

# 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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SEP 2019 - NOW PhD in COMPUTER SCIENCE  
**University of Edinburgh**, Scotland  
*Institute:* Laboratory for Foundations of Computer Science (LFCS)  
*Supervisor:* Philip Wadler  
*Topic:* Formalizing Blockchain Semantics in Agda

SEP 2017 - JUL 2019 M.Sc. in COMPUTING SCIENCE  
**Utrecht University**, The Netherlands  
*GPA:* 8.99/10 (*cum laude*)  
*Specialization:* Programming Technology  
*Supervisors:* Wouter Swierstra (UU), Manuel Chakravarty (IOHK)  
*Thesis:* Formalizing Extended UTxO and BitML Calculus in Agda

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

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  
*Implemented 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:* Video workflows 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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- SRC @ ICFP'19 **Formalizing BitML Calculus in Agda**  
Orestis Melkonian  
*Student Research Competition, Poster Session, 2019*
- TyDe @ ICFP'19 **Formal Investigation of the Extended UTxO Model**  
Orestis Melkonian, Wouter Swierstra, Manuel M.T. Chakravarty  
*Proceedings of the 4rd ACM SIGPLAN International Workshop on Type-Driven Development. ACM, 2019*
- FARM @ ICFP'19 **Music as Language: Putting Probabilistic Temporal Graph Grammars to Good Use**  
Orestis Melkonian  
*Proceedings of the 7th ACM SIGPLAN International Workshop on Functional Art, Music, Modeling, and Design. ACM, 2019*
- FARM @ ICFP'19 **What Constitutes a Musical Pattern?**  
Orestis Melkonian, Iris Yuping Ren, Wouter Swierstra, Anja Volk  
*Proceedings of the 7th ACM SIGPLAN International Workshop on Functional Art, Music, Modeling, and Design. ACM, 2019*
- ICSE'19 **Having Fun in Learning Formal Specifications**  
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**  
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<sup>3</sup> as a 2-MCFL**  
Kogkalidis Konstantinos, Melkonian Orestis  
*Student Session Proceedings of the 30th European Summer School in Logic, Language and Information. Springer, 2018*

## TEACHING EXPERIENCE

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- SEP 2019 - DEC 2019 **Introduction to Computation: Functional Programming**  
*Tutor & Marker*  
University of Edinburgh, School of Informatics

## SELECTED TALKS

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- AUG 2019 **Formal Investigation of the Extended UTxO Model**  
TyDe @ ICFP'19, Berlin, Germany
- AUG 2019 **Music as Language: Putting Probabilistic Temporal Graph Grammars to Good Use**  
FARM @ ICFP'19, Berlin, Germany
- NOV 2018 **RHEA: A Framework for Dataflow Programming**  
REBLS @ SPLASH '18, Boston, USA
- AUG 2018 **D<sup>3</sup> as a 2-MCFL**  
ESSLLI '18, Sofia, Bulgaria
- DEC 2015 **A Dataflow Approach to Robot Programming**  
13th PL Seminar IEEE, Softlab, Athens, Greece

## AWARDS

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JUN 2019	Travel Grant <b>ZuriHac: A 3-day Haskell Hackathon</b> , Zurich, Switzerland
APR 2019	Travel Grant <b>School and Workshop on Univalent Mathematics</b> , Birmingham, UK
AUG 2018	Registration Grant <b>European Summer School on Logic, Language &amp; Information (ESSLI)</b> , Sofia, Bulgaria
JUL 2018	Travel Grant <b>DeepSpec Summer School</b> , Princeton, US
JUL 2017	Travel Grant <b>CAV Conference</b> , Heidelberg, Germany
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

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

## REFERENCES

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<b>Wouter Swierstra</b> Utrecht University ✉ <a href="mailto:w.s.swierstra@uu.nl">w.s.swierstra@uu.nl</a>	<b>Viktor Vafeiadis</b> MPI-SWS ✉ <a href="mailto:viktor@mpi-sws.org">viktor@mpi-sws.org</a>	<b>Manuel M.T. Chakravarty</b> IOHK ✉ <a href="mailto:manuel.chakravarty@iohk.io">manuel.chakravarty@iohk.io</a>	<b>Alejandro Serrano Mena</b> Utrecht University ✉ <a href="mailto:a.serranomena@uu.nl">a.serranomena@uu.nl</a>
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