2021 IEEE/ACM 7th Workshop on the LLVM Compiler Infrastructure in HPC **(LLVM-HPC 2021)**

St. Louis, Missouri, USA **14 November 2021**



IEEE Catalog Number: CFP21A44-POD ISBN:

978-1-6654-1135-6

Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP21A44-POD

 ISBN (Print-On-Demand):
 978-1-6654-1135-6

 ISBN (Online):
 978-1-6654-1134-9

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



2021 IEEE/ACM 7th Workshop on the LLVM Compiler Infrastructure in HPC (LLVM-HPC) LLVM-HPC 2021

Table of Contents

Workshop Organization v	
Session 1	
OpenMP aware MHP Analysis for Improved Static Data-Race Detection	1
Flacc: Towards OpenACC Support for Fortran in the LLVM Ecosystem	2
Extending LLVM IR for DPC++ Matrix Support: A Case Study with Intel® Advanced Matrix Extensions (Intel® AMX))
Session 3	
A High Performance Sparse Tensor Algebra Compiler in MLIR	7
Toward an Automated Hardware Pipelining LLVM Pass Infrastructure	9

Facilitating CoDesign with Automatic Code Similarity Learning	50
Tan Nguyen (Computational Research Division, Lawrence Berkeley	
National Laboratory), Erich Strohmaier (Computational Research	
Division, Lawrence Berkeley National Laboratory), and John Shalf	
(Computational Research Division, Lawrence Berkeley National	
Laboratory)	
Author Index	59