



Delft University of Technology

Message from the Chairs

Aronis, Stavros; Kulahcioglu Ozkan, Burcu

Publication date

2022

Document Version

Final published version

Published in

Proceedings of the 21st ACM SIGPLAN International Workshop on Erlang

Citation (APA)

Aronis, S., & Kulahcioglu Ozkan, B. (2022). Message from the Chairs. *Proceedings of the 21st ACM SIGPLAN International Workshop on Erlang*, iii-iii. <http://10.1145/3546186>

Important note

To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

Green Open Access added to TU Delft Institutional Repository

'You share, we take care!' - Taverne project

<https://www.openaccess.nl/en/you-share-we-take-care>

Otherwise as indicated in the copyright section: the publisher is the copyright holder of this work and the author uses the Dutch legislation to make this work public.

September 11, 2022
Ljubljana, Slovenia



Association for
Computing Machinery



Erlang '22

Proceedings of the 21st ACM SIGPLAN International Workshop on

Erlang

Edited by:

Stavros Aronis and Burcu Kulahcioglu Ozkan

Sponsored by:

ACM, ACM SIGPLAN

Co-located with:

ICFP '22

Association for Computing Machinery, Inc.
1601 Broadway, 10th Floor
New York, NY 10019-7434
USA

Copyright © 2022 by the Association for Computing Machinery, Inc (ACM). Permission to make digital or hard copies of portions of this work for personal or classroom use is granted without fee provided that the copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted.

To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permission to republish from: Publications Dept. ACM, Inc.
Fax +1-212-869-0481 or E-mail permissions@acm.org.

For other copying of articles that carry a code at the bottom of the first or last page, copying is permitted provided that the per-copy fee indicated in the code is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA.

ACM ISBN: 978-1-4503-9435-2

Cover photo

Title: "Dragon statue on the Dragon Bridge in Ljubljana"

License: Copyright ©2022, by Julija Bauer, All Rights Reserved

Production: Conference Publishing Consulting
D-94034 Passau, Germany, info@conference-publishing.com

Message from the Chairs

It is our great pleasure to welcome you to the 21st ACM SIGPLAN Erlang Workshop (Erlang'22), co-located as usual with the annual International Conference on Functional Programming (ICFP), held in Ljubljana, Slovenia. The workshop continues to be a forum for presenting research and experience reports on all aspects of theory, implementation, and applications of the Erlang language and BEAM-related technologies, covering topics in functional programming, distribution, and reliability.

This year, the call for papers attracted a total of 7 submissions, each of which was carefully reviewed by at least 4 program committee members. In total, the program committee accepted 5 papers for publication.

We are also very pleased to have an invited keynote talk on a novel type-checker for Erlang, developed and used by the engineers at WhatsApp during the last two years. The talk will be given by Ilya Klyuchnikov, PhD, who is a member of WhatsApp Development Infrastructure team. We also chose to continue last year's practise of leaving space in the workshop's schedule for lightning talks from any participant eager to present ongoing projects and preliminary work in academia and industry.

Putting together Erlang'22 has been a team effort. We want to thank our keynote speaker, the authors of all submitted papers, and the presenters of lightning talks for allowing us to assemble an inspiring and appealing program. We also express our gratitude to all the members of the program committee, who reviewed the papers in a timely manner, providing constructive criticism and suggestions for improvement. We also greatly appreciate the efforts of this year's ICFP organizers, led by Andrej Bauer as General Chair, and the workshop co-chairs, Arthur Azevedo de Amorim and Zoe Paraskevopoulou, who diligently answered our questions and guided us through the organizational process. We would also like to thank the members of the Erlang Workshop's Steering Committee for their guidance. Finally, we thank ACM SIGPLAN for their continued support.

We hope that these proceedings will serve as a valuable reference for Erlang, Elixir and BEAM-based language researchers, implementors, and practitioners, and that you will find this year's program appealing and thought-provoking.

Burcu Kulahcioglu Ozkan
Erlang'22 Workshop Chair
Delft University of Technology, Netherlands

Stavros Aronis
Erlang'22 Workshop Chair
Erlang Solutions AB, Sweden

21st ACM SIGPLAN Erlang Workshop Organization

Program Committee

Stavros Aronis	Erlang Solutions AB, Sweden
Laura M. Castro	University of A Coruña, Spain
Kiko Fernandez-Reyes	Klarna, Sweden
Lars-Åke Fredlund	Universidad Politécnica de Madrid, Spain
Burcu Kulahcioglu Ozkan	Delft University of Technology, Netherlands
Andreas Löscher	Meta Platforms, Inc., United Kingdom
Stefan Marr	University of Kent, United Kingdom
Adolfo Neto	Federal University of Technology - Paraná, Brazil
Peer Stritzinger	Peer Stritzinger GmbH, Germany
Melinda Tóth	Eötvös Loránd University and ELTE-Soft Nonprofit Ltd., Hungary
Cons T Åhs	Cisco Sweden AB, Sweden

Steering Committee

Adrian Francalanza	University of Malta, Malta
Annette Bieniusa	TU Kaiserslautern, Germany
Burcu Kulahcioglu Ozkan	Delft University of Technology, Netherlands
Francesco Cesarini	Erlang Solutions Ltd, UK
John Hughes	University of Gothenburg, Sweden
Laura M. Castro	University of A. Coruña, Spain
Natalia Chechina	Erlang Solutions Ltd, UK
Simon Thompson	University of Kent, UK
Stavros Aronis	Erlang Solutions Ltd, UK
Thomas Arts	Quviq AB, Sweden
Viktória Fördős	Cisco Systems, Sweden

Contents

Frontmatter

Message from the Chairs	iii
-----------------------------------	-----

Keynote

eqWAlizer: Scaling Erlang Development at WhatsApp with Static Typing (Keynote) Ilya Klyuchnikov — <i>Meta Platforms, USA</i>	1
--	---

Papers

Troubleshooting the Performance of a Large Erlang System Nikos Tsikoudis and Marc Sugiyama — <i>Datometry, USA; Nova Labs, USA</i>	2
CAEFL: Composable and Environment Aware Federated Learning Models Ruomeng (Cocoa) Xu, Anna Lito Michala, and Phil Trinder — <i>University of Glasgow, UK</i>	9
A Reliability Benchmark for Actor-Based Server Languages Aidan Randtoul and Phil Trinder — <i>University of Glasgow, UK</i>	21
InfERL: Scalable and Extensible Erlang Static Analysis Ákos Hajdu, Matteo Marescotti, Thibault Suzanne, Ke Mao, Radu Grigore, Per Gustafsson, and Dino Distefano — <i>Meta, UK</i>	33
Executable Contracts for Elixir Sergio Pérez, Luis Eduardo Bueso de Barrio, Ignacio Ballesteros, Ángel Herranz, Julio Mariño, Clara Benac Earle, and Lars-Åke Fredlund — <i>Universitat Politècnica de València, Spain; Universidad Politécnica de Madrid, Spain</i>	40
Author Index	47