# Orestis Melkonian

## Personal Data


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|---|---|
| Place \| Date of Birth: | Athens \| 3 December 1992 |
| email: | melkon.or@gmail.com |
| website: | 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 C$\lambda$ash 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*

ESSLLI'18 **$D^3$ 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 (ESSLLI)**
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 **$D^3$ as a 2-MCFL**
ESSLLI '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

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| Compilers | Adding impredicative types to the Glasgow Haskell Compiler (GHC)<br>*Technologies:* Haskell, GHC, Type Checker |
| Computer Music | **AlgoRhythm** A Haskell library for algorithmic music composition<br>*Technologies:* Haskell, Euterpea, Formal Grammars, Chaos Theory |
| Meta Programming | **MWS** Framework for generating full-stack CRUD web apps<br>*Technologies:* Scala, scala.meta, Play, Coffeescript, AngularJS |
| Embedded DSL | **Racketlog** Prolog implementation embedded in Racket<br>*Technologies:* Racket, Dr.Racket, Macros |
| Compilers | **MiniJava** A complete compiler for a pure subset of Java<br>*Technologies:* Java, JavaCUP, JavaJTB, Visitor Pattern, IRIS Datalog |
| Programming Languages | **LCI** An interpreter for the $\lambda$-Calculus<br>*Technologies:* C++, Recursive Descent Parsing |
| Parallel Systems | Distributed image convolution using 3 different frameworks<br>*Technologies:* MPI, OpenMP, CUDA |

## Languages

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| Greek: | Native speaker |
| English: | **Fluent**, *Certificate of Proficiency, University of Michigan* |
| German: | **Intermediate**, *Zertifikat B1, Goethe Institute* |
| French: | **Beginner**, *A2.1, Supercomm Suisse SA* |

## Extra-Curricular Activities

**Musical Instrument:** Electric jazz guitar (Intermediate)
**RGT Grade 6 (***distinction***)**
*UWLQ Level 3 Certificate in Music Performance*
University of West London
*Examiner:* Adam Moore BA(Hons), MMus, PGCE, FLCM

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

## References

**Wouter Swierstra**
Utrecht University
✉ w.s.swierstra@uu.nl

**Viktor Vafeiadis**
MPI-SWS
✉ viktor@mpi-sws.org

**Alejandro Serrano Mena**
Utrecht University
✉ a.serranomena@uu.nl

*Last Updated: Match 2019*