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Professional experience

Department of Computer Science, University of Colorado at Boulder, 1993 - present:
Assistant(1993-1997), Associate(1997-2004), Professor(2004-), Department Chair(2007-)

Department of Applied Mathematics, University of Colorado at Boulder, 1993 - present:
Affiliate faculty

Center for Applied Scientific Computing, Lawrence Livermore National Laboratory, Jan.
2000 - Jul. 2000: Visiting faculty

Department of Mathematics, University of Kentucky, Aug. 1990 - Aug. 1993: Assistant
Professor

Army High Performance Computing Research Center and Department of Computer Sci-
ence, University of Minnesota, Aug. 1992 - Jan. 1993: Visiting fellow

Mathematics and Computer Science Division, Argonne National Laboratory, 1992 sum-
mer: Visiting faculty

Department of Computer Science, Yale University, Aug. 1989 - Jul. 1990: Postdoc

Education

PhD(1989) and **MSc**(1988) in Mathematics, Courant Institute, New York University

BSc(1984) in Mathematics, Beijing University

Publications: 10 relevant

1. C. Yang, J. Cao, and X.-C. Cai, *A fully implicit domain decomposition algorithm for shallow water equations on the cubed-sphere*, SIAM J. Sci. Comput., 32 (2010), pp. 418-438
2. A. Barker and X.-C. Cai, *Scalable parallel methods for monolithic coupling in fluid-structure interaction with application to blood flow modeling*, J. Comput. Phys., 229 (2010), pp. 642-659
3. C. Jin and X.-C. Cai, *A preconditioned recycling GMRES solver for stochastic Helmholtz problems*, Commun. Comput. Phys., 6 (2009), pp. 342-353
4. C. Jin, X.-C. Cai, and C. Li, *Parallel domain decomposition methods for stochastic elliptic equations*, SIAM J. Sci. Comput., 2 (2007), pp. 2096-2114

5. F.-N. Hwang and X.-C. Cai, *A class of parallel two-level nonlinear Schwarz preconditioned inexact Newton algorithms*, Computer Methods in Applied Mechanics and Engineering, 196 (2007), pp. 1603-1611
6. E. Prudencio and X.-C. Cai, *Parallel multilevel restricted Schwarz preconditioners with pollution removing for PDE-constrained optimization*, SIAM J. Sci. Comput., 29 (2007), pp. 964-985
7. S. Ovtchinnikov, F. Dobrian, X.-C. Cai, and D. Keyes, *Additive Schwarz-based fully coupled implicit methods for resistive Hall magnetohydrodynamic problems*, J. Comput. Phys., 225 (2007), pp. 1919-1936
8. E. Prudencio, R. Byrd, and X.-C. Cai, *Parallel full space SQP Lagrange-Newton-Krylov-Schwarz algorithms for PDE-constrained optimization problems*, SIAM J. Sci. Comput., 27 (2006), pp. 1305-1328
9. F.-N. Hwang and X.-C. Cai, *A parallel nonlinear additive Schwarz preconditioned inexact Newton algorithm for incompressible Navier-Stokes equations*, J. Comput. Phys., 204 (2005), pp. 666-691
10. X.-C. Cai and D. E. Keyes, *Nonlinearly preconditioned inexact Newton algorithms*, SIAM J. Sci. Comput., 24 (2002), pp. 183-200

Synergistic activities

- Awards: NSF Young Investigator Award (1994-1999)
- Editorial Board: Numerical Linear Algebra and Applications (2003-), Journal of Algorithms and Computational Technology (2005-), SIAM J. Sci. Comput. (special issues 2004-2008)
- Recent Program Committee Member: The 8th IMACS International Symposia on Iterative Methods in Scientific Computing, 2006, 7th International Meeting on High Performance Computing for Computational Science, 2006, Copper Mountain Conference on Iterative Methods, 2004-2010, Vecpar 2006-2010, Scalable Parallel Algorithms for Partial Differential Equations, 2008 (co-chair).

Personal doctoral and post-doctoral supervisors

O. Widlund (NYU), D. Keyes (Columbia), W. Gropp (UIUC)

Doctoral and post-doctoral students supervised

J. Shao, M. Sarkis, M. Paraschivoiu, A. Aitbayev, M. Murillo, H. Sterck, L. Marcinkowski, E. Prudencio, X. Yue, F.-N. Hwang, W. Schreuder, J. Wilson, S. Ovtchinnikov, C. Jin, C. Yang, A. Barker, S. Liu