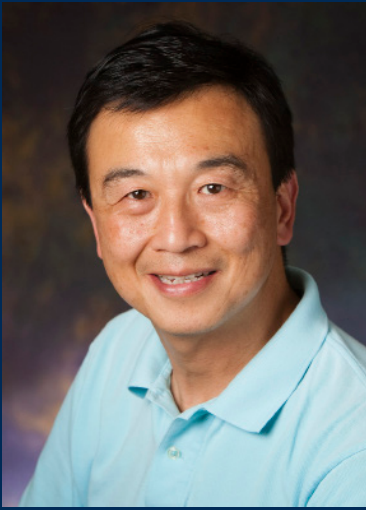


# UCI Department of Computer Science

## DISTINGUISHED LECTURE SERIES



### WEN-MEI W. HWU

Professor and Sanders-AMD Chair  
University of Illinois at Urbana-Champaign

*“Innovative Applications and Technology Pivots -  
A Perfect Storm in Computing”*

**Friday - February 10, 2017 - 11 a.m.**

Donald Bren Hall, Room 6011

*No cost to attend — Open to the public  
Seating is on a first-come, first-served basis*

### ABSTRACT

Since early 2000, we have been experiencing two very important developments in computing. One is that a tremendous amount of resources have been invested into innovative applications such as first-principle based models, deep learning and cognitive computing. Many application domains are questioning the conventional “it is too expensive” thinking that led to inaccuracies and missed opportunities. The other part is that the industry has been taking a technological path where application performance and power efficiency vary by more than two orders of magnitude depending on their parallelism, heterogeneity, and locality. Today, most of the top supercomputers in the world are heterogeneous parallel computing systems. New standards such as the Heterogeneous Systems Architecture (HSA) are emerging to facilitate software development. Much has been and needs to be learned about algorithms, languages, compilers and hardware architecture in these movements. What are the applications that continue to drive the technology development? How hard is it to program these systems today? How will we be programming these systems in the future? How will innovations in memory and storage devices present further opportunities and challenges? What is the impact of long-term software engineering cost on applications? In this talk, I will present some research opportunities and challenges that are brought about by this perfect storm.

### BIO

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. His research interests are in the area of architecture, implementation, compilation, and algorithms for parallel computing. He is the chief scientist of Parallel Computing Institute and director of the IMPACT research group ([www.impact.crhc.illinois.edu](http://www.impact.crhc.illinois.edu)). He is a co-founder and CTO of MulticoreWare. For his contributions in research and teaching, he received the ACM SigArch Maurice Wilkes Award, the ACM Grace Murray Hopper Award, the Tau Beta Pi Daniel C. Drucker Eminent Faculty Award, the ISCA Influential Paper Award, the MICRO Test-of-Time Paper Award, the IEEE Computer Society B. R. Rau Award and the Distinguished Alumni Award in Computer Science of the University of California, Berkeley. He is a fellow of IEEE and ACM. He directs the IBM-UIUC Center for Cognitive Computing Systems Research, UIUC CUDA Center of Excellence and serves as one of the principal investigators of the NSF Blue Waters Petascale computer project. Dr. Hwu received his Ph.D. degree in Computer Science from the University of California, Berkeley.

For further information, please contact  
[hbyrnes@ics.uci.edu](mailto:hbyrnes@ics.uci.edu) or go to [www.cs.uci.edu](http://www.cs.uci.edu)