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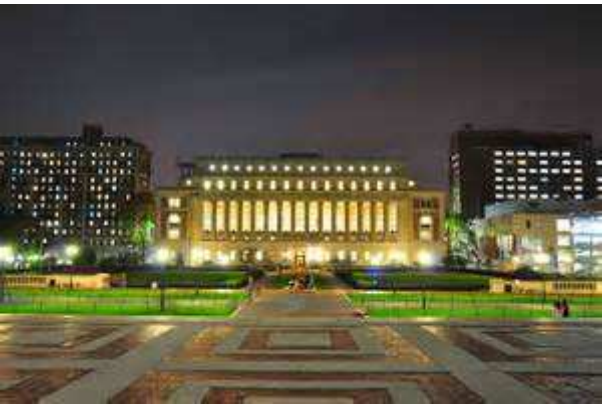
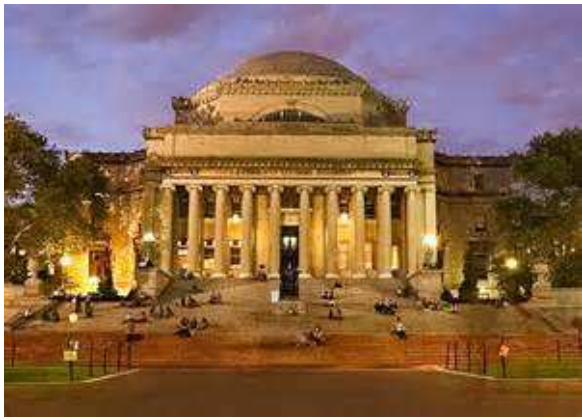


September 17-19, 2015

Columbia University
New York City



http://npc15.cs.umass.edu

Early registration extended to July 15

12th International Conference on Network and Parallel Computing

Technical Papers

Program Committee
http://npc15.cs.umass.edu/organization

SESSION 1: NETWORKS

HyperFatTree : A Large-scale Tree-based Network with Low-radix Switches,
Yong Su, Zheng Cao, Zhiguo Fan, Zhan Wan, Xiaoli Liu, En Shao, Xuejun An and Ninghui Sun.

An Opportunistic Network Coding Routing for Opportunistic Networks,
Jiansheng Yao, Chunguang Ma, Gang Du and Qi Yuan.

Parallel Algorithms for Generating Random Networks with Given Degree Sequences,
Maksudul Alam and Maleq Khan.

SESSION 2: MULTICORES AND ACCELERATORS

RECU: Rochester Elastic Cache Utility -- Unequal Cache Sharing is Good Economics,
Chencheng Ye, Jacob Brock, Chen Ding and Hai Jin.

An Optimal Page-Level Power Management Strategy in PCM-DRAM Hybrid Memory,
Jinbao Zhang, Xiaofei Liao, Hai Jin, Dong Liu, Li Lin and Kao Zhao.

Instruction Fusion for Multiscalar and Many-Core Processors,
Yaojie Lu and Sotirios Ziavras.

Two-level Task Scheduling for Irregular Applications in GPU Platform,
Jing Li, Lei Liu, Yuan Wu, Xiaobing Feng and Chengyong Wu.

Plus Posters!

SESSION 3: APPLICATIONS: SCALABILITY, VIRTUALIZATION AND SECURITY

CovertInspector: Identification of Shared Memory Covert Timing Channel in Multi-tenanted Cloud,
Sheng Wang, Weizhong Qiang, Hai Jin and Jinfeng Yuan.

Vshadow: Promoting Physical Servers into Virtualization World,
Song Wu, Yongchang Li, Xinhou Wang, Hai Jin and Hanhua Chen.

DMR: A Deterministic MapReduce for Multicore Systems,
Yu Zhang and Huifang Cao.

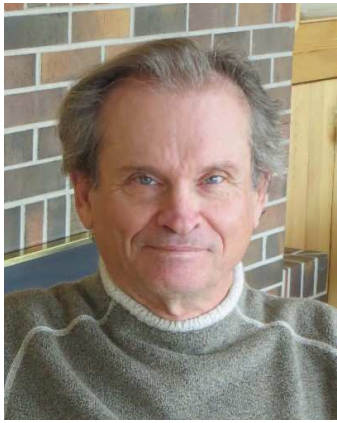
SESSION 4: PARALLELISM

Hierarchical Read-write Optimizations for Scientific Applications with Multi-variable Structured Datasets,
Preeti Malakar and Venkatram Vishwanath.

Performance Evaluation and Enhancement of Process-Based Parallel Loop Executions,
Xingjing Lu, Long Chen and Zhiyuan Li.

Determinism at Standard Library Level in Transactional Memory Based Applications,
Vesna Smiljkovic, Osman Unsal, Adrian Cristal and Mateo Valero.

Keynote



James E. Smith, Emeritus Professor – University of Wisconsin

Prof Smith received his PhD from the University of Illinois in 1976. He then joined the faculty of the University of Wisconsin-Madison, teaching and conducting research – first in fault-tolerant computing, then in computer architecture. He retired from the University of Wisconsin in 2007. He has been involved in a number of computer research and development projects, both as a faculty member at Wisconsin and in industry (Control Data Corporation, Astronautics Corporation, Cray Research, Google, and Intel).

Prof Smith has made numerous major contributions to the development of superscalar processors and in 1999 received the ACM/IEEE Eckert-Mauchly Award “for fundamental contributions to high performance micro-architecture, including saturating counters for branch prediction, reorder buffers for precise exceptions, decoupled access/execute architectures, and vector supercomputer organization memory, and interconnects.” Today, almost every microprocessor makes use of these techniques from Prof Smith.

More recently, Prof Smith has focused on the virtual machine abstraction as a technique for providing high performance and power efficiency through co-design and tight coupling of virtual machine hardware and software. He is co-author, with Ravi Nair, of a book on Virtual Machines. Currently, he works at home along the Clark Fork near Missoula, Montana.

Keynote

Kemal Ebcioğlu, President Global Supercomputing Corporation

Kemal Ebcioğlu conducted research on architectures, compilers, and languages for fine-grain parallelism at the IBM T.J. Watson Research Center, Yorktown Heights, NY, from 1986 to 2005. Dr. Ebcioğlu proposed, launched, and led pioneering IBM Research projects on fine-grain parallel architectures, including VLIW (Very Long Instruction Word) and DAISY (Dynamically Architected Instruction Set from Yorktown), a binary translation project. His last position at IBM was co-leader of Programming Model and Tools, a 40-person group that was part of a US Defense Advanced Research Projects Agency-funded IBM supercomputer research project, emphasizing high programmer productivity for HPC.

Dr. Ebcioğlu received two IBM Outstanding Technical Achievement awards, and an IBM Divisional award. In 2006, he retired from IBM and founded Global Supercomputing Corporation, where he currently is president. Ebcioğlu received a Ph.D. degree in computer science from the State University of New York at Buffalo in 1986.

Dr. Ebcioğlu has over 70 technical publications and 12 US patents. He has served as the International Federation for Information Processing Working Group 10.3 (Concurrent Systems) Chair in the period 2001-2006, and as the ACM Special Interest Group on Microarchitecture (SIGMICRO) Chair in the period 1999-2005. He has served as general chair, program chair, and steering committee chair for various conferences related to fine grain parallelism.

Dr. Ebcioğlu received the IEEE Computer Society B. Ramakrishna Rau Award in 2013, which is presented in recognition of substantial contributions in the field of computer microarchitecture and compiler code generation.

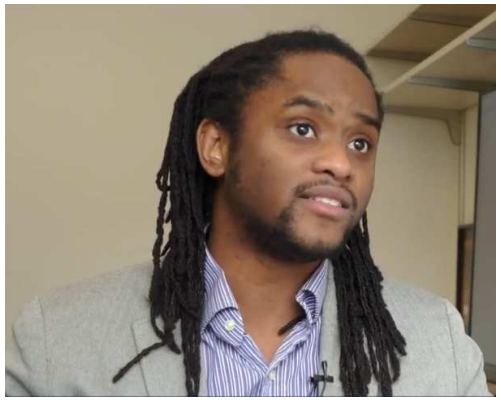
Ebcioğlu's present research interests include parallel scalable cloud computing and virtualization, high-productivity exascale systems, overcoming the memory wall barrier, and dynamic binary translation and optimization.

Panel

Resolved: "Everyone doing network and parallelism research should be doing it on mobile."

Panelists:

- Professor Jason Mars, Univ of Michigan
- Professor Vijay Janapa Reddi, Univ of Texas, Austin
- *<Others Pending>*



Saturday, September 18

OUTING

- New York 9-hour Guided Tour:
  - Times Square
    - *(Departure point)*
  - Statue of Liberty
  - Wall Street
  - Grand Central Terminal
  - Federal Hall
  - St Patrick's Cathedral
  - Empire State Building:
    - Tallest building in world for almost 40 years
  - And more
- Lunch in Little Italy.

Times Square
View Map »


Saint Patrick's Cathedral


911 Memorial & Memorial Pools


Wall Street


Grand Central Station


Little Italy


Federal Hall


Trinity Church


Statue of Liberty
Express Ticket


Statue of Liberty Pedestal
(Unique Access)


Wall Street Bull


Ticker-Tape Parade


Empire State Building
Express Ticket