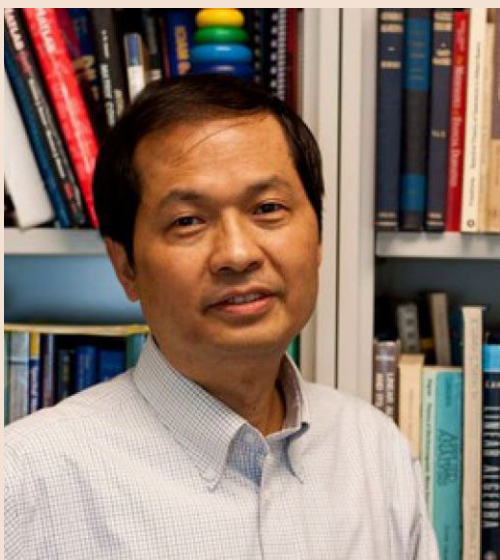


Distinguished Lecture Series

Rayleigh Quotient Optimizations and Eigenvalue Problems

Professor Zhaojun Bai



Professor of Computer Science and Mathematics, University of California, Davis

Faculty Scientist of Scalable Solvers Group, Lawrence Berkeley National Laboratory

Biography:

Zhaojun Bai is a Distinguished Professor in the Department of Computer Science and Department of Mathematics, University of California, Davis, and a Faculty Computer Scientist at Lawrence Berkeley National Laboratory. He obtained his PhD from Fudan University, China and postdoctoral fellowship from Courant Institute, New York University. His main research interests include linear algebra algorithm design and analysis, mathematical software engineering and applications in computational science and engineering, and data science. He participated in a number of synergistic projects, such as LAPACK. He is an Editor-in-Chief of ACM TOMS, and serves on editorial boards of JCM and Science China Mathematics among others. Previously, he served as an associate editor of SIMAX, vice chair of IEEE IPDPS and numerous other professional positions. He is a Fellow of SIAM.

Date: 9 December 2020 (Wednesday)

Time: 10:00-11:00 a.m. GMT+8 (Hong Kong Time)

Venue: Online via Zoom (Meeting ID: 952 3457 0738)

Abstract

Many computational science and data analysis techniques lead to optimizing Rayleigh quotient (RQ) and RQ-type objective functions, such as computing excitation states (energies) of electronic structures, robust classification to handle uncertainty and constrained data clustering to incorporate domain knowledge. We will discuss emerging RQ optimization problems, variational principles, and reformulations to algebraic linear and nonlinear eigenvalue problems. We will show how to exploit underlying properties of these eigenvalue problems for designing fast eigensolvers, and illustrate the efficacy of these solvers in applications.

✧ ✧ ✧ All are welcome ✧ ✧ ✧

For enquires please contact Ms. Claudia Chui, 3411 2348.

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