Niki Vazou

Postdoctoral Fellow
CS at University of Maryland
+18584054399
nvazou@cs.umd.edu
nikivazou.github.io

"Simplicity is the ultimate sophistication." – Da Vinci

My goal is to design *usable program verifiers* that can be integrated in standard software development.

Education

2017-present **Postdoctoral Fellow in Programming Languages Group**
Victor Basili Postdoctoral Fellow.
Dept. of Computer Science, University of Maryland, College Park.

2011-2016 **Ph.D. in Programming Systems Group**
Dept. of Computer Science & Engineering, University of California, San Diego.
Thesis: "Liquid Haskell: Haskell as a Theorem Prover" supervised by Ranjit Jhala.

2005-2010 **Diploma in Computer Software & Computer Systems**
Dept. of Electrical & Computer Engineering, National Technical University of Athens.
Thesis: "Type Systems with Linear Capabilities" supervised by Nikolaos Papaspyrou.

Awards

2016 UMD Victor Basili Postdoctoral Fellowship.
2015 UCSD CSE Graduate Award for Research.
2014 Microsoft Research Graduate Research Fellowship.
2013, 2012 POPL-PLMW Travel Scholarship.

Work Experience

Summer 2016 Awake Networks, Mountain View, USA.
Used LiquidHaskell to verify correctness on Awake's production code base. [Haskell'17]

Summer 2014 Microsoft Research, Redmond, USA.
Worked with Daan Leijen on extending Koka with user-defined effects. [PADL'16]

Fall 2013 Microsoft Research, Cambridge, UK.
Worked with Dimitrios Vytiniotis on proving soundness of LiquidHaskell. [ICFP'14]

Summer 2012 Opa, Paris, French.
Refined error reporting on Opalang, a functional language for cloud programming.

Teaching Experience

2017 Instructor: Advanced Functional Programming Languages CMSC498V Fa17, UMD.

Summer 2015 Instructor: "Haskell: Programming with Functions", Workshop at Clubes De Ciencia, Guanajuato, Mexico.

2013-2016 TA: Grad Programming Languages (CSE230 Fa16, Wi16, Wi14, and Wi13), UCSD.

2014 TA: Automata and Computability Theory (CSE105 Fa14), UCSD.

2014 Mentor TA: Teaching Methods in CS (CSE599 Fa14), UCSD.

2010 TA: Computer Programming, Fa10, NTUA.

Mentoring

2017-present Milod Kazerounian – Refinement Types for Ruby, with Jeff Foster. [VMCAI 2018]

2017-present James Parker – Liquid Haskell for Security Verification, with Michael Hicks.

2017-present Will Kunkel – Comparing Liquid Haskell with Coq. [POPL SRC 2018]

Summer '17 Sean Leffler – Summer of Haskell 2017 Project on Liquid Haskell, with Eric Seidel.

2015-2016 Michael Smith – Native Type Encoding for Liquid Haskell, with Ranjit Jhala.

2015-2016 Kyly Vass – Improving Parser in Liquid Haskell, with Ranjit Jhala.

Publications

2018 *Refinement Reflection: Complete Verification with SMT.* **Niki Vazou**, Anish Tondwalkar, Vikraman Choudhury, Ryan Scott, Ryan Newton, Philip Wadler and Ranjit Jhala. To appear in Proceedings of the 45th ACM SIGPLAN Symposium on Principles of Programming Languages, Los Angeles.

2018 *Refinement Types for Ruby.* Milod Kazerounian, **Niki Vazou**, Austin Bourgerie, Jeffrey S. Foster, Emina Torlak. To appear in Proceedings of the 19th International Conference on Verification, Model Checking, and Abstract Interpretation, Los Angeles.

2017 *A Tale of Two Provers.* **Niki Vazou**, Leonidas Lampropoulos and Jeff Polakow. In Proceedings of the 10th ACM SIGPLAN International Haskell Symposium, Oxford.

2016 *From Monads to Effects and Back.* **Niki Vazou** and Daan Leijen. In Proceedings of the 18h International Symposium on Practical Aspects of Declarative Languages, Florida.

2015 *Bounded Refinement Types.* **Niki Vazou**, Alexander Bakst and Ranjit Jhala. In Proceedings of the 20th ACM SIGPLAN International Conference on Functional Programming, Vancouver. *16 citations.*

2015 *Type Targeted Testing.* Eric L. Seidel, **Niki Vazou** and Ranjit Jhala. In Proceedings of the European Joint Conferences on Theory & Practice of Software, London. *20 citations.*

2014 *Refinement Types for Haskell.* **Niki Vazou**, Eric L. Seidel, Ranjit Jhala, Dimitrios Vytiniotis and Simon Peyton-Jones. In Proceedings of the 19th ACM SIGPLAN International Conference on Functional Programming, Gothenburg. *76 citations.*

2014 *LiquidHaskell: Experience with Refinement Types in the Real World.* **Niki Vazou**, Eric L. Seidel and Ranjit Jhala. In Proceedings of the ACM SIGPLAN Haskell Symposium, Gothenburg. *31 citations.*

2013 *Abstract Refinement Types.* **Niki Vazou**, Patric M. Rondon and Ranjit Jhala. In Proceedings of the 22nd European Symposium on Programming, Rome. *62 citations.*

2011 *Memory Safety and Race Freedom in Concurrent Programming with Linear Capabilities.* **Niki Vazou**, Michalis Papakyriakou and Nikolaos Papaspyrou. In Proceedings of the Federated Conference on Computer Science and Information Systems, Poland.

Selected Talks

2018 Keynote, Haskell eXchange, London.
2018 Keynote, ZuriHac, Switzerland.
2018 Seminar 18172, Algebraic Effect Handlers go Mainstream, Dagstuhl.
2018 Invited talk, New Jersey Programming Languages and Systems, Princeton.
2017 Paper Presentation, European Symposium on Programming, Rome.
2017 Keynote, Type-Level Scala, New York.
2017 Paper Presentation, Haskell Symposium, Oxford.
2017 Invited lecturer, Semantics of Effects, Resources, and Applications, Shonan.
2017 Invited tutorial, Programming Language Design and Implementation, Spain.
2017 Invited talk, Lambda Days, Poland.
2017 Invited talk, University of Pennsylvania.
2017 Invited talk, Massachusetts Institute of Technology.
2017 Podcast Guest, Functional Geekery Episode 84.
2016 Seminar 16112, From Theory to Practice of Algebraic Effects and Handlers, Dagstuhl.
2016 Seminar 16131, Language Based Verification Tools for Functional Programs, Dagstuhl.
2016 Paper Presentation, Practical Aspects of Declarative Languages, Florida.
2016 Invited talk, University of Hawaii.
2016 Invited talk, University of Maryland.
2016 Invited talk, Facebook, California.
2016 Invited talk, University of Athens.
2016 Invited tutorial, Commercial Users of Functional Programming, Japan.
2015-2017 Programming Languages and Systems of Southern California, 2015, 2016, 2017.
2015 Paper Presentation, International Conference on Functional Programming, Vancouver.
2015 Invited tutorial, Commercial Users of Functional Programming, Canada.
2014 Paper Presentation, International Conference on Functional Programming, Sweden.
2013-2016 Invited speaker, Programming Languages Seminar, Athens, 2013, 2014, 2016.
2013 Tutorial at Higher Order Program Analysis, New Orleans.
2013 Demo at Haskell Symposium. Boston.
2013 Paper Presentation, European Symposium on Programming, Rome.

Service

2018 Co-organizer of Programming Languages Mentoring Workshop, ICFP, Missouri.
2018 Co-chair of Workshop on Type-Driven Development, Missouri.
2017 Panelist at the National Science Foundation.
2017 Reviewer for the Swiss National Science Foundation in Mathematics, Natural and Engineering Sciences.
2016-2017 Reviewer for Mathematical Reviews.
2016 Reviewer for the Journal of Functional Programming.

Program committee membership

2018 International Conference on Functional Programming, Missouri.
2018 European Symposium on Programming, Greece.
2018 Haskell Symposium, Missouri.
2017 ML-Family Workshop, Oxford.
2017 Workshop on Higher-Order Programming with Effects, Oxford.
2017 Symposium on Practical Aspects of Declarative Languages, Paris.
2017 Haskell in Leipzig, Germany.
2017 Scala Symposium, Vancouver.
2016 Haskell Symposium, Japan, 2016.
2016 Workshop on Coalgebra, Horn Clause Logic Programming and Types, Edinburgh.
2016 Haskell Implementors Workshop, Japan.
2016 Symposium on Trends in Functional Programming, Maryland.
2016 Artifact Evaluation for POPL, Florida.
2016 Artifact Evaluation for PLDI, California.
2016 Symposium on Practical Aspects of Declarative Languages, Florida.
2016 Haskell in Leipzig, Germany.
2016 Scala Symposium, Amsterdam.

Organizations

2017-present Member of The ACM SIGPLAN Haskell Symposium Steering Committee.
2016-present Member of Haskell.org Committee.
Summer 2017 Co-organizer of Summer of Haskell.
2015-2016 Event Coordinator at Graduate Women in Computing, UCSD.
2014-now Prime Member at Hellenic Student Association, UCSD.

References

Ranjit Jhala
Computer Science & Engineering
University of California, San Diego
✉ jhala@cs.ucsd.edu

David Van Horn
Computer Science
University of Maryland
✉ dvanhorn@cs.umd.edu

Jeff Foster
Computer Science
University of Maryland
✉ jfoster@cs.umd.edu

Simon Peyton Jones
Programming Principles and Tools
Microsoft Research, Cambridge
✉ simonpj@microsoft.com

Last updated: December 2017