# Rethinking Computer Architecture for Throughput Computing

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**Abstract.** The rise of rich media in mobile devices and massive analytics in data centers has created new opportunities and challenges for computer architects. On one hand, commercial computer organizations have been undergoing fast transformation to drastically increase the throughput of processing large amounts of data while keeping the power consumption in check. On the other hand, computer architecture has evolved too slowly to facilitate hardware innovations, software productivity, algorithm advancement and user perceived improvements. In this talk, I will present some major challenges facing the computer architecture research community and some recent advancements in throughput computing. I will conclude by arguing that we must rethink the scope of computer architecture research as we seek to create growth paths for the computer systems industry.

## Biography

Wen-mei W. Hwu is a Professor and holds the Sanders-AMD Endowed Chair in the Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. He is also CTO of MulticoreWare Inc., chief scientist of UIUC Parallel Computing Institute and director of the IMPACT research group (http://www.crhc.uiuc.edu/Impact). He directs the UIUC CUDA Center of Excellence and serves as one of the principal investigators of the $208M NSF Blue Waters Petascale computer project. For his contributions, he received the ACM SigArch Maurice Wilkes Award, the ACM Grace Murray Hopper Award, the ISCA Influential Paper Award, and the Distinguished Alumni Award in Computer Science of the University of California, Berkeley. He is a fellow of IEEE and ACM. Dr. Hwu received his Ph.D. degree in Computer Science from the University of California, Berkeley.

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