Jeffrey M. Hokanson

Curriculum Vitae · 23 April 2018

Department of Computer Science
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Education

Ph.D. Computational and Applied Mathematics, Rice University, December 2013
  Thesis: *Numerically Stable and Statistically Efficient Algorithms for Large Scale Exponential Fitting*
  Advisors: Mark Embree and Steven Cox

M.A. Computational and Applied Mathematics, Rice University, May 2009
  Thesis: *Magnetic Damping of an Elastic Conductor*
  Advisors: Mark Embree and Steven Cox

B.S. Physics, Rice University, May 2007, cum laude

Appointments

Postdoctoral Fellow, University of Colorado at Boulder (September 2017 – present)
  Advisor: Paul G. Constantine

Postdoctoral Fellow, Colorado School of Mines (October 2016 – September 2017)
  Advisor: Paul G. Constantine

Postdoctoral Fellow, University of Texas MD Anderson Cancer Center (March 2014 – September 2016)

Funding

Cancer Center Support Grant: New Technology Grant PHS398
  Web User Interface for High Parametric Analysis (PI)
  Co-PI: Jared Burks
  $30,000 (2014)

Journal Publications

4. Jeffrey M. Hokanson and Paul G. Constantine
   Data-driven Polynomial Ridge Approximation Using Variable Projection
   accepted, SIAM Journal on Scientific Computing
   arXiv:1702.05859

3. Jeffrey M. Hokanson
   Projected Nonlinear Least Squares for Exponential Fitting
   SIAM Journal on Scientific Computing, Volume 39 No. 6 (2017) pp. A3107–A3128
   arXiv:1508.05890

2. Paul G. Constantine, Armin Eftekhari, Jeffrey Hokanson, and Rachel A. Ward
   A Near-stationary Subspace for Ridge Approximation
   Computer Methods in Applied Mechanics and Engineering, Volume 326 (Nov 2017) pp. 402–421
   arXiv:1606.01929

1. Steven J. Cox, Mark Embree, and Jeffrey M. Hokanson
   One Can Hear the Composition of a String: Experiments with an Inverse Eigenvalue Problem
   SIAM Review, 54 (2012) pp. 157–178

Submitted Manuscripts

1. Jeffrey M. Hokanson
   A Data-Driven McMillan Degree Lower Bound
   arXiv:1803.00043

Other Publications

1. Steven J. Cox, Mark Embree, Jeffrey M. Hokanson
   CAAM335 Matrix Analysis: Physical Laboratory
   available at: `http://www.caam.rice.edu/caam335lab`

Invited Talks

5. *Exploiting Ridge Structure in Chance-Constrained Design Under Uncertainty*
   Stanford, 2017

4. *Exploiting Ridge Structure in Chance-Constrained Design Under Uncertainty*
   Sandia National Labs, 2017

3. *Using Projected Nonlinear Least Squares to Measure Eigenvalues*
   Tufts University, 2017

2. *Trading Statistical Efficiency for Speed in Parameter Estimation Problems*
   Virginia Tech, 2015

1. *Fast Automatic System Identification Using Optimization*
   Katholieke Universiteit Leuven, 2010

Conference Presentations

8. *Exploiting Ridge Structure in Bayesian Inference*,
   SIAM UQ18, Orange County, CA, 2018

7. *Data-driven Polynomial Ridge Approximation Using Variable Projection*,
   15th Copper Mountain Conference on Iterative Methods, Copper Mountain, CO, 2018

6. *Data-driven Polynomial Ridge Approximation Using Variable Projection*,
   3rd Annual Meeting of SIAM Central States Section, Fort Collins, CO, 2017

5. *Projected Nonlinear Least Squares for Impulse Response System Identification*, 3rd Annual Meeting of
   SIAM Central States Section, Fort Collins, CO, 2017

4. *Fast Data-Driven System Identification from Impulse Response Measurements*
   SIAM Conference on Computational Science and Engineering, Atlanta, GA, 2017

3. *Fast Minimum Uncertainty Estimates for the Exponential Fitting Problem*
   SIAM Annual Meeting, Boston, MA, 2016

2. *CLEAN Corrects Variation in Sample Preparation*
   CYTO2016, Seattle, WA, 2016

1. *Fast Automatic System Identification Using Optimization*
   16th Congress of the International Linear Algebra Society, Pisa, Italy, 2010

Conference Posters

7. *Exploiting Ridge Structure in Chance Constrained Design Under Uncertainty*
   SIAM UQ18, Orange County, CA, 2018

6. *Data-driven Polynomial Ridge Approximation Using Variable Projection*
   Conference on Data Analysis (CoDA), Santa Fe, NM, 2018

5. *Data-driven Polynomial Ridge Approximation Using Variable Projection*
   Statistical Perspectives on Uncertainty Quantification, Atlanta, GA, 2017

4. *Data-driven Polynomial Ridge Approximation Using Variable Projection*
   USACM Workshop on Uncertainty Quantification and Data-Driven Modeling, Austin, TX, 2017

3. *Data-driven Polynomial Ridge Approximation Using Variable Projection*
   SIAM Conference on Computational Science and Engineering, Atlanta, GA, 2017

2. *High Dimensional Cytometry Data Visualization Using Parallel Coordinates*
   CYTO2016, Seattle, WA, 2016

1. *Speeding Large Nonlinear Least Squares Problems by Near-Optimal Data Compression*
   MMDS, Berkeley, CA, 2014

Teaching Experience

CAAM 335 Lab: Matrix Analysis Laboratory, Rice University
   Teaching Assistant
   Fall 2007, Spring 2008, Fall 2009, Spring 2010

CAAM 336: Differential Equations in Science and Engineering, Rice University
   Instructor of Record
   Fall 2010, Spring 2012

Mentoring

Ibrohim Nosirov, Science Fair, March 2017-present
   placed 2nd in Medical and Health Science, Colorado State Science Fair, 2017

Workshops

Gene Golub SIAM Summer School, Selva di Fasano, Italy, 2010

Model Reduction of Transport-dominated Phenomena, Berlin, Germany, 2015

Other Funding

Gene Golub SIAM Summer School Travel Award, 2010

Shared Resource Lab Travel Award ($1000), 2016

USACM Travel Award ($1000), 2017

SIAM Travel Award for DR17 ($650), 2017

Service

President, Rice University SIAM Student Chapter, May 2008 – May 2009

Referee: SIAM Journal on Scientific Computing

References

Mark Embree, Virginia Tech, `embree@vt.edu`

Paul Constantine, University of Colorado at Boulder, `Paul.Constantine@colorado.edu`

Mike Wakin, Colorado School of Mines, `mwakin@mines.edu`