Special Colloquium

UCR Mathematics Department

DR. KENNETH HO

STANFORD UNIVERSITY

"FAST DIRECT METHODS FOR STRUCTURED MATRICES"

Many linear systems arising in practice are governed by rank-structured matrices. Examples include PDEs, integral equations, Gaussian process regression, etc. In this talk, we describe our recent work on fast direct algorithms that exploit such structure. These methods are of particular interest due to their exceptional robustness and high capacity for information reuse. Our main technical achievement is a linear-complexity matrix factorization as a generalized LU decomposition. This factorization permits fast multiplication/inversion and furthermore supports rapid updating. We anticipate that such techniques will be game-changing in environments requiring the analysis of many right-hand sides or the solution of many closely related systems, such as in protein design or other inverse problems. Similar applications abound in computational statistics and data analysis.

900 University Avenue
Surge Building 2nd Floor
Riverside, CA 92521
951-827-3113

Tuesday, February 3rd, 2015

Room 284, the 2nd Floor of the Surge Building

Tea Time @ 3:40 p.m.

Talk Begins @ 4:10 p.m.

Ends @ 5:00 p.m.

UCR Department of Mathematics