Russell Carden

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Education

Rice University,
Department of Computational and Applied Mathematics
Doctorate of Philosophy **April 2009-August 2011**
Adviser: Dr. Mark Embree
PhD Thesis "Ritz Values and Arnoldi Convergence for Hermitian Matrices".
Master of Arts **June 2007- April 2009**
Masters Thesis "Ritz Values and Arnoldi Convergence for Nonsymmetric Matrices"

Texas A&M University-Corpus Christi,
Department of Mathematics
Master of Science **January 2004 - May 2007**
Masters Thesis "Acceleration of New Iterations for Linear Systems and their Preconditioners"

Texas A&M University-Kingsville,
Department of Physics
Bachelors of Science **July 1998 - May 2002**

Publications

Carden, Russell L., Embree, Mark. Ritz Value Localization for non-Hermitian matrices. In preperation.

Carden, Russell L., Hansen, Derek. Ritz values of normal matrices and Ceva's theorem. Submitted December 2011.

Carden, Russell L. A simple algorithm for the inverse field of values problem. Inverse Problems 25 (2009), 115019.

Carden, Russell L., Tarazaga, Pablo. Sequential iterations for two diagonal preconditioners. Comput. Math. Appl. 58 (2009), no. 1, 88–94.

Honors

SIAM Student Paper Prize (one of three awarded), 2010

Inverse Problems article selected for "IOP Select" designation, 2009

Gene Golub Summer School on Numerical Linear Algebra, Brindisi, Italy, 2010

Rice Harianna Butler Scholarship for 2010

Refereed a paper for Linera Algebra and its Applications

Experience

Postdoctoral Instructor, Rice CAAM Department (Fall 2011-present). Taught a section of Matrix analysis. Worked with Dan Sorensen on software for the Discrete Empircal Interpolation method for Model Reduction. Looking into inverse spectral problems with Steve Cox. Continued working with Mark Embree.

Graduate Research Assistant, Rice CAAM Department (2008-2011). Worked with Professor Mark Embree on problems related to my PhD.

Lab Instructor, Rice CAAM Department (Fall 2010-Spring 2011). Held recitation and operated physical lab for matrix analysis. Students perform experiments that illustrate and utilize techniques from matrix analysis.

Teaching Assistant, Rice CAAM Department (2008-2009). Held recitation and developed homework solutions for the following courses: Computational Science, Matrix Analysis, and Differential Equations.

Teaching Assistant, TAMUCC Mathematics Department (2006). Conducted computer labs for the following courses: Calculus I & II and Statistics for Life Sciences.

Graduate Research Assistant, Center for Water Supply Studies at TAMUCC (2005-2007). Worked on a bacteria loading model for the Oso Creek Total Maximum Daily load program for fecal indicator bacteria.

Engineer, C^2 Services of Robstown, TX(2001-2006). Designed controllers and automation systems for chemical injection pumps. Worked with Microchip brand microcontrollers. Controllers were for Txam limited of Corpus Christi, TX.

Undergraduate Research Assistant, TAMUK Physics Department (2000-2002). Worked under Daniel J. Suson, assisting in the study of the Data Acquisition system of the Gamma Ray Large Area Space Telescope. Included an internship at the Naval Research Laboratory as part of the ASEE Summer Faculty Research program.

Lab Instructor, TAMUK Physics Department (1999-2002). Managed three section of the freshman astronomy lab during the fall and spring semesters.

Presentations

A Simple Algorithm for the Inverse Field of Values Problem. Society for Industrial and Applied Mathematics Annual Meeting, Pittsburgh, PA, July 2010.

A Simple Algorithm for the Inverse Field of Values Problem. International Linear Algebra Society Conference, Pisa, Italy, June 2010.

Eigenvalues and the Inverse Field of Values Problem. Fourth Annual Texas Applied Math Meeting for Students, University of Houston, March 2010.

A Simple Algorithm for the Inverse Field of Values Problem. Fourth Annual Texas Applied Math Meeting for Students, University of Houston, March 2010.

A Simple Algorithm for the Inverse Field of Values Problem. Graduate Seminar, Rice University, October 2009.

Ritz Values and Restarted Arnoldi for Non-Self Adjoint Matrices. Graduate Seminar, Rice University, November 2008

Extension and Acceleration of Diagonal Preconditioners. Joint Mathematics Meeting, New Orleans, LA, January 2007.

DAQEngine: A Tool for Studying GLAST's Data Acquisition System, by Russell Carden, Danielle Rabidas & D.J. Suson. Presented at the Spring joint meeting of the Texas section of the APS/AAPT, Sam Houston State U., Mar. 1-3, 2001.

Study of the Effect of Tower Failure on Event Reconstruction for GLAST, by Danielle Rabidas, D.J. Suson & Russell Carden. Presented at the Fall joint meeting of the Texas section of the APS/AAPT, Texas Christian U., Oct. 4-6, 2001.

Study of the Effectiveness of a Four Layer Hardware Trigger for GLAST, by Russell Carden, D.J. Suson & Danielle Rabidas. Presented at the Fall joint meeting of the Texas section of the APS/AAPT, Texas Christian U., Oct. 4-6, 2001.

Graduate Course Work

Analysis I	A	Analysis II	A
Numerical Analysis I	A+	Numerical Analysis II	A-
Computational Science I	A	Computational Science II	A
Dynamical Systems	A	Methods of Mathematical Physics	A
PDEs of Mathematical Physics	A+	Applied Functional Analysis	A+
Numerical Linear Algebra	A	Numerical Methods for PDEs	A+
Optimization Theory	A+	Intro to Random Processes	A+
Graph Theory	A	Applied Matrix Analysis	A

Computer Skills

Languages: C/C++, Python, Matlab, and Assembly.

Standard Numerical Packages: BLAS, LAPACK, ADOL-C

Parallel Computation: MPI, PETSC.

Operating System: Linux, Windows.

References

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