

WEDNESDAY WORKSHOP

THE FUTURE OF FPGA-ACCELERATION IN CLOUD AND DATA CENTERS

**Wednesday, May 6th, 2020,
11:00 am - 05:30 pm CDT**

Virtual Event Available At:

<https://ufl.zoom.us/j/8416285714>

zoom

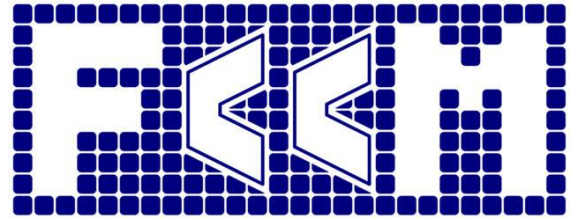
Register [here](#)

Organizers

- Christophe Bobda (University of Florida)
- Peter Hofstee (IBM, Austin TX)

Abstract

Field-Programmable Gate Arrays (FPGAs) are becoming integral components of general purpose heterogeneous cloud computing systems and data centers due to their ability to serve as energy-efficient domain customizable accelerators. All major players such as Microsoft, Amazon, Intel, Baidu, Huawei, and IBM now expose FPGAs to application developers in their cloud and datacenter infrastructures. Besides commercial infrastructure, a growing number of projects are underway across the globe, in academia and other research organizations to provide the benefit of acceleration and flexibility remotely to users. Current developments are taking place behind closed doors and companies and institutions disclose very little on the challenges they encounter as well as the approach currently used to tackle those challenges. This workshop will bring experts from various fields around cloud, FPGA, computer architecture and applications to 1) discuss the status FPGA-acceleration in cloud computers and 2) explore the future and challenges in broad adoption of FPGAs in data centers. Topics of interest include FPGA integration, middleware, resource virtualization, security, programming, and applications.



Agenda for the Workshop “The Future of FPGA-Acceleration in Cloud and Datacenters”

Wednesday, May 6th, 2020

11:00 - 11:05	Opening <i>Peter Hofstee, IBM, Austin, TX</i>
11:05 - 11:30	NSF Funding Opportunities and Priorities in CNS <i>Erik Brunvand, NSF</i>
11:30 - 12:00	The Future of FPGAs Needs Open Middleware Now <i>Paul Chow, University of Toronto</i>
12:00 - 12:30	Secure and Virtualized FPGA Management for FPGAs in Cloud and Datacenters <i>Dirk Koch, University of Manchester</i>
12:30 - 1:00	openRole: Do we need a POSIX for FPGAs? <i>Burkhard Ringlein, IBM Research Europe</i>
1:00 - 1:15	Break
1:15 - 1:45	The Open Cloud FPGA Testbed: Supporting Experiments on Emerging Datacenter Configurations <i>Martin Herbordt, Boston University and Miriam Leeser, Northeastern University</i>
1:45 - 2:15	cloudFPGA: Promote FPGAs to 1st Citizen in the Cloud <i>Francois Abel, IBM Research Europe</i>
2:15 - 2:45	Security and Privacy Concerns for the FPGA-Accelerated Cloud and Datacenters <i>Russell Tessier, UMASS</i>
2:45 - 3:15	Cloud-scale Key Value Store in FPGA <i>John W Lockwood, Algo-Logic</i>
3:15 - 3:30	Break
3:30 - 4:00	Powering Cloud and Datacenters with Xilinx Adaptive Compute Acceleration platforms <i>Cathal McCabe, Xilinx</i>
4:00 - 4:30	Global-Scale FPGA-Accelerated Deep Learning Inference with Microsoft's Project Brainwave <i>Gabriel Weisz, Microsoft</i>
4:30 - 5:00	Single-Tenant Cloud FPGA Security <i>Jakub Szefer, Yale University</i>
5:00 - 5:30	Gator Reconfigurable Cloud Computing: Hardware Virtualization Challenges <i>Christophe Bobda, University of Florida</i>