

LEONIDAS LAMPROPOULOS

Website: lemonidas.github.io

e-mail: leonidas@umd.edu

EDUCATION AND WORK EXPERIENCE

University of Maryland, College Park

Assistant Professor

Department of Computer Science

PLUM lab

July 2020 - present

University of Maryland, College Park and University of Pennsylvania

Victor Basili Postdoctoral Fellow (Joint Postdoc)

PLUM lab and PLClub - Programming Languages Groups

Supervised by Michael Hicks and Benjamin C. Pierce

2018 - 2020

University of Pennsylvania

PhD in Computer Science

Title: Random Testing for Language Design

Advisor: Benjamin C. Pierce

2012 - 2018

Microsoft Research, Cambridge

Research Internship

Formal Methods for Neural Network Verification

Advisors: Aditya Nori and Dimitros Vytiniotis

Summer 2015

National Technical University of Athens

Diploma in Electrical Engineering and Computer Science

Thesis Advisor: Kostis Sagonas

2007 - 2012

FUNDING

DARPA:PROVERS:VERSE: Verification Engineering for Real-World Software Engineering

with Galois, Penn, Cambridge, UIUC. 2024-2027

529,757\$

AFOSR:Random Testing Across the Quantum Computing Stack

with Robert Rand. 2023-2028

625,000\$

NSF:SHF:CAREER:Fuzzing Formal Specifications

2022-2027

582,352\$

NSF:SHF:Medium:Efficient and Trustworthy Proof Engineering

with Milos Gligoric. 2021-2024

539,956\$

NSF:SHF:Medium:Bringing Python up to Speed

with Emery Berger, Michael Hicks, and Benjamin C. Pierce. 2020-2023

374,390\$

BOOKS

- QuickChick: Property-Based Testing in Coq** *2018*
Leonidas Lampropoulos and Benjamin C. Pierce.
Software Foundation Series, Volume 4
- Luck: A Probabilistic Language for Testing** *chapter, to appear*
Leonidas Lampropoulos, Diane Gallois-Wong, Cătălin Hrițcu, John Hughes, Benjamin C. Pierce, and Li-yao Xia (editors: Gilles Barthe, Joost-Pieter Katoen, and Alexandra Silva)
In book: Foundations of Probabilistic Programming

PUBLICATIONS

- Object Graph Programming** *ICSE 2024*
Aditya Thimmaiah, Leonidas Lampropoulos, Christopher Rossbach, and Milos Gligoric
- Don't Go Down the Rabbit Hole:** *Haskell 2023*
Reprioritizing Enumeration for Property-Based Testing
Segev Elazar Mittelman, Alvin Resnick, Ivan Perez, Alwyn Goodloe, and Leonidas Lampropoulos
- Etna: An Evaluation Platform for Property-Based Testing (Exp Report)** *ICFP 2023*
Jessica Shi, Alperen Keles, Benjamin C. Pierce, and Leonidas Lampropoulos
- Formalizing Stack Safety as a Security Property** *CSF 2023*
Sean Anderson, Roberto Blanco, Leonidas Lampropoulos, Benjamin C. Pierce, and Andrew Tolmach
- Merging Inductive Relations** *PLDI 2023*
Jacob Prinz and Leonidas Lampropoulos
- Liquid Proof Macros** *Haskell 2022*
Henry Blanchette, Niki Vazou, and Leonidas Lampropoulos
- Random Testing of a Higher-Order Blockchain Language (Exp Report)** *ICFP 2022*
Tram Hoang, Anton Trunov, Leonidas Lampropoulos, and Ilya Sergey
- Deeper Shallow Embeddings** *ITP 2022*
Jacob Prinz, Alex Kavvos, and Leonidas Lampropoulos
- Computing Correctly with Inductive Relations** *PLDI 2022*
Zoe Paraskevopoulou, Aaron Eline, and Leonidas Lampropoulos.
- A Formal Model for Checked C** *CSF 2022*
Liyi Li, Yiyun Liu, Deena Postol, Leonidas Lampropoulos, David Van Horn, and Michael Hicks.
- Do Judge a Test by its Cover:** *ESOP 2021*
Combining Combinatorial and Property-Based Testing
Harrison Goldstein, John Hughes, Leonidas Lampropoulos, and Benjamin C. Pierce.
- Coverage Guided, Property Based Testing** *OOPSLA 2019*
Leonidas Lampropoulos, Michael Hicks, and Benjamin C. Pierce.
- Advancing Safety Incrementally with Checked C** *POST 2019*
Andrew Ruef, Leonidas Lampropoulos, Ian Sweet, David Tarditi, and Michael Hicks.
- Keep your Laziness in Check** *ICFP 2018*
Kenneth Foner, Hengchu Zhang and Leonidas Lampropoulos.
- Generating Good Generators for Inductive Relations** *POPL 2018*
Leonidas Lampropoulos, Zoe Paraskevopoulou and Benjamin C.

Ode on a Random Urn (Functional Pearl) *Haskell 2017*

Leonidas Lampropoulos, Antal Spector-Zabusky and Kenneth Fonner

A Tale of Two Provers: *Haskell 2017*

Verifying Monoidal String Matching in Liquid Haskell and Coq

Niiki Vazou, Leonidas Lampropoulos and Jeff Polakow.

Beginner's Luck: A Language for Property-Based Generators *POPL 2017*

Leonidas Lampropoulos, Diane Gallois-Wong, Cătălin Hrițcu, John Hughes, Benjamin C. Pierce, and Li-yao Xia.

Measuring Neural Net Robustness with Constraints *NIPS 2016*

Osbert Bastani, Yani Ioannou, Leonidas Lampropoulos, Dimitrios Vytiniotis, Aditya Nori and Antonio Criminisi.

Foundational Property-Based Testing *ITP 2015*

Zoe Paraskevopoulou, Cătălin Hrițcu, Maxime Dénès, Leonidas Lampropoulos, and Benjamin C. Pierce.

Testing Noninterference, Quickly. *JFP 2016, ICFP 2013*

Cătălin Hrițcu, Leonidas Lampropoulos, Antal Spector-Zabusky, Arthur Azevedo De Amorim, Maxime Dénès, John Hughes, Benjamin C. Pierce, and Dimitrios Vytiniotis.

**Automatic WSDL-guided Test Case Generation
for PropEr Testing of Web Services** *WWV 2012*

Leonidas Lampropoulos and Kostis Sagonas.

PATENTS

Neural Network Image Classifier *US 2017/0316281*

Antonio Criminisi, Aditya Nori, Dimitrios Vytiniotis, Osbert Bastani, and Leonidas Lampropoulos
Microsoft Technology Licensing, LLC

TEACHING

Instructor: Program Analysis and Understanding, CMSC 631, UMD Fall '23

Instructor: Program Analysis and Understanding, CMSC 631, UMD Fall '22

STIC Supervisor: Introduction to Programming Language Theory, CMSC 388X, UMD Spring '22

Instructor: Advanced Functional Programming, CMSC 488B, UMD Spring '22

Instructor: Advanced Topics in Programming Languages, CMSC 838G, UMD Fall '21

Instructor: Design and Implementation of Programming Languages, CMSC 430, UMD Spring '21

Instructor: Program Analysis and Understanding, CMSC 631, UMD Fall '20

Instructor: Program Analysis and Understanding, CMSC 631, UMD Fall '19

Lecturer: Property-based Random Testing with QuickChick, DeepSpec Summer School Summer '18

Lecturer: Property-based Random Testing with QuickChick, DeepSpec Summer School Summer '17

INVITED TALKS AND TUTORIALS

How (not) to Give a Great Research Talk

PLMW @ POPL, Boston, 2023

QuickChick: Property-Based Testing in Coq

TutorialFest @ POPL, Boston, 2023

Deeper Shallow Embeddings

Athens PL Seminar, NTUA, 2022

QuickChick: Property-Based Testing in Coq

Guest Lecture: Proof Automation, UIUC, Mar 2022

Adventures in Property-Based Testing

Research Challenges in Computer Science, NTUA, 2022

Computing Correctly with Inductive Relations

Athens PL Seminar, NTUA, 2021

Property-Based Testing for OCaml through Coq

OCaml Workshop, ICFP, 2021

Adventures in Property-Based Testing

UIC Software Analysis Seminar, Apr 2021

QuickChick: Property-Based Testing in Coq

Guest Lecture: Advanced Coq Programming, University of Saarland, Oct 2020

Do Judge a Test by it's Cover

Athens PL Seminar, NTUA, 2020

Adventures in Property-Based Testing

UIC PL Seminar, Spring 2020

Software Correctness through Testing and Verification

IMDEA (Invited Talk), 2020

Structured Property-Based Fuzzing

Athens PL Seminar, NTUA, 2019

FuzzChick : Type-Aware Property-Based Fuzzing

Athens PL Seminar, NTUA, 2019

QuickChick : Property-Based Testing in Coq

POPL TutorialFest, Lisbon, 2019

StrictCheck : Keep your Laziness in Check

Athens PL Seminar, NTUA, 2018

Ode to a Random Urn

Athens PL Seminar, NTUA, 2017

Random Testing in the Coq Proof Assistant

Keynote, Computational Logic and Applications, Chalmers, 2017

Making our Own Luck

Athens PL Seminar, NTUA, 2016

Making our Own Luck: A Language for Random Generators

PPS Workshop, 2016

Testing Noninterference, Quickly

Athens PL Seminar, NTUA, 2013

SERVICE

POPL '26: PLMW co-chair

POPL '25: PLMW co-chair

POPL '24: PLMW co-chair

POPL '24: AEC co-chair

Haskell '23: PC member

ICFP '23: PLMW Invited Panelist
PLDI '23: PC member
POPL '23: PLMW Invited Speaker
POPL '23: AEC co-chair
CoqPL '22: PC member
POPL '22: PC member
ICFP '21: PC member
ICFP '21: Workshop co-chair
OOPSLA '20: ERC member
CLA '20: PC member
FLOPS '20: PC member
ICFP '20: Workshop co-chair
OOPSLA '19: SRC judge
OOPSLA '19: PLMW Invited Panelist
PLDI '19: AEC member
PLAS '19: PC member
ICFP '18: PLMW Invited Panelist
Haskell '16: External Reviewer

AWARDS

2023 Maryland Research Excellence Celebration
2022 NSF CAREER Award
2018 Victor Basili PostDoctoral Fellowship (UMD)
2014 Teaching Practicum Award (Penn Engineering)
2012 State Scholarship Foundation (IKY) award and scholarship
for first place during the 5th year of studies
July 2011 Second Prize, 18th International Mathematical Competition (IMC)
for University Students , Blagoevgrad, Bulgaria
2011 IKY first place award and scholarship (4th year)
July 2010 Honorable Mention, 17th IMC, Blagoevgrad, Bulgaria
2010 IKY first place award and scholarship (3rd year)
July 2009 Honorable Mention, 16th IMC, Budapest, Hungary
Mar 2009 2nd Award, South Eastern European Mathematical Olympiad, Cyprus
Feb 2007 3rd Award, 24th Mathematical Olympiad “Archimedes”
Feb 2007 1st Award, 67th Panhellenic Math Contest “Euclid”
Feb 2006 1st Award, 66th Panhellenic Math Contest “Euclid”
June 2005 Third Prize, 9th Junior Balcan Mathematical Olympiad, Veroia

PROJECTS

QuickChick
Property-Based Testing Tool for Coq (OCaml)
Luck - Interpreter
Interpreter for Luck (Haskell)
Luck - Metatheory
Metatheory for Luck (Coq)
Checked C
Metatheory for Checked C (Coq)
Neural Network Analysis Framework
Abstract Interpreter for Deep Neural Networks for Generating Adversarial Examples (C#)

LANGUAGES

Greek: Native

English: Excellent (*Certificate of Proficiency in English, Oxford*)

German: Basic (*B2 Mittelstufe Deutsch*)