

Erich L Foster

CONTACT INFORMATION	McBryde Hall 461J Department of Mathematics Virginia Polytechnic Institute and State University Blacksburg, Virginia 24061	Phone: (540) 738-0593 Fax: (540) 231-5960 E-mail: erichlf@vt.edu Homepage: www.math.vt.edu/people/erichlf
RESEARCH INTERESTS	Large Eddy Simulation, Finite Element Methods, Climate/Ocean Modeling, Hydrogeology, Contaminate Transport.	
EDUCATION	Virginia Polytechnic Institute and State University , Blacksburg, Virginia <i>Ph.D. Candidate, Applied Mathematics</i> Expected: May 2013 <ul style="list-style-type: none">• Dissertation Topic: “Large Eddy Simulation and Finite Elements for Ocean Modeling”• Advisor: Traian Iliescu Virginia Commonwealth University , Richmond, Virginia <i>M.Sc., Mathematics</i> 2008 – 2009 <ul style="list-style-type: none">• Thesis Topic: “An Agent Based Gene Flow Model for <i>Cornus florida</i>”• Advisor: David Chan University of Nevada Reno , Reno, Nevada <i>M.Sc., Hydrogeology</i> 2003 – 2006 <ul style="list-style-type: none">• Thesis Topic: “An Improved Numerical Result for Henry’s Problem of Seawater Intrusion”• Advisor: Stephen Wheatcraft <i>B.Sc., Applied Mathematics</i> 1999 – 2003 Selected Course Work: Partial Differential Equations, Numerical Methods, Linear Algebra, Computer Science, Physics, and Chemistry.	
SKILLS	Operating Systems: Linux, Mac OS X, Windows. Programming: FORTRAN 95, Matlab, L ^A T _E X, Perl, C++, Python, Java. Software: COMSOL, Excel, MODFLOW, Aquifer Win32, ArcGIS 9.X.	
PUBLICATIONS	<ol style="list-style-type: none">4. E. Foster, and J. Overfelt. Clipping of Arbitrary Polygons with Degeneracies. Submitted, 20123. E. Foster, T. Iliescu, and D. Wells. A Two-Level Finite Element Discretization of the Streamfunction Formulation of the Stationary Quasi-Geostrophic Equations of the Ocean. Submitted, 20122. E. Foster, T. Iliescu, and Z. Wang. A Finite Element Discretization of the Streamfunction Formulation of the Stationary Quasi-Geostrophic Equations of the Ocean. Submitted, 20121. E. Foster, D. Chan, and R. Dyer. Gene Flow Modelling by Correlated Random Walk. Submitted, 2012	
PRESENTATIONS	<ul style="list-style-type: none">• Sandia Student Intern Program, Poster Presentation, Albuquerque, NM. 02 August 2012• Clemson/Pitt/UTK/VT Graduate/Postgraduate SIAM Student Conference, Blacksburg, VA. 03 March 2012• SIAM Student Chapter Colloquium, Blacksburg, VA. 06 October 2011• American Geophysical Union, Poster Presentation, AGU Fall Meeting, San Francisco, CA. 05-09 December 2005	
PROFESSIONAL EXPERIENCE	Sandia National Labs , Albuquerque, New Mexico, <i>Graduate Student Intern</i> Summer 2012 Developed a polygon clipping algorithm, which effectively dealt with degeneracies, for use in the	

Community Climate System Model (CCSM). The associated FORTRAN code was developed to take advantage of High Performance Computing/Parallel Computing.

Virginia Polytechnic Institute and State University, Blacksburg, Virginia

Research Assistant

2011 – Present

Developed a Large Eddy Simulation Approximate Deconvolution model for the Pure Streamfunction formulation of the Quasi-Geostrophic Flow Equations. Developed an optimal error estimate for a high order finite element discretization (Argyris Finite Element) of the Pure Streamfunction formulation of the Quasi-Geostrophic Flow Equations.

Teaching Assistant

2009 – 2011

- Math 1205: Calculus I
- Math 1224: Vector Geometry

Virginia Commonwealth University, Richmond, Virginia

Research Assistant

2008 – 2009

Developed an agent based model to simulate the gene flow in *Cornus florida*.

Teaching Assistant

2008

- Math 131: Introduction to Contemporary Mathematics

Virginia Department of Environmental Quality, Richmond, Virginia

Groundwater Modeler

2006 – 2008

Analyzed regional aquifer response to groundwater withdrawals, calculating areas of impact and the response of the seawater toe, along the Coastal Plane and Eastern Shore of Virginia using MODFLOW and SHARP (a sharp interface seawater intrusion model).

INTERA Inc., Las Vegas, Nevada

Groundwater Modeler

2005 – 2006

Wrote scripts to parse out and collect data for pre and post processing of Monte Carlo simulations of large scale flow and transport models, for the DOE's Nevada Test Site, across multiple computer nodes.

University of Nevada Reno, Reno, Nevada

Research Assistant

2004 – 2005

Developed code to solve the Henry's Problem of Seawater Intrusion.

Teaching Assistant

2003 – 2004

- Math 128: Trig and Algebra

United States Navy, Norfolk, Virginia

Nuclear Electrician's Mate

1996 – 1998

Operated the electrical plant and propulsion system aboard a nuclear submarine; maintaining proper load balance, and preventing loss of power.

PROFESSIONAL
SOCIETIES

Society for Industrial and Applied Mathematics (SIAM)
American Mathematical Society (AMS)
Mathematical Association of America (MAA)