

ORESTIS MELKONIAN

PERSONAL DATA

PLACE | DATE OF BIRTH: Athens, Greece | December 1992
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EDUCATION

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 M.T. 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

FEB 2021 - MAR 2023 Haskell Reviewer (part-time) @ **MigaMake**, Singapore
Reviewing code, technical reports, and scientific articles
Supervisor: Michal Gajda

JAN 2019 - JUL 2019 Haskell Developer (part-time) @ **QBayLogic**, 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)**, 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**, 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

TEACHING EXPERIENCE

SEP 2020 - MAR 2021 **Reasoning & Agents** @ University of Edinburgh
Demonstrator & Marker

SEP 2019 - MAR 2020 **Types and Semantics for Programming Languages** @ University of Edinburgh
Teaching Assistant

SEP 2019 - MAR 2021 **Introduction to Computation: Functional Programming** @ University of Edinburgh
Teaching Assistant & Tutor & Marker

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

- TYPES '23** **Program logics for ledgers (Extended Abstract)**
Orestis Melkonian, Wouter Swierstra, James Chapman
29th International Conference on Types for Proofs and Programs
- TYPES '23** **Nominal techniques as an Agda library (Extended Abstract)**
Murdoch J. Gabbay, Orestis Melkonian
29th International Conference on Types for Proofs and Programs
- HASKELL '22 (ICFP)** **Reasonable Agda is correct Haskell: writing verified Haskell using AGDA2HS**
Jesper Cockx, Orestis Melkonian, Lucas Escot, James Chapman, Ulf Norell
15th International Haskell Symposium. ACM
- ISOLA '20** **UTXO_{ma}: UTXO with Multi-Asset Support**
M.Chakravarty, J.Chapman, K.MacKenzie, O.Melkonian, J.Müller, M.Jones, P.Vinogradova, P.Wadler
9th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation
- ISOLA '20** **Native Custom Tokens in the Extended UTXO Model**
M.Chakravarty, J.Chapman, K.MacKenzie, O.Melkonian, J.Müller, M.Jones, P.Vinogradova, P.Wadler
9th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation
- ECOOP '20** **Reconciling Event Structures with Modern Multiprocessors**
E.Moiseenko, A.Podkopaev, O.Lahav, O.Melkonian, V.Vafeiadis
34th European Conference on Object-Oriented Programming
- WTSC'20 (FC)** **The Extended UTXO Model**
M.Chakravarty, J.Chapman, K.MacKenzie, O.Melkonian, M.Jones, P.Wadler
4th Workshop on Trusted Smart Contracts
- SRC'19 (ICFP)** **Formalizing BitML Calculus in Agda (Extended Abstract)**
Orestis Melkonian
Student Research Competition, Poster Session
- TYDE'19 (ICFP)** **Formal Investigation of the Extended UTxO Model (Extended Abstract)**
Orestis Melkonian, Wouter Swierstra, Manuel M.T. Chakravarty
4rd ACM SIGPLAN International Workshop on Type-Driven Development. ACM
- FARM'19 (ICFP)** **Music as Language: Putting Probabilistic Temporal Graph Grammars to Good Use**
Orestis Melkonian
7th ACM SIGPLAN International Workshop on Functional Art, Music, Modeling, and Design. ACM
- FARM'19 (ICFP)** **What Constitutes a Musical Pattern?**
Orestis Melkonian, Iris Yuping Ren, Wouter Swierstra, Anja Volk
7th ACM SIGPLAN International Workshop on Functional Art, Music, Modeling, and Design. ACM
- ICSE'19** **Having Fun in Learning Formal Specifications**
Wishnu Prasetya, Craig Leek, Orestis Melkonian *et al.*
41th International Conference on Software Engineering: Software Engineering Education and Training. ACM
- REBLS'18 (SPLASH)** **RHEA: A Reactive, Heterogeneous, Extensible and Abstract Framework for Dataflow Programming**
Orestis Melkonian, Angelos Charalambidis
5th ACM SIGPLAN International Workshop on Reactive and Event-Based Languages and Systems. ACM
- ESSLLI'18** **D³ as a 2-MCFL**
Konstantinos Kogkalidis, Orestis Melkonian
Student Session of the 30th European Summer School in Logic, Language and Information. Springer

ACADEMIC SERVICE

JUNE 2023 Artifact Evaluation Committee @ **ICFP**: International Conference on Functional Programming, 2023
FEB 2023 Artifact Evaluation Committee @ **ESOP**: European Symposium on Programming, 2023
NOV 2022 Organiser @ **31st Agda Implementors' Meeting (AIM XXXI)**, Edinburgh, Scotland
OCT 2022 Artifact Evaluation Committee @ **POPL**: Symposium on Principles of Programming Languages, 2023
JUN 2022 Artifact Evaluation Committee @ **ICFP**: International Conference on Functional Programming, 2022
MAR 2022 (Invited) Paper Reviewer @ **Post-TYPES** proceedings, 2022
FEB 2022 Artifact Evaluation Committee @ **ESOP**: European Symposium on Programming, 2022
JUL 2021 (Invited) Paper reviewer @ **APLAS**: Asian Symposium on Programming Languages and Systems, 2021
AUG 2021 (Invited) Paper Reviewer @ **MSCS**: Mathematical Structures in Computer Science
 special edition in memory of Martin Hofmann

AWARDS

JUN 2023 **EuroProofNet** Short-term Scientific Mission @ **Chalmers University of Technology**, Gothenburg, SE
 Host: Jean-Philippe Bernardy
MAY 2023 **SICSA** Research Scholar Grant @ **36th Agda Implementors' Meeting (AIM XXXVI)**, Delft, NL
JUN 2022 Travel Grant @ **Programming Language Mentoring Workshop (PLMW)**, PLDI, San Diego, US
JUN 2019 Travel Grant @ **ZuriHac: A 3-day Haskell Hackathon**, Zurich, CH
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, BG
JUL 2018 Travel Grant @ **DeepSpec Summer School**, Princeton, US
JUL 2017 Travel Grant @ **CAV Conference**, Heidelberg, DE
JAN 2016 Travel Grant @ **Programming Language Mentoring Workshop (PLMW)**, POPL, Florida, US
MAR 2016 Travel Grant @ **Meddays '16**, Sophia-Antipolis, FR

LANGUAGES

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

Philip Wadler University of Edinburgh ✉ wadler@inf.ed.ac.uk	Wouter Swierstra Utrecht University ✉ w.s.swierstra@uu.nl	Manuel M.T. Chakravarty IOHK ✉ manuel.chakravarty@iohk.io	Viktor Vafeiadis MPI-SWS ✉ viktor@mpi-sws.org
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