

# CHIUIW 2020

## The Seventh Annual Chapel Implementers and Users Workshop

<https://chapel-lang.org/CHIUIW2020.html>

Friday, May 22<sup>nd</sup>, 2020

### Background

Chapel ([chapel-lang.org](http://chapel-lang.org)) is an open-source language whose goal is to vastly improve the productivity of performance-minded parallel programmers, both on the desktop and at scale. Chapel's implementation is open-source, portable, and scalable, supporting laptops, commodity clusters, the cloud, and large-scale supercomputers. Chapel's design and implementation are being led by Cray, a Hewlett Packard Enterprise company, in collaboration with members of computing labs, academia, industry, and the open-source community.

The Chapel Implementers and Users Workshop (CHIUIW) is the primary annual gathering of the Chapel community. Its main goal is to bring developers and users of Chapel together on a regular basis to share progress and results with one another and with members of the broader parallel programming community. CHIUIW typically also fosters new Chapel collaborations and endeavors through a code camp session held on the following day. Anyone with interest in Chapel is encouraged to attend CHIUIW, from the seasoned user or developer to someone simply curious to learn more.

This year, due to the COVID-19 pandemic, we are holding CHIUIW in an online format. Though it will be disappointing not to be able to meet together in person, we are also happy that this approach will permit the work to reach a wider audience, by enabling the participation of those who may not have been able to attend otherwise.

### Submitted Papers and Talks

This year's workshop format follows that of previous years in which we solicited full research papers in addition to short papers or extended abstracts for those who are only interested in giving a talk.

This year, CHIUIW received 13 submissions from 12 lead authors, two of which were full research papers while the other 11 were extended abstracts. Each submitted extended abstract received four reviews from the program committee (listed below), while the research papers received 5–6. Due to our goal of making CHIUIW as inclusive as possible, we ended up accepting eight of the submissions (including both papers) as full-length talks and four as short talks (pending author interest), rejecting only one of the two submissions by the same lead author. After being accepted, one of the submissions upgraded from an extended abstract to a short paper with the program committee's approval.

The accepted submissions can be found within these proceedings and describe recent work being done in improving Chapel's features, optimizing its performance, and using Chapel to target GPUs, as well as a variety of applications being pursued in Chapel including Computational Fluid Dynamics, graph algorithms such as Hypergraph Homology, and simulations of Ultralight Dark Matter.

Once holding an in-person workshop was no longer viable, we asked the authors about their interest in participating in CHIUIW as a virtual event, and happily, all but one agreed. As a result, CHIUIW 2020 will feature eleven submitted talks from speakers representing 4 countries, 3 continents, and eleven distinct organizations.

### Other CHIUIW 2020 Events

In addition to the submitted talks, CHIUIW 2020 will feature a few additional program elements. Prior to the event, a "Chapel 101" virtual talk will be made available, designed to give new attendees a brief introduction to Chapel as context for the rest of the day's talks. This workshop itself will kick off with our annual "State of the Project" presentation, providing an update on key Chapel events since CHIUIW 2019.

A centerpiece of the day will be a keynote presented by Dr. William Reus from the U.S. Department of Defense entitled *Arkouda: Chapel-Powered Interactive Supercomputing for Data Science*. See the following page for further information. We'll wrap up the day with a community discussion session to support the type of interactive conversation that usually occurs during breaks and over meals at CHIUW.

On behalf of the Chapel community and the CHIUW committee, we hope to see you online for CHIUW 2020!

–Brad Chamberlain

## **CHIUW 2020 Committee**

### **General Chair:**

Benjamin Robbins, *Cray, a Hewlett Packard Enterprise Company*

### **Steering Committee:**

Michael Ferguson, *Cray, a Hewlett Packard Enterprise Company*

Mike Merrill, *U.S. DOD*

Nikhil Padmanabhan, *Yale University*

Marcin Zalewski, *NVIDIA*

### **Program Committee:**

Brad Chamberlain (chair), *Cray, a Hewlett Packard Enterprise Company*

Cathie Olschanowsky (co-chair), *Boise State University*

Maryam Dehnavi, *University of Toronto*

Clemens Grellck, *University of Amsterdam*

Paul H. Hargrove, *Lawrence Berkeley National Laboratory*

Engin Kayraklioglu, *Cray, a Hewlett Packard Enterprise Company*

Milind Kulkarni, *Purdue University*

Josh Milthorpe, *Australian National University*

Tyler Simon, *UMBC*

Christian Terboven, *RWTH Aachen University*

Rich Vuduc, *Georgia Tech*

Marcin Zalewski, *NVIDIA*