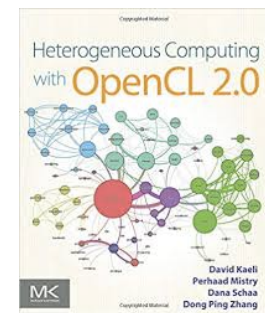# IWOCL
INTERNATIONAL WORKSHOP ON OPENCL

David Kaeli

IWOCL'19 Local Chair
Dept. of Electrical and Computer Engineering
Northeastern University

Boston, AM

Heterogeneous Computing with OpenCL 2.0

David Kaeli
Perhaad Mistry
Dana Schaa
Dong Ping Zhang

Northeastern University

Welcome to Northeastern University

- Facts about Northeastern:
  - Founded in 1898 as a night school at the YMCA
  - Motto – Light, Truth and Courage
  - Research 1 university
  - Well-known for our innovative cooperative education model
  - >25K students – 18K undergrads , 7K grads
  - 1st baseball world series was held on the campus

Northeastern University

🔥 Welcome to Boston!

- Freedom Trail
- The North End (Boston's Little Italy)
- Museum of Fine Arts Boston
- Museum of Science
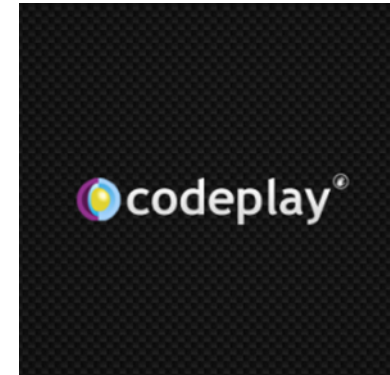- Newbury Street
- Boston Harbor

Northeastern University

Simon McIntosh-Smith
IWOCL general chair
University of Bristol

IWOCL 2019

- 90+ delegates from 13 countries

- 44 different organisations

- 33 submissions, 15 accepted papers

- 5 posters, 3 accepted workshops/tutorials
  - DHPCC++
  - Advanced Hands-On OpenCL
  - Optimizing OpenCL for Intel FPGAs

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Conference Sponsors

We would like to thank our sponsors, without whom IWOCL 2019 could not happen!
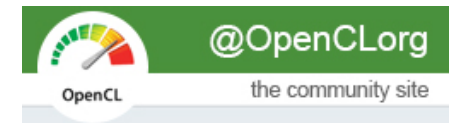
Tuesday's Agenda

09:30 – 09:50 Welcome

- Profiling OpenCL Kernels Using Wavefront Occupancy with Radeon GPU Profiler
- Advances in the OpenCL Offload Support in GROMACS

11:00 – 11:30 Break

- Comparative Performance Analysis of Vulkan Implementations of Computational Applications
- Developing Performance-Portable OpenCL Code via Multi-Dimensional Homomorphisms
- Evaluating Portability and Performance of OpenCL FPGA Kernels on Intel HARPv2

13:00 – 14:00 Lunch

- Khronos Update - OpenCL, SYCL and SPIR - The Next Steps
- The Landscape of C++ Heterogeneous Computing and Safety Critical API
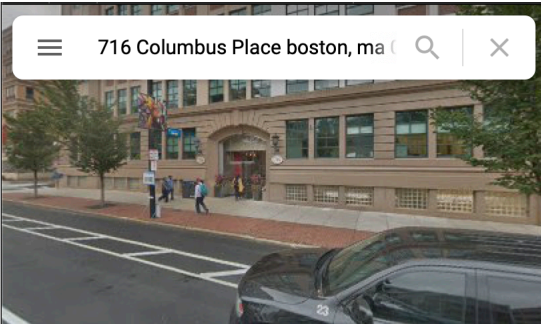
15:30 – 16:00 Break

- Khronos Panel Discussion

17:30 – Sessions Close

18:00 – Conference Dinner

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Conference Dinner

- Tuesday 14th May

- 6:00pm drinks reception

- 6:30pm dinner

- Alumni Center at Columbus Place

- 6th Floor

  - A short walk from the conference center

- Special Diet? Inform the server

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9
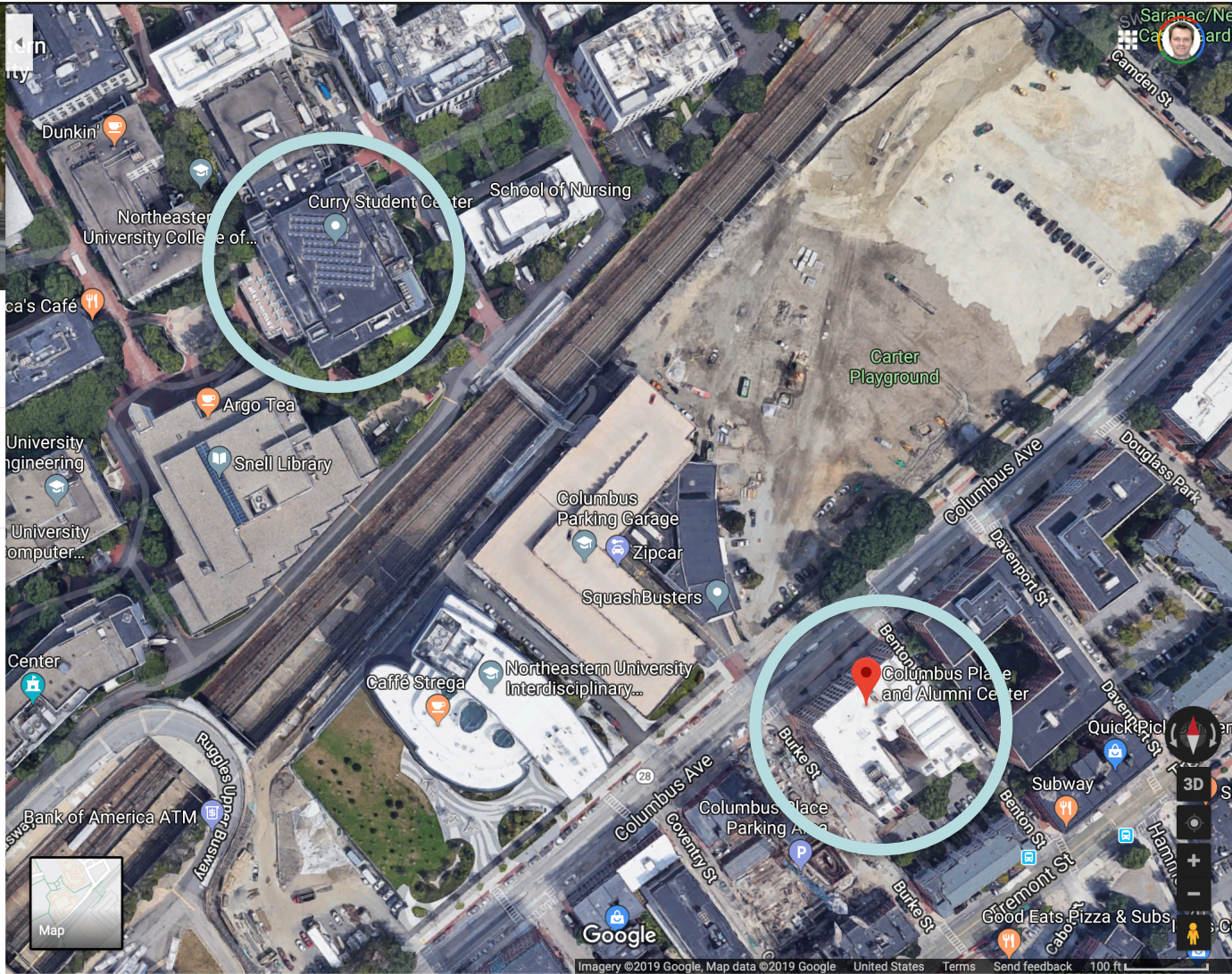
Wednesday's Agenda

09:00 – Welcome

- Blurring the Boundary between CPU and GPU
- Accelerated Neural Networks on OpenCL Devices Using SYCL-DNN
- How to Deploy AI Software to Self-Driving Cars
- Breaking the Last Line of Performance Border

11:00 – 11:30 Break

- Performance Evaluation of OpenCL Standard Support (and Beyond)
- OpenCL vs: Accelerated Finite-Difference Digital Synthesis

13:00 – 14:00 Lunch

- Exploring Integer Sum Reduction using Atomics on Intel CPU
- MGSim: A Flexible High-Performance Simulator for Multi-GPU Systems
- Closing keynote: Powering the Exascale Era - The Frontier Supercomputer and the Open Source Software that will Power the World's Fastest Supercomputer at Oak Ridge National Laboratory
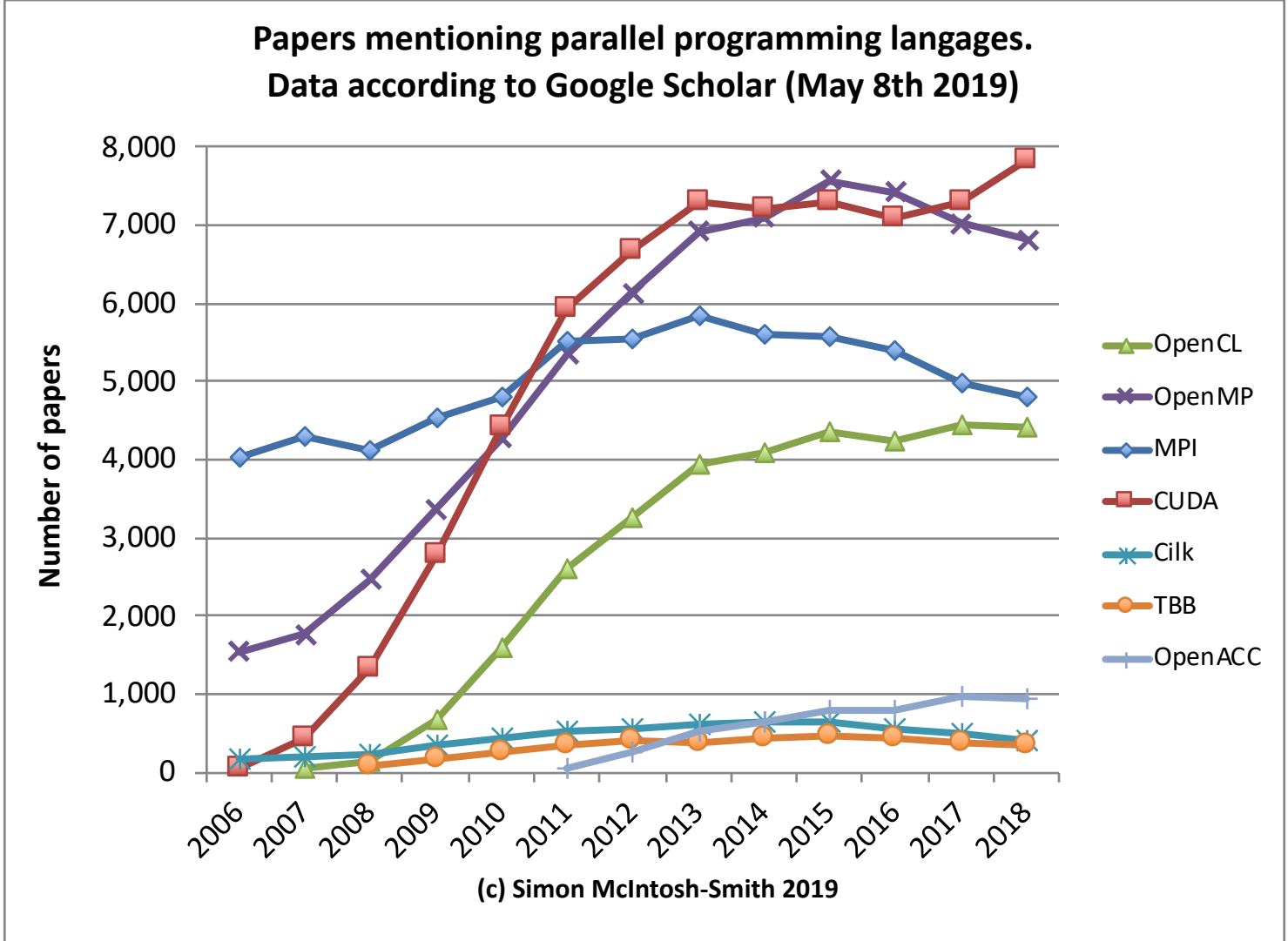- Presentation of Awards
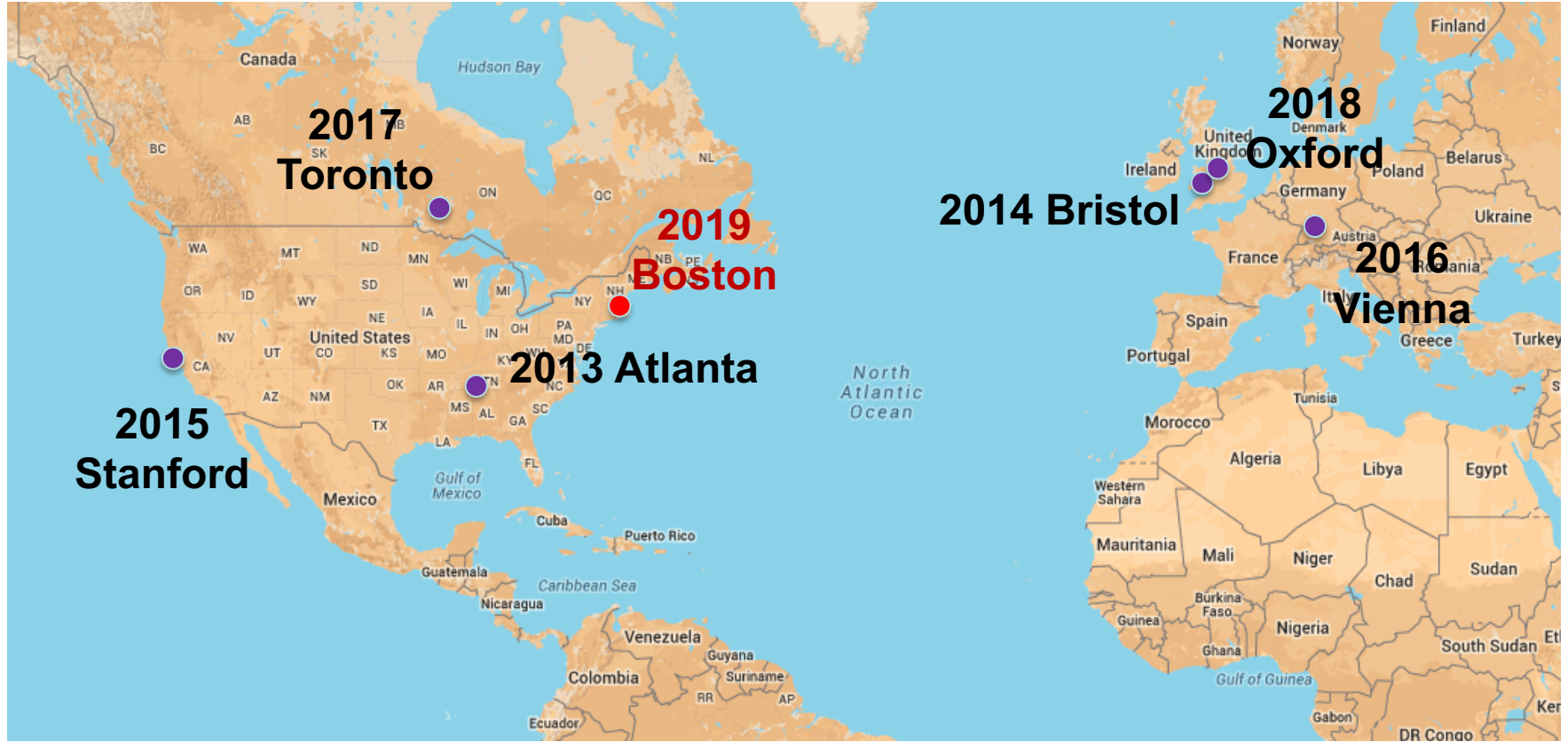
16:00 – Close

- Open Discussion

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Proceedings

- Slides will be on the website asap
  - Speakers, please email your slides to Tim!
- ACM proceedings will be available soon
  - https://dl.acm.org/...
  - Thanks to Andrei Poenaru @ UoB & Authors
- In the meantime, you can find all the papers and presentations here:
  - http://tinyurl.com/2019iwocl

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Adoption of parallel programming langs.

Papers mentioning parallel programming langages.
Data according to Google Scholar (May 8th 2019)

(c) Simon McIntosh-Smith 2019

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IWOCL History

2017 Toronto

2018 Oxford

2014 Bristol

2019 Boston

2016 Vienna

2013 Atlanta

2015 Stanford

University of BRISTOL

Münich, Germany

11-13 May, 2020 (Provisional)

🔥 Final words

- Please use social media to promote IWOCL:

    - Twitter hashtag: #IWOCL2019
    - Follow: @IWOCL

- Sign up for regular OpenCL newsletter
    - http://www.iwocl.org/opencl-newsletter/

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ENJOY IWOCL 2019!

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