

# ORESTIS MELKONIAN

## PERSONAL DATA

---

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

---

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

---

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

---

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

## PUBLICATIONS

---

- ICSE'19 **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*
- REBLS @ SPLASH'18 **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*
- ESSLI'18 **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

---

- JUNE 2019 Travel Grant  
**ZuriHac: A 3-day Haskell Hackathon**, Zurich, Switzerland
- APR 2019 Travel Grant  
**School and Workshop on Univalent Mathematics**, Birmingham, UK
- AUG 2018 Registration Grant  
**European Summer School on Logic, Language & Information (ESSLI)**  
Sofia, Bulgaria
- JUL 2018 Travel Grant  
**DeepSpec Summer School**, Princeton, US
- JUL 2017 Travel Grant  
**CAV Conference**, Heidelberg, Germany
- JAN 2016 Student Travel Grant  
**Programming Language Mentoring Workshop (PLMW)**  
POPL Conference, Florida, US
- MAR 2016 Student Travel Grant  
**Meddays '16**, Sophia-Antipolis, France

## TALKS

---

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

## ACADEMIC PROJECTS

---

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

---

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

---

<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
--------------------------	---

Guitar Lessons, (Algorithmic) Music Composition, Films, Philosophy, Literature, Traveling