

# MSc thesis defense presentation

## Niki Vazou defends her MSc thesis.

<b>Date:</b>	Friday, 03 Apr 2015
<b>Location:</b>	NTUA
<b>Thesis title:</b>	<a href="#">LiquidHaskell : Liquid Types for Haskell</a>
<b>Committee:</b>	<ul style="list-style-type: none"><li>• <a href="#">Nikolaos S. Papaspyrou</a></li><li>• <a href="#">Panagiotis Rondogiannis</a></li><li>• <a href="#">Kostis Sagonas</a></li></ul>

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## Thesis abstract

Even well-typed programs can go wrong, by returning a wrong answer or throwing a run-time error. A popular response is to allow programmers use refinement type systems to express semantic specifications about programs. We study verification in such systems. On the one hand, expressive refinement type systems require run-time checks or explicit proofs to verify specifications. On the other, less expressive type systems allow static and automatic proofs of the specifications. Next, we present abstract refinement types, a means to enhance the expressiveness of a refinement type system without increasing its complexity. Then, we present LiquidHaskell that combines liquidTypes with abstraction over refinements to enhance expressiveness of LiquidTypes. LiquidHaskell is a quite expressive verification tool for Haskell programs that can be used to check termination, totality and general functional correctness. Finally, we evaluate LiquidHaskell in real world Haskell libraries.

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