

## Konstantinos Kallas

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<b>Education</b>	<div><div><b>University of Pennsylvania</b> Computer and Information Science, PhD student Advisor: Prof. Rajeev Alur</div><div><i>September 2018 – present</i></div></div> <div><div><b>Eighth Summer School on Formal Techniques</b> Menlo College, Atherton, CA Organised by SRI International</div><div><i>May 2018</i></div></div> <div><div><b>National Technical University of Athens</b> Electrical and Computer Engineering, Diploma Thesis: “<i>HiPERJiT: A Profile-Driven Just-in-Time Compiler for Erlang</i>” Advisor: Prof. Kostis Sagonas</div><div><i>October 2012 – February 2018</i></div></div> <div><div><b>Universita degli Studi dell’Aquila</b> Computer Science, Erasmus Mobility Program</div><div><i>February 2015 – July 2015</i></div></div>
<b>Working Experience</b>	<div><div><b>Research Intern</b> Microsoft Research, Redmond, US Internship in the RiSE group; advised by Sebastian Burckhardt. Worked on an execution engine for stateful serverless applications.</div><div><i>May 2020 – August 2020</i></div></div> <div><div><b>Software Engineering Intern</b> Amazon Web Services, New York, US Internship in the Automated Reasoning Group; advised by Daniel Schwartz-Narbonne. Worked on the verification of critical C code.</div><div><i>May 2019 – August 2019</i></div></div> <div><div><b>Google Summer of Code Student</b> Worked with BEAM Community to extend the <i>ejabberd</i> open source project. Implemented support for the “<i>Let’s Encrypt</i>” ACME certificate acquiring protocol.</div><div><i>May 2017 – September 2017</i></div></div> <div><div><b>Big Data Application Developer</b> Everis, Barcelona, Spain Internship at the Big Data Center of Excellence. Developed Big Data Applications using a plethora of tools in the Hadoop ecosystem.</div><div><i>June 2016 – September 2016</i></div></div>
<b>Teaching Experience</b>	<div><div><b>Teaching Assistant</b> Institution: University of Pennsylvania Course: <i>Software Foundations</i>, Graduate level Professor: Benjamin Pierce</div><div><i>Fall 2019</i></div></div> <div><div><b>Lab Assistant</b> Institution: National Technical University of Athens Course: <i>Introduction to Programming</i>, Undergraduate level Professors: S. Zachos, N. Papaspyrou, V. Kantere, and P. Potikas</div><div><i>Fall 2017</i></div></div>
<b>Publications</b>	<div><div><b>Synchronization Schemas: Safe Parallelization for Data Stream Processing.</b> Rajeev Alur, Phillip Hillard, Zachary G. Ives, Konstantinos Kallas, Konstantinos Mamouras, Filip Niksic, Caleb Stanford, Val Tannen, and Anton Xue. <i>Work In Progress.</i></div></div> <div><div><b>Serverless Workflows with Durable Functions and Netherite.</b> Sebastian Burckhardt, Chris Gillum, David Justo, Konstantinos Kallas, and Christopher S. Meiklejohn. <i>In submission.</i></div></div>

**Flumina: Stream Processing with Specification-Guided Synchronization.**

Konstantinos Kallas\*, Filip Niksic\*, Caleb Stanford\*, and Rajeev Alur.

*In submission.*

**An Order-aware Dataflow Model for Extracting Shell Script Parallelism.**

Shivam Handa, Konstantinos Kallas, Nikos Vasilakis, and Martin Rinard.

*In submission.*

**PaSh: Light-touch Data-Parallel Shell Processing.**

Nikos Vasilakis\*, Konstantinos Kallas\*, Konstantinos Mamouras, Achilleas Benetopoulos, and Lazar M. Cvetković.

Proceedings of the Sixteenth European Conference on Computer Systems (EuroSys 2021).

**Code-level model checking in the software development workflow at Amazon Web Services.**

Nathan Chong, Byron Cook, Jonathan Eidelman, Konstantinos Kallas, Kareem Khazem, Felipe R. Monteiro, Daniel Schwartz-Narbonne, Serdar Tasiran, Michael Tautschnig, and Mark R. Tuttle.

Software: Practice and Experience 2021.

**DiffStream: Differential Output Testing for Stream Processing Programs.**

Konstantinos Kallas\*, Filip Niksic\*, Caleb Stanford\*, and Rajeev Alur.

Proceedings of the ACM on Programming Languages (OOPSLA 2020).

**Code-Level Model Checking in the Software Development Workflow.**

Nathan Chong, Byron Cook, Konstantinos Kallas, Kareem Khazem, Felipe R. Monteiro, Daniel Schwartz-Narbonne, Serdar Tasiran, Michael Tautschnig, and Mark R. Tuttle.

42st International Conference on Software Engineering: Software Engineering in Practice (ICSE-SEIP 2020).

**Security Criteria for a Transparent Encryption Layer.**

Konstantinos Kallas, Clara Schneidewind, Benjamin C. Pierce, and Steve Zdancewic.

Workshop on Foundations of Computer Security (FCS 2019).

**HiPErJiT: A Profile-Driven Just-in-Time Compiler for Erlang.**

Konstantinos Kallas and Konstantinos Sagonas.

30th Symposium on Implementation and Application of Functional Languages (IFL 2018).

Note: \* indicates equal contribution.

**Honors and Awards**

**POPL Student Research Competition**

2021

*1st place* at the graduate category of the research competition.

Presented work on a parallelizing JiT compiler for shell scripts.

**Gerondelis Foundation PhD Award**

2020

**Programming Competitions**

2015-2018

Participation in many programming competitions. Notable examples:

ICFP Programming Contest 2018 (Lightning) *10th out of 91 teams*,

IEEE Xtreme 2017 *Top 5%* and *3rd* in Greece, IEEE Xtreme 2016 *Top 10%*

**Heterogenous Computing Student Challenge Certificate**

2017

HiPEAC CSW, Zagreb, Croatia

Optimizing GPU implementation of the K-means algorithm (NTUA-team)

Supervision: Prof. Georgios Goumas

**EESTech Challenge** 2017  
Supervised Machine Learning Hackathon  
*Joint 1st place* among 40 teams.

**The Great Moment of Education Scholarship from Eurobank EFG** 2012  
Achieving the highest rank in national qualifications exams in Dionisos high school.

**9th European Union Science Olympiad** 2011  
Team-based science competition in Biology, Chemistry, and Physics.  
*1st place* in local round and *3rd place* in national round.

**Mathematical Competition, Hellenic Mathematical Society** 2010  
Mathematical competition for high school students.  
Distinction in the 1st and 2nd local round.

**Languages**      **Greek** (Native), **English** (C2), **Italian** (C1), **German** (B2)