institute of Technology (EPFL)*.
Instructor: Laura Kovàcs

Spring 2009 **Teaching Assistant, Theoretical Computer Science**, *Swiss Federal Institute of Technology (EPFL)*.
Instructor: Thomas A. Henzinger

Skills

Programming languages

Scala, Java, Python, JavaScript, Bash, Zsh, HTML, CSS.

Operating systems

Linux, Mac OS X.

Tools

Git, Mercurial, LaTeX, Z3.

Spoken languages

English (fluent), French (fluent), Turkish (native).