






## April 2019 Newsletter

### Highlights

 <p><b>Optimization Techniques</b></p>	<p><a href="#"><u>CPU Inference Performance Boost with “Throughput” Mode in the Intel® Distribution of OpenVINO™ Toolkit</u></a>: this new mode allows efficient parallel execution of multiple inference requests by processing them using the same CNN, greatly improving the throughput.</p> <p><a href="#"><u>Exascale in Sight: MPI Communication Layer Migration Benefits</u></a>: how Intel® MPI Library lets you quickly change or upgrade to new interconnects without requiring changes to the application or user-level operating environment.</p> <p><a href="#"><u>Active-Routing: Compute on the Way for Near-Data Processing</u></a>: evaluation results show that Active-Routing can achieve up to 6x speedup with a geometric mean of 75% performance improvement.</p> <p><a href="#"><u>Best Practices for Tensorflow* on Intel® Xeon® Processor-based HPC Infrastructures</u></a>: developed best practices detailing the setup, installation, and procedures to help mainstream deep learning training in HPC environments.</p> <p><a href="#"><u>Adventures in Threading: How TBB is Advancing Parallelism</u></a>: Threading Building Blocks (TBB) focus on parallel design instead of implementation, get expert advice, guidance, and predictions about what’s ahead for threading from programming.</p>
 <p><b>Case Studies</b></p>	<p><a href="#"><u>ExaLearn Project to bring Machine Learning to Exascale</u></a>: the first research area for ExaLearn's surrogate models will be in cosmology to support projects such as the Large Synoptic Survey Telescope now under construction in Chile and shown here in an artist's rendering.</p> <p><a href="#"><u>High Performance Numeric Programming with Swift: Explorations and Reflections</u></a>: Swift is a really interesting language which can support fast, concise, expressive numeric programming and also lets us easily interface with C code and libraries.</p>

	<p><a href="#"><u>Parallel BRDF-based infrared radiation simulation of aerial targets implemented on Intel® Xeon® Processor</u></a>: Infrared Signatures of Low-Flying Aircraft and their Rear Fuselage Skin's Emissivity Optimization by Xidian University, using OpenMP result shows 9.7 faster compared to single thread.</p> <p><a href="#"><u>Boosting Image Processing Performance</u></a>: Alticast has deployed millions of set-top boxes around the world to cable TV and IPTV providers. Inside, its cloud user interface solution Apex* was optimized by Intel® System Studio.</p> <p><a href="#"><u>ClimateNet Aims to Improve Machine Learning Applications in Climate Science On a Global Scale</u></a>: a project that will bring the power of deep learning methods to identify important weather and climate patterns via expert-labeled, community-sourced open datasets and architectures.</p>
 <p><b>Scientific Breakthrough</b></p>	<p><a href="#"><u>Project Brainwave</u></a>: Microsoft recently announced the public preview of Azure Machine Learning Hardware Accelerated Models powered by Project Brainwave.</p> <p><a href="#"><u>Compute Express Link</u></a>: a new CPU-to-device interconnect standard for high-performance accelerators and platform enhancements that will work side-by-side with microprocessors.</p> <p><a href="#"><u>HPC Enables New Approaches to Eliminate Waste Plastics</u></a>: researchers are tapping the power of high-performance computing (HPC) to seek a more effective enzyme which can decompose plastic bottles.</p> <p><a href="#"><u>How Cloud Computing Has Forever Changed HPC</u></a>: Cloud-based HPC has forever changed HPC and is having profound societal impacts in the legal and medical communities as well as on HPC supercomputer centers themselves.</p> <p><a href="#"><u>Ray Distributed AI Framework Curriculum Offered on the Intel® AI DevCloud</u></a>: AI researchers &amp; students can spin up compute nodes running Ray framework to build sophisticated AI models using state-of-the art algorithms for distributed training.</p> <p><a href="#"><u>Intel Executive Leads Artificial Intelligence Researchers Linking AI to Quantum Physics Insight</u></a>: a computer science research group from the Hebrew University of Jerusalem has mathematically proven that AI can help us understand quantum physics phenomena.</p>

## Intel® Parallel Computing Centers Invited Talk Series

Leukemia is one of top 10 cancers in China for young children and the elderly. Treating this disease in its early stages can significantly increase the cure rate. An AI-powered device that can reduce the time (from one week to one day) and the cost (from \$1,000 USD to \$100 USD) of an early diagnosis. Please register and join us on April 25th 8:00-8:30am (Pacific Standard Time) to learn about Shanghai Jiao Tong University(SJTU)' s new update with [A Vision-Based Early Diagnosis for Leukemia](#).

## Testing Your Code on Intel® Architecture

**Intel® Xeon® Scalable Platform Access:** We encourage testing applications using various configurations of Intel® architecture (Intel® Xeon Scalable processors, Intel® Omni-Path, etc. Click [HERE](#) to test your optimized application at scale using TACC, Stampede II system. Upon requesting access, create a new account (do not click on PI-eligible) and follow the email instructions. Then email the [ipcc.program.office@intel.com](mailto:ipcc.program.office@intel.com) account and include your username in the communication.

## Speaker & Publication Opportunities

There are several opportunities for you to share your learnings, best practices and techniques Around the Benefits you've received in leveraging Intel® architecture. We would like bring to your attention some key Abstract submission deadlines for 2019 conferences and workshops. Feel free to submit abstracts to all That interest you.

Submission Deadline	Event
April 10, 2019	SC19 <a href="#">Papers</a> (No extensions)
April 14, 2019	<a href="#">ISC19 IXPUG Workshop: Using FPGAs to Accelerate HPC &amp; Data Analytics on Intel-Based Systems</a>
April 16, 2019	O'REILLY + Intel Artificial Intelligence Conference, London <a href="#">Call for Speakers</a>
April 16, 2019	SC19 <a href="#">Tutorials</a> (No extensions)
April 23, 2019	SC19 <a href="#">Panels</a>
May 31, 2019	<a href="#">HPC CHINA 2019</a>
July 31, 2019	SC19 <a href="#">Research Posters</a>
July 31, 2019	SC19 <a href="#">Scientific Visualization &amp; Data Analytics Showcase</a>
July 31, 2019	SC19 <a href="#">Bird of A Feather(BoF)</a>
July 31, 2019	SC19 <a href="#">Early Career Program Applications</a>
July 31, 2019	SC19 <a href="#">Doctoral Showcase</a>
July 31, 2019	SC19 <a href="#">Exhibitor Forum</a>
July 31, 2019	SC19 <a href="#">HPC Impact Showcase</a>

## Global Event & Training Opportunities

We encourage you to participate in any of the upcoming global training and free webinar opportunities.

Date	Location	Event
April 11, 2019	Webinar	<a href="#">A Study of SIMD Vectorization for Matrix-Free Finite Element Method</a>
April 18, 2019	Webinar	<a href="#">Deep Learning with TensorFlow</a>
May 8, 2019	Webinar	<a href="#">Optimize your Apps for the next Generation of Memory</a>
May 15, 2019	Webinar	<a href="#">GeoVision Gets a 24x Deep Learning Algorithm Performance Boost</a>
May 22, 2019	Webinar	<a href="#">Tune Your Software for Cascade Lake</a>

May 29, 2019	Webinar	<a href="#">Improve Performance on Distributed Deep Learning Training Workloads</a>
Anytime	Webinar	<a href="#">Parallelism in Python*</a>
April 15-18, 2019	New York, US	<a href="#">O'REILLY + Intel Artificial Intelligence Conference</a>
April 30 – May 3, 2019	TACC Institute	<a href="#">Applied Parallel Programming</a>
May 7-8, 2019	TACC Institute	<a href="#">Advanced Computing Foundations</a>
May 6-9, 2019	New Orleans, US	<a href="#">ICLR 2019</a>
June 4-5, 2019	Edinburgh, UK	<a href="#">2nd UK OpenMP Users Conference</a>
June 5, 2019	CERN, Switzerland	<a href="#">Speeding up Scientific Codes in HPC Architectures by Code Modernization: Lessons Learned</a>
June 10-13, 2019	TACC Institute	<a href="#">Scientific Visualization</a>
June 10-15, 2019	Long Beach, CA	<a href="#">ICML 2019</a>
June 15-21, 2019	Long Beach, CA	<a href="#">CVPR 2019</a>
June 16-20, 2019	Frankfurt, Germany	<a href="#">ISC 2019</a>
June 18-19, 2019	Beijing, PRC	<a href="#">O'REILLY + Intel Artificial Intelligence Conference</a>
June 25-28, 2019	TACC Institute	<a href="#">Designing and Administering Large-scale Systems</a>
July 9-12, 2019	TACC Institute	<a href="#">Workflows and Reproducibility in Scientific Computing</a>
July 17-21, 2019	Tennessee Tech	<a href="#">Integrating Parallel and Distributed Computing in Introductory Programming Classes Workshops</a>
July 23-26, 2019	TACC Institute	<a href="#">Computational Science in the Cloud</a>
July 28-August 1, 2019	Chicago, IL	<a href="#">PEARC 19</a>
August 5-8, 2019	TACC Institute	<a href="#">Machine Learning Foundations</a>
August 26-30, 2019	Gottingen, Germany	<a href="#">EURO-PAR 2019</a>
September 9 -12, 2019	San Jose, CA	<a href="#">O'REILLY +AI Artificial Intelligence Conference</a>
September 9-11, 2019	Auckland, New Zealand	<a href="#">OpenMPCon 2019</a>
September 11-13, 2019	Auckland, New Zealand	<a href="#">IWOMP 2019</a>
September 15 – 20, 2019	San Antonio, TX	<a href="#">SEG 19</a>
September 17-18, 2019	Mountain View, CA	<a href="#">AI Hardware Summit 2019</a>
September 17-19, 2019	TACC Institute	<a href="#">HPC Leadership</a>
October 14-17, 2019	London, UK	<a href="#">O'REILLY + Intel Artificial Intelligence Conference</a>
November 17 -20, 2019	Brisbane, Australia	<a href="#">SIGGRAPH Asia 2019</a>
December 2-8 , 2019	Vancouver, CA	<a href="#">NeurIPS 2019</a>

## More News

Check out the latest Intel® news:

- [Intel's Xeon & Xe Compute Accelerators to Power Aurora Exascale Supercomputer](#)
- [Intel Announces Broadest Product Portfolio for Moving, Storing and Processing Data](#)
- [Intel's Data-Centric Innovation Day](#)
- [Architecting for AI Workloads](#)

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