

# ORESTIS MELKONIAN

## PERSONAL DATA

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PLACE | DATE OF BIRTH: Athens | 3 December 1992  
EMAIL: [melkon.or@gmail.com](mailto:melkon.or@gmail.com)  
WEBSITE: [omelkonian.github.io](http://omelkonian.github.io)

## EDUCATION

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SEPT 2017 - JUL 2019 M.Sc. in COMPUTING SCIENCE  
**Utrecht University**, The Netherlands  
*Current GPA:* 8.95/10  
*Specialization:* Programming Technology  
*Supervisors:* Wouter Swierstra (UU), Manuel Chakravarty (IOHK)  
*Thesis:* Formal Investigation of the Extended UTxO Model in Agda

OCT 2010 - APR 2016 B.Sc. in COMPUTER SCIENCE  
**National and Kapodistrian University of Athens**, Greece  
*GPA:* 8.6/10  
*Specializations:* Knowledge and Data Management, Software  
*Supervisors:* Panos Rondogiannis, Angelos Charalambidis  
*Thesis:* RHEA - A Reactive, Heterogeneous, Extensible and Abstract Framework for Dataflow Programming [[pdf](#), [git](#)]

FEB 2014 - Jul 2014 Erasmus exchange student in COMPUTER SCIENCE  
**Universita della Svizzera Italiana**, Lugano, Switzerland  
*Coordinators:* Ioannis Emiris, Marc Langheinrich

## WORK EXPERIENCE

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JAN 2019 - JUL 2019 Haskell Developer (part-time)  
**QBayLogic**, Enschede, The Netherlands  
*Implementing a GUI to inspect optimization steps in the Clash compiler*  
*Supervisor:* Christiaan Baaij

DEC 2017 - DEC 2018 Haskell Developer (part-time)  
**Utrecht University**, The Netherlands  
*FORMALZ: A tower-defence game for learning Hoare-style specifications*  
*Developed the SMT-based checker between teacher and student formulas*  
*Supervisor:* Wishnu Prasetya

JUN 2017 - AUG 2017 Research Intern  
**Max Planck Institute for Software Systems (MPI-SWS)**, Kaiserslautern, Germany  
Software Analysis & Verification Group  
*Proof mechanization of a novel C/C++11 memory model in Coq*  
*Supervisor:* Viktor Vafeiadis

MAY 2016 - MAY 2017 Technical Intern (*Backend Web Developer*)  
**CERN**, Geneva, Switzerland  
*INVENIO project: Image auto-tagging for the Cern Document Server (CDS)*  
*Supervisor:* Ludmila Marian

OCT 2015 - APR 2016 Research Intern  
**National Center for Scientific Research "Demokritos"**, Athens, Greece  
Software & Knowledge Engineering Laboratory (SKEL)  
*Design and implementation of a dataflow framework for robotics*  
*Supervisor:* Angelos Charalambidis

## RESEARCH INTERESTS

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- Functional Programming
- Programming Languages, Semantics
- Type Systems, Formal Semantics
- Verification, Formal Methods
- Compilers, Static Analysis
- Category Theory
- Proof Theory, Theorem Provers
- Algorithmic Music

## PUBLICATIONS

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- **Having Fun in Learning Formal Specifications** [\[paper\]](#)  
Wishnu Prasetya, Craig Leek, Melkonian Orestis *et al.*  
*Proceedings of the 41th International Conference on Software Engineering: Software Engineering Education and Training. ACM, 2019.*
- **RHEA: A Reactive, Heterogeneous, Extensible and Abstract Framework for Dataflow Programming** [\[paper\]](#)  
Melkonian Orestis, Charalambidis Angelos  
*Proceedings of the 5th ACM SIGPLAN International Workshop on Reactive and Event-Based Languages and Systems. ACM, 2018.*
- **D<sup>3</sup> as a 2-MCFL** [\[paper\]](#)  
Kogkalidis Konstantinos, Melkonian Orestis  
*Student Session Proceedings of the 30th European Summer School in Logic, Language and Information. Springer, 2018.*

## AWARDS

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| APR 2019 | Travel Grant<br><b>School and Workshop on Univalent Mathematics</b> , Birmingham, UK                                 |
| AUG 2018 | Registration Grant<br><b>European Summer School on Logic, Language &amp; Information (ESSLLI)</b><br>Sofia, Bulgaria |
| JUL 2018 | Travel Grant<br><b>DeepSpec Summer School</b> , Princeton, US  |
| JAN 2016 | Student Travel Grant<br><b>Programming Language Mentoring Workshop (PLMW)</b><br>POPL conference, Florida, US        |
| MAR 2016 | Student Travel Grant<br><b>Meddays '16</b> , Sophia-Antipolis, France  |

## TALKS

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| NOV 2018 | <b>RHEA: A Framework for Dataflow Programming</b><br>REBLS@SPLASH '18, Boston, USA               |
| AUG 2018 | <b>D<sup>3</sup> as a 2-MCFL</b><br>ESSLLI '18, Sofia, Bulgaria                                  |
| DEC 2015 | <b>A Streamful of Robots</b><br>NCSR "Demokritos", Athens, Greece                                |
| DEC 2015 | <b>A Dataflow Approach to Robot Programming</b><br>13th PL Seminar IEEE, Softlab, Athens, Greece |

## ACADEMIC PROJECTS

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COMPILERS	<b>Adding impredicative types to the Glasgow Haskell Compiler (GHC)</b> <i>Technologies:</i> Haskell, GHC, Type Checker
COMPUTER MUSIC	<b>AlgoRhythm</b> A Haskell library for algorithmic music composition <i>Technologies:</i> Haskell, Euterpea, Formal Grammars, Chaos Theory
META PROGRAMMING	<b>MWS Framework</b> for generating full-stack CRUD web apps <i>Technologies:</i> Scala, scala.meta, Play, Coffeescript, AngularJS
EMBEDDED DSL	<b>Racketlog</b> Prolog implementation embedded in Racket <i>Technologies:</i> Racket, Dr.Racket, Macros
COMPILERS	<b>MiniJava</b> A complete compiler for a pure subset of Java <i>Technologies:</i> Java, JavaCUP, JavaJTB, Visitor Pattern, IRIS Datalog
PROGRAMMING LANGUAGES	<b>LCI</b> An interpreter for the $\lambda$ -Calculus <i>Technologies:</i> C++, Recursive Descent Parsing
WEB SOFTWARE DEVELOPMENT	<b>Impero!</b> A massive-multiplayer online turn-based strategy game <i>Contributions:</i> Random map generation, Gameplay logic, Client visualization <i>Technologies:</i> Agile Programming, SCRUM, Java, Javascript, MongoDB, REST, Create.js
LARGE SOFTWARE DEVELOPMENT	<b>SNAP</b> Social Network Analysis Project Previous topic for ACM-SIGMOD programming contest <i>Technologies:</i> C++, GNUplot, Large CSV Datasets
PATTERN RECOGNITION OCR	A morphological approach to text extraction from periodically repeated backgrounds <i>Technologies:</i> C++, ImagXpress7, Borland C++ Builder
PARALLEL SYSTEMS	Distributed image convolution using 3 different frameworks <i>Technologies:</i> MPI, OpenMP, CUDA
COMPUTER GRAPHICS	<b>Interstellar</b> A 3-D game for asteroid avoidance <i>Technologies:</i> C/C++, OpenGL, Adobe Photoshop
COMPUTATIONAL GEOMETRY	A GUI app of the <b>sweep</b> algorithm for line and parabolas intersection <i>Technologies:</i> Java, JFrame, Self-balancing trees

## LANGUAGES

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GREEK:	Native speaker
ENGLISH:	<b>Fluent</b> , <i>Certificate of Proficiency, University of Michigan</i>
GERMAN:	<b>Intermediate</b> , <i>Zertifikat B1, Goethe Institute</i>
FRENCH:	<b>Beginner</b> , <i>A2.1, Supercomm Suisse SA</i>

## EXTRA-CURRICULAR ACTIVITIES

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<b>Music Instrument:</b>	Electric jazz guitar (Intermediate) <b>RGT Grade 6</b> ( <i>distinction</i> ) <i>UWLQ Level 3 Certificate in Music Performance(Grade 6), University of West London</i> <i>Examiner:</i> Adam Moore BA(Hons), MMus, PGCE, FLCM
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Guitar Lessons, (Algorithmic) Music Composition, Films, Philosophy, Literature, Traveling