Michael McCourt – Biographical Sketch

Professional Preparation  
 Illinois Institute of Technology Applied Mathematics B. S. 2007

Cornell University Applied Mathematics M. S. 2009  
 Cornell University Applied Mathematics Ph. D. 2013

Appointments  
 University of Colorado Denver Visiting Assistant Professor 2013-present  
 Illinois Institute of Technology Research Assistant Professor 2013

Argonne National Laboratory Short Term Appointment 2012-2013

Products

Closely Related Results

1. G. Fasshauer, M. McCourt, Stable computation of Gaussian RBF interpolants. SIAM Journal on Scientific Computing, 34(2):A737-A762, 2012. <http://dx.doi.org/10.1137/110824784>
2. M. McCourt, G. Fasshauer, Stable Likelihood Computation for Gaussian Random Fields. Submitted. <http://math.iit.edu/~mccomic/gaussqr/mlegrf.pdf>
3. R. Cavoretto, G. Fasshauer, M. McCourt, An Introduction to the Hilbert-Schmidt SVD using Compact Matern Kernels, Numerical Algorithms, in press. <http://math.iit.edu/~mccomic/gaussqr/hssvd.pdf>
4. M. McCourt, Using Gaussian eigenfunctions to solve boundary value problems. Advances in Applied Mathematics and Mechanics, 5:569-594, 2013. DOI: 10.4208/aamm.13-13S08
5. M. McCourt, G. Fasshauer, H. Bian, S. Ganci, GaussQR: Stable Gaussian Computation. (a software package in Matlab) <http://math.iit.edu/~mccomic/gaussqr/>

Other Significant Results

1. G. Ala, G. Fasshauer, E. Francomano, S. Ganci, M. McCourt, The Method of Fundamental Solutions in Solving Coupled Boundary Value Problems for M/EEG, submitted. <http://math.iit.edu/~mccomic/gaussqr/brainmfs.pdf>
2. M. McCourt, T. D. Rognlien, L. C. McInnes, H. Zhang, Improving parallel scalability for edge plasma transport simulations with neutral gas species. Computational Science & Discovery, 5:014012, 2012. <http://iopscience.iop.org/1749-4699/5/1/014012/article>
3. M. McCourt, B. Smith, H. Zhang, Efficient Sparse Matrix-Matrix Products Using Colorings, SIAM Journal on Matrix Analysis and Applications, in press. Preprint: ANL/MCS-P5007-0813. <http://www.mcs.anl.gov/publication/efficient-sparse-matrix-matrix-products-using-colorings>
4. M. Denker, J. Duan, M. McCourt, Pseudorandom numbers for conformal measures. Dynamical Systems, 24(4):439-457, 2009. DOI: 10.1080/14689360903002019
5. M. McCourt, N. Dovidio, M. J. Gilbert, Spectral methods for resolving spike dynamics in the Geirer-Meinhardt model. Communications in Computational Physics, 3:659-678, 2008.

Synergistic Activities

1. Development of new curricular material for a class in meshfree approximation taught at the Illinois Institute of Technology.
2. Mentored REU students on numerical methods with positive definite kernels; resulting work has contributed to publications.
3. Development of the GaussQR and related algorithms involving the Hilbert-Schmidt SVD for stable computation of approximations involving positive definite kernels.
4. Reviewer for American Mathematical Society Mathematical Reviews.

Collaborators & Other Affiliations

Collaborators and Co-Editors:

* Guido Ala University of Palermo
* Roberto Cavoretto University of Turin
* Greg Fasshauer Illinois Institute of Technology
* Elisa Francomano University of Palermo
* Salvatore Ganci University of Palermo
* Lois Curfman McInnes Argonne National Laboratory
* Tom Rognlien Lawrence Livermore National Laboratory
* Barry Smith Argonne National Laboratory
* Hong Zhang Argonne National Laboratory

Graduate Advisor

Charles Van Loan Cornel University