

# 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 - JUN 2019 M.Sc. in COMPUTING SCIENCE  
**Utrecht University**, The Netherlands  
*Current GPA: 9/10*  
*Specialization: Programming Technology*

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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DEC 2017 - JUN 2019 Research Assistance  
**Utrecht University**, The Netherlands  
*IMPRESS: Improving student's engagement*  
*Developing a tower-defence game for practicing formal specification of Java programs in a Hoare-style manner.*  
*Supervisor: Wishnu Prasetya*

JUN 2017 - AUG 2017 Research Internship  
**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 Internship (*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 Internship  
**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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- **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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AUG 2018	Registration Grant <b>European Summer School on Logic, Language &amp; Information (ESSLLI)</b> Sofia, Bulgaria
JUL 2018	Travel Grant <b>DeepSpec Summer School</b> , Princeton, US
JAN 2016	Student Travel Grant <b>Programming Language Mentoring Workshop (PLMW)</b> POPL conference, Florida, US
MAR 2016	Student Travel Grant <b>Meddays '16</b> , Sophia-Antipolis, France

## TALKS

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AUG 2018	<i>D<sup>3</sup> as a 2-MCFL</i> ESSLLI '18, Sofia, Bulgaria
DEC 2015	<b>A Streamful of Robots</b> NCSR "Demokritos", Athens, Greece
DEC 2015	<b>A Dataflow Approach to Robot Programming</b> 13th PL Seminar IEEE, Softlab, Athens, Greece

## TECHNICAL SKILLS

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<b>Languages:</b>	Haskell, Agda, Coq, Prolog, Python, C/C++, Java, Datalog, Scala, Racket, Bash
<b>Version Control:</b>	Git, SVN
<b>Web:</b>	Flask, Celery, Javascript, Coffeescript, AngularJS, HTML5 + CSS, Yesod, Servant
<b>Concurrency:</b>	PThreads, MPI, OpenMP, Cuda, Rx, Hazelcast
<b>Databases:</b>	SQL, MySQL, PostgreSQL, SQLite
<b>Frameworks:</b>	OpenGL, JavaCC, JavaJTB, AIMA Python, ECLiPSe CLP, ROS, scala.meta
<b>Testing:</b>	jUnit, QuickCheck, pytest, specs2
<b>IDEs:</b>	Intellij, PyCharm, Eclipse, Visual Studio, CoqIDE
<b>Build:</b>	GNU make, Maven, Gradle, Pip, Cabal, Stack
<b>Typesetting:</b>	L <sup>A</sup> T <sub>E</sub> X, Microsoft Office, UML

## ACADEMIC PROJECTS

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COMPILERS	<b>Adding impredicative types to the Glasgow Haskell Compiler (GHC)</b> [repo] <i>Technologies:</i> Haskell, GHC, Type Checker
COMPUTER MUSIC	<b>AlgoRhythm</b> A Haskell library for algorithmic music composition [soundcloud] [package] <i>Technologies:</i> Haskell, Euterpea, Formal Grammars, Chaos Theory
DATAFLOW PROGRAMMING	<b>RHEA</b> A Reactive, Heterogeneous, Extensible and Abstract Framework for Dataflow Programming <i>Technologies:</i> Java, Scala, Rx, Hazelcast, Ros
META PROGRAMMING	<b>MWS</b> Framework 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
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
PROGRAMMING LANGUAGES	<b>LCI</b> An interpreter for the $\lambda$ -Calculus <i>Technologies:</i> C++, Recursive Descent Parsing
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	<b>A morphological approach to text extraction from periodically repeated backgrounds</b> [paper] <i>Technologies:</i> C++, ImagXpress7, Borland C++ Builder
COMPILERS	<b>MiniJava</b> A complete compiler for a pure subset of Java <i>Technologies:</i> Java, JavaCUP, JavaJTB, Visitor Pattern, IRIS Datalog
PARALLEL SYSTEMS	<b>Distributed image convolution using 3 different frameworks</b> <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	<b>A GUI app of the sweep algorithm for line and parabolas intersection</b> <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)</i> , University of West London <i>Examiner:</i> Adam Moore BA(Hons), MMus, PGCE, FLCM
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Guitar Lessons, (Algorithmic) Music Composition, Films, Philosophy, Literature, Traveling