

NAN JIANG

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EMPLOYMENT

Postdoctoral Associate Researcher

*Department of Scientific Computing
Florida State University, Tallahassee, FL, USA
Advisor: Professor Max Gunzburger*

January 2015 - present

EDUCATION

Ph.D. Mathematics

*University of Pittsburgh, Pittsburgh, PA, USA
Advisor: Professor William Layton*

August 2010 - December 2014

B.S. Information & Computing Science

Xi'an Jiaotong University, Xi'an, Shanxi, China

September 2006 - July 2010

Minor Diploma of Finance

Xi'an Jiaotong University, Xi'an, Shanxi, China

July 2010

TEACHING EXPERIENCE

Teaching Assistant, *Department of Mathematics, University of Pittsburgh*

Fall 2010 - Spring 2014

- MATH0420: Introduction to Analysis *Fall 2013*
- MATH0240: Analytic Geometry and Calculus III *Fall 2013*
- MATH0230: Analytic Geometry and Calculus II *Fall 2011, Summer 2012, Spring 2014*
- MATH0220: Analytic Geometry and Calculus I *Spring 2011, Fall 2011*
- MATH0120: Business Calculus *Spring 2011, Spring 2012*

RESEARCH INTEREST

- Computational Fluid Dynamics and Numerical Analysis: Navier-Stokes Equations, Turbulence Models
- Reduced Order Modeling: Proper Orthogonal Decomposition
- Ensemble Simulation Models and Algorithms
- Nonlocal Models for Anomalous Diffusion: Fractional Laplacian
- Uncertainty Quantification, Stochastic Flow Control

PUBLICATIONS

1. N. Jiang and W. Layton. "An Algorithm for Fast Calculation of Flow Ensembles", *International Journal for Uncertainty Quantification*, 4 (2014), 273-301.
2. N. Jiang and W. Layton. "Numerical Analysis of Two Ensemble Eddy Viscosity Numerical Regularizations of Fluid Motion", *Numerical Methods for Partial Differential Equations*, 31 (2015), 630-651.
3. N. Jiang. "A Higher Order Ensemble Simulation Algorithm for Fluid Flows," *Journal of Scientific Computing*, 64 (2015), 264-288.
4. N. Jiang, S. Kaya and W. Layton. "Analysis of Model Variance for Ensemble Based Turbulence Modeling," *Computational Methods in Applied Mathematics*, 15 (2015), 173-188.
5. N. Jiang, M. Kubacki, W. Layton, M. Moraiti and H. Tran. "Unconditional Stability of A Crank-Nicolson Leap-Frog Stabilization and Applications", *Journal of Computational and Applied Mathematics*, 281 (2015), 263-276.

6. N. Jiang and H. Tran. "Analysis of A Stabilized CNLF Method with Fast Slow Wave Splittings for Flow Problems," *Computational Methods in Applied Mathematics*, 15 (2015), 307-330.
7. N. Jiang and W. Layton "Algorithms and Models for Turbulence Not At Statistical Equilibrium," *Computers and Mathematics with Applications*, 71 (2016), 2352-2372.

PROJECTS IN PROGRESS

1. N. Jiang, M. Mohebujjaman, L. Rebholz and C. Trenchea. "Analysis of A Family of Regularization Methods for Navier-Stokes Equations," *Computer Methods in Applied Mechanics and Engineering*, in press, 2016.
2. N. Jiang. "A Second Order Ensemble Method Based On A Blended BDF Timestepping Scheme for Time Dependent Navier-Stokes Equations," *Numerical Methods for Partial Differential Equations*, in press, 2016.
3. M. Gunzburger, N. Jiang and M. Schneier. "An Ensemble- Proper Orthogonal Decomposition Method for the Nonstationary Navier-Stokes Equations," *submitted to SIAM Journal on Numerical Analysis*, 2016.
4. M. Gunzburger, N. Jiang and F. Xu. "A Closure Model Based On Fractional Laplacian for Turbulent Fluid Flows," *in preparation*, 2015.

PRESENTATIONS

- A Fast Algorithm to Compute Flow Ensembles**", *Invited Talk, Workshop on Numerical Analysis and Predictability of Fluid Motion, University of Pittsburgh, Pittsburgh, PA, May 2016.*
- New Algorithms and Models for Computing Fluid Flow Equations**", *Colloquium Talk, Department of Mathematics and Statistics, Missouri University of Science and Technology, Rolla, MO, March 2016.*
- An Algorithm for Fast Calculation of Flow Ensembles**", *Invited Talk, Mini-symposium on Recent Advances in Numerical Methods for Fluid Flow with Applications, The 40th SIAM Southeastern Atlantic Section Conference (SIAM-SEAS), Athens, GA, March 2016.*
- Analysis of A New Algorithm for Ensemble Calculation**", *5th Clemson University SIAM Chapter Conference, Clemson University, Clemson, SC, Feb 2013.*

AWARDS AND HONORS

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| Andrew Mellon Predoctoral Fellowship , University of Pittsburgh | <i>Fall 2014</i> |
| Summer Fellowship , Department of Mathematics, University of Pittsburgh | <i>July, Aug 2012</i> |
| National Inspirational Scholarship , Ministry of Education of China | <i>Sep 2008, Sep 2009</i> |
| Xi'an Jiaotong University Excellent Student , Xi'an Jiaotong University | <i>Sep 2008, Sep 2009</i> |
| Siyuan Scholarship , Xi'an Jiaotong University | <i>Sep 2007</i> |
| Siyuan Freshman Scholarship , Xi'an Jiaotong University | <i>Mar 2007</i> |

REFEREEING ACTIVITIES

- Journal Referee:**
 Advances in Numerical Analysis;
 Applied Mathematics and Computation;
 Applied Numerical Mathematics;
 Computers and Mathematics with Applications;
 Discrete and Continuous Dynamical Systems - Series B;
 International Journal of Numerical Methods for Heat and Fluid Flow;
 Journal of Mathematical Analysis and Applications;
 Journal of Computational and Applied Mathematics;

OTHER RESEARCH EXPERIENCE

Workshop on Nonlocal Models in Mathematics, Computation, Science, and Engineering, Oak Ridge National Laboratory, Oak Ridge, TN, USA *Oct 26-28, 2015*

Workshop on Turbulent Transport and Mixing, Institute for Pure & Applied Mathematics, UCLA, Los Angeles, CA, USA *Oct 13 - Oct 17, 2014*

Workshop on Mathematical Analysis of Turbulence, Institute for Pure & Applied Mathematics, UCLA, Los Angeles, CA, USA *Sep 29 - Oct 3, 2014*

Internship at Argonne National Laboratory, Lemont, IL, USA *May 27 - July 31, 2014*

Workshop on Proven Algorithmic Techniques for Many-core Processors, Pittsburgh Supercomputing Center, Pittsburgh, PA, USA *Aug 13-17, 2012*

Internship at the Key Laboratory of Mathematics-Mechanization, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China *August 2009*

SKILLS

Programming: Matlab, SAS, FreeFem++, FEniCS, C, C++

Operating Systems: Windows, Mac OS X, Linux