

# Daniele Filaretti, PhD

*Software Engineer*

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## About Me

I create things and solve problems by writing software. Balancing a formal Computer Science background with a keen interest in programming since a very young age, I strive to craft elegant, correct and efficient software solutions.

I am familiar with several programming languages and paradigms and always happy to explore new grounds, but I prefer programming in a functional way using languages such as Haskell and F#.

Being particularly comfortable with the C#/.NET ecosystem, I am now looking to transition to F# or similar functional programming environment. Also possibly looking for a Haskell role, but by all means open to anything that is interesting and challenging!

Aside from programming, I am also passionate about audio and music technology and enjoy writing, producing and performing electronic music in my spare time.

## Work Experience

- Sep. 2017 to Mar 2018 **Software Engineer**, *Synergation Limited*, (London, UK).  
Lead the development of a novel digital-health solution for the diagnosing and management of dyslexia in children. (C#, .NET, Unity3D, mobile, cross-platform).
- Jan. 2016 to Aug 2017 **Software Engineer**, *Solid State Logic*, (Oxford, UK).  
Contributed to the development of embedded software powering large-scale professional mixing consoles in the Live and Broadcast markets. Designed and implemented novel features and provided contributions towards improving and maintaining the existing products (C#, .NET)
- Oct. 2011 to Jul. 2015 **PhD Researcher**, *EPSRC (Grant EP/1004246/1), Imperial College London (UK)*.  
Researched, designed and implemented formal techniques for the static analysis of computer programs using tools and techniques from mathematics, logic and software verification, leading to the development of a novel configurable, general-purpose bug-finding tool for PHP (the K Framework, Coq, OCaml, PHP and others)
- Apr. 2009 to Dec. 2009 **Software Developer, Sound Technician/Designer**, *AGON, Milan (Italy)*.  
Contributed to the *Audioscan Milan* project by recording the sounds of more than 1500 streets and transforming them into ambient music, leading to the release of a record and the realisation of an interactive audio/video installation in the city of Milan (Italy). (Max/MSP, Digital Audio Workstations)
- Oct. 2008 to Feb. 2009 **Software Developer (Intern)**, *Web Algorithmics Lab, University of Milan (Italy)*.  
Implemented syntax highlighting for the open source text editor *ne* (<http://ne.di.unimi.it/>) leading to a new release of the software (now standardly available on many Linux distributions). (C, Unix)
- Mar. 2008 to Sep. 2008 **Software Developer**, *TPL Informatica, Milan (Italy)*.  
Participated in web development projects in the areas of e-commerce, e-learning and web tv (Java).

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## Education

- 2011 - 2015 **PhD in Computing**, *Imperial College London, Fully funded by EPSRC scholarship.*  
Programming Languages, Program Verification, Static Analysis, Abstract Interpretation
- 2009 - 2011 **MSc in Computing**, *University of Milan, 110/110 cum laude (upper 5%).*  
Programming, Discrete Maths, Combinatorics, Computer Graphics
- 2005 - 2009 **BSc in Computing**, *University of Milan, 105/110.*  
Programming, Unix, Open-Source software

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## Other Courses & Certificates

- Jan 2017 **Digital Signal Processing**, *École Polytechnique Fédérale de Lausanne on Coursera.*
- Oct 2015 **Developing Your Musicianship**, *Berklee on Coursera.*
- Aug 2013 **Introduction to Music Production**, *Berklee on Coursera.*

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## Peer Reviewed Publications

- 2016 **An Executable Formal Semantics of PHP with Applications to Program Analysis**, *PhD Thesis*, Imperial College London.
- 2014 **An Executable Formal Semantics for PHP**, *with S. Maffei*, ECOOP 2014.
- 2014 **A Mechanised Specification for JavaScript**, *with M. Bodin, A. Chargueraud, P. Gardner, S. Maffei, D. Naudziuniene, A. Schmitt, G. Smith*, POPL 2014.
- 2009 **Building Bricks with Bricks**, *with O. D'Antona and P. Codara*, *Mathematica Italian Users Meeting 2009.*