

## Konstantinos Kallas

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<b>Contact</b>	Email: kallas@seas.upenn.edu – Website: angelhof.github.io
<b>Education</b>	<div><div><b>University of Pennsylvania</b><i>September 2018 – present</i></div><div>Computer and Information Science, PhD student Advisor: Prof. Rajeev Alur</div><div><b>Eighth Summer School on Formal Techniques</b><i>May 2018</i></div><div>Menlo College, Atherton, CA Organised by SRI International</div><div><b>National Technical University of Athens</b><i>October 2012 – February 2018</i></div><div>Electrical and Computer Engineering, Diploma Thesis: “<i>HiPERJiT: A Profile-Driven Just-in-Time Compiler for Erlang</i>” Advisor: Prof. Kostis Sagonas</div><div><b>Universita degli Studi dell’Aquila</b><i>February 2015 – July 2015</i></div><div>Computer Science, Erasmus Mobility Program</div></div>
<b>Working Experience</b>	<div><div><b>Research Intern</b><i>May 2020 - August 2020</i></div><div>Microsoft Research, Redmond, US Internship in the RiSE group; advised by Sebastian Burckhardt. Worked on an execution engine for stateful serverless applications.</div><div><b>Software Engineering Intern</b><i>May 2019 - August 2019</i></div><div>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><b>Google Summer of Code Student</b><i>May 2017 - September 2017</i></div><div>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><b>Big Data Application Developer</b><i>June 2016 - September 2016</i></div><div>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>
<b>Teaching Experience</b>	<div><div><b>Teaching Assistant</b><i>Fall 2019</i></div><div>Institution: University of Pennsylvania Course: <i>Software Foundations</i>, Graduate level Professor: Benjamin Pierce</div><div><b>Lab Assistant</b><i>Fall 2017</i></div><div>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>
<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><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.*

**The Once and Future Shell.**  
Michael Greenberg, Konstantinos Kallas, and Nikos Vasilakis.  
Proceedings of the Workshop on Hot Topics in Operating Systems (HotOS 2021).

**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)