

## RITCHIE

**OBJECTIVE** To obtain a challenging position as a mathematician/statistician that utilizes my programming and problem solving expertise to analyze and develop solutions to real world problems.

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**SKILLS & ABILITIES** MATLAB, GetFEM++, Minitab, Microsoft Excel, Microsoft Word, Microsoft PowerPoint, LaTeX, Python, SAS, Maple, HTML, Javascript, Unix/Linux

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**EDUCATION** **ROCHESTER INSTITUTE OF TECHNOLOGY MSc APPLIED AND COMPUTATIONAL MATHEMATICS 3.92**  
Data Structures I & II (Python), Scientific Computing, Methods of Applied Mathematics, Numerical Partial Differential Equations, Stochastic Processes, Finite Element Method, Computational Optimization, Statistics, Probability  
**ROCHESTER INSTITUTE OF TECHNOLOGY BSc ECONOMICS 3.47**  
Financial Analysis and Modeling, Economic Forecasting, Applied Econometrics, Corporate Finance, International Trade and Finance, Industrial Organization, Benefit\_cost Analysis

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**PROFESSIONAL EXPERIENCE** **STATISTICAL ANALYST AND MODELING ASSISTANT, CERION ENERGY, I 09/2012- PRESENT**  
Interpret quantitative data and design statistical models for analyzing complex systems. Researching and modeling chemical reactions and colloidal interactions while utilizing Matlab. Training employees in programming and solving differential equations with Matlab.  
**PORTFOLIO ANALYST ASSISTANT, WELLS FARGO INSURANCE SERVICES 05/2011-08/2011**  
Optimize retirement funds by choosing a diversified portfolio of stock and mutual funds in order to balance risk and return. Researched IPOs, mutual funds, and technology equities.

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**RESEARCH EXPERIENCE** **RIT SCHOOL OF MATHEMATICAL SCIENCES 2011- PRESENT**

- Identifying variable coefficients in fourth order and parabolic differential equation.
- Comparing computational efficiency of various methods for minimizing cost functionals in inverse problems context.

**RIT DEPARTMENT OF ECONOMICS 2009-2011**  
Performed rigorous time series analysis of Chemical, Biological, Radiological, and Nuclear international terrorism incidents by use of forecasting techniques under the direction of Professor Shatakshee Dhongde.

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**TEACHING EXPERIENCE** **RIT SCHOOL OF MATHEMATICAL SCIENCES- TEACHING ASSISTANT - 2011-2013**  
Taught Calculus I, II, and III to undergraduate students in an interactive classroom setting and graded homework and classwork for 150+ students each quarter.

**RIT DEPARTMENT OF ECONOMICS AND HIGHER EDUCATION OPPORTUNITY PROGRAM - ECONOMICS TUTOR – 2008-2011**

Assisted individual undergraduate students in learning introduction to microeconomic and macroeconomic theory.

**RIT ACADEMIC SUPPORT CENTER – SUPPLEMENTAL INSTRUCTION LEADER – 2009-2010**

Taught undergraduate students study skills through introduction to macroeconomic theory and psychology in a group setting

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**PUBLICATIONS**

Bush, N. (2013). Numerical Methods for Solving Inverse Problems in Parabolic and Fourth Order Partial Differential Equations. Graduate Thesis, Rochester Institute of Technology. (To be submitted 08/2013)

Bush, N., Jadamba, B., Khan, A., & Raciti, F. (2013). Numerical Identification of a Parameter in Fourth-Order Partial Differential Equations by an Equation Error Approach. Mathematica Slovaca. (Accepted for Publication)

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**PRESENTATIONS**

**JOINT MATHEMATICS MEETING – SAN DIEGO – 2013**

Identification of a Variable Parameter in Fourth-Order Partial Differential Equations by an Equation Error Approach. AMS Special Session on Set-Valued Optimization and Variational Problems with Applications.

**AMS EASTERN SECTIONAL MEETING – ROCHESTER – 2012**

Solving the Inverse Parabolic Problem of Recovering Implied Local Volatility. Special Session on Inverse Problems and Nonsmooth Optimization

**ROCHESTER INSTITUTE OF TECHNOLOGY GRADUATE RESEARCH & CREATIVITY SYMPOSIUM – 2012**

Identifying Local Volatility in Option Pricing Models

**UNDERGRADUATE PRESENTATIONS OF CBRN TERRORISM RESEARCH:**

- Rochester Institute of Technology Undergraduate Research Conference 2009, 2010, and 2011
- Defense Threat Reduction Agency Conference 2010
- New York State Economics Association 2010