Yevgeniy Frenkel

Postdoctoral Fellow

New York, NY
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Willing to relocate: Anywhere
Authorized to work in the US for any employer

WORK EXPERIENCE

Postdoctoral Fellow

Courant Institute of Mathematical Sciences, NYU - New York, NY - 2009 to May 2015

• Designed stochastic models for tropical convection (see refs. 1, 2, 3, 10, 11). Used Python, MATLAB and Fortran to develop numerical algorithms for evolution of PDEs coupled to stochastic lattice
• Used unsupervised learning methods (clustering and principle component analysis) and time series analysis to interpret data
• Developed spectral decomposition based adaptive data coarse-graining methods and tools for “on-the-fly” statistical analysis (see refs 10,11)
• Derived mean field limit equations for stochastic tropical atmosphere models and analyzed stability of the solutions using Floquet theory (see refs. 1, 6, 7, 8)
• Applied filtering and information theory techniques to atmospheric models (see refs. 4)
• Mentored graduate students and gave lectures in graduate special topic seminars on filtering, information theory and turbulence

Research Assistant, Department of Mathematics

Rensselaer Polytechnic Institute - 2004 to 2008

• Applied stochastic optimization techniques and numerical methods for partial differential equations to problems in nonlinear optics (see ref. 9)

• Developed an innovative approach of solving two point boundary value problems by stochastic optimization methods such as simulated annealing (see ref. 9)

• Constructed numerical evolution schemes for solving hyperbolic PDEs in Matlab (see ref. 9)

• Conducted recitations as teaching assistant for Calculus, Linear Algebra and Discrete Structures

Research Assistant, Department of Economics

Colgate University - 2002 to 2003

• Developed platform in Java for running group game theory experiments on the local network

• Analyzed statistics of experiments in SAS and constructed regression models

EDUCATION

Ph.D in Applied Mathematics

Rensselaer Polytechnic Institute
2008

B.A. in Mathematics
Colgate University
2004

SKILLS

Linear and logistic regression, generalized linear model, neural networks and support vector machines •Principle component analysis, clustering, SVD and spectral methods •Stochastic modeling, optimization, filtering, time series analysis and applied information theory

AWARDS

NSF Research Training Groups Fellowship
September 2007

Rensselaer Polytechnic Institute Teaching Fellowship
September 2004

Louis Calder Foundation Scholarship for academic excellence
September 2003

PUBLICATIONS

1. Frenkel Y., A. J. Majda and B. Khouider (2013), Stochastic and Deterministic Multicloud parameterizations for tropical convection, Clim. Dynam., Vol. 41, Issue 5-6, pp 1527-1551

2. Frenkel Y., B. Khouider and A. J. Majda (2012), Using the Stochastic Multicloud Model to Improve Tropical Convective Parameterization: A Paradigm Example, J. Atmos. Sci., Vol. 69, Issue 3, pp. 1080-1105

3. Brenowitz N., Y. Frenkel and A. J. Majda (2014), Improving mass flux parameterizations through stochastic non-local convergence, Clim. Dynam., submitted

4. Majda A.J., M. Branicki and Y. Frenkel (2011), Improving Complex Models Through Stochastic Parameterization and Information Theory , ECMWF-WCRP, Thorpex Workshop on Model Uncertainty

5. Majda A.J., Y. Frenkel and B. Khouider (2013), Effects of rotation and mid-troposphere moisture on organized convection and convectively coupled waves, J. Atmos. Sci., submitted

6. Frenkel Y.,B. Khouider and A. Majda (2011), Simple multicloud models for the diurnal cycle of tropical precipitation. Part I: Formulation and the case of the tropical, J. Atmos. Sci.,Vol.68, Issue 10, 2169–2190.

7. Frenkel Y.,B. Khouider and A. Majda (2012), Simple multicloud models for the diurnal cycle of tropical precipitation. Part II: The continental regime, J. Atmos. Sci., Vol.58, Issue 10, pp. 2192–2207.

8. Frenkel Y.,B. Khouider and A. Majda (2011), Simple multicloud models for the diurnal cycle and convectively coupled waves, Ther. Comp. Fluid Dyn., Vol.27, Issue 3-4, pp. 533–559

9. Frenkel Y., and V. Roytburd (2009), Traveling solitary waves for Maxwell-Duffing Media: Computation via simulated annealing, Appl. Math. Letters, Vol. 22 pp. 1112-1116