

Summary

- Extensively experience in algorithm development, experimental data regression analysis, using statistics, advanced calculus, partial differential equations, Fourier analysis, complex analysis, linear algebra, matrix theory, combination theory, LAPACK, IMSL, and
- Experience in using C, C++ ,MatLab, Perl, Unix, SQL relational database, ClearCase, MS Excel and Access
- Knowledge in stock and bond pricing, investment asset allocation, Capital Asset Pricing Model, derivative securities pricing, and arbitrage strategies

Experience

Staff Mathematician

Lockheed Martin, Ridgecrest, California

09/2007 – present

Research Scientist

09/2007

08/2006 –

AquaWorld Technologies, Aurora, Illinois

- Developed algorithms for X-ray Bragg peak phase retrieval and non-periodic object reconstruction, using MatLab: these algorithms make one step forward toward determining protein crystal structures using the X-ray scattering intensities alone

Research Scientist

07/2002 – 08/2006

The University of Chicago, Chicago, Illinois

- Developed comprehensive algorithms to study bio-molecular structures in transition states, with computer simulations, using statistics and combination theory
- Developed algorithms to study X-ray mirror focusing capability with gravity effect considerations
- Carried out theoretical studies of X-ray Bragg peak phase retrieval, using Hybrid-Input-Output algorithms
- Conducted theoretical studies of non-periodic object reconstruction from X-ray scattering intensities alone, with computer simulations, using dual-space iterative algorithms
- Developed a multi-user, multi-threaded, socket communication oriented program with both Client and Server side implementations, using Java and SQL

Software Engineer

8/1998 – 2/2002

Lucent and Armillaire, Naperville, Illinois

- Telecommunication software development with multi-threading, using C, C++, Perl, Unix, ClearCase, UML
- Graduate level classes (at IIT): data structures in C++, SQL database, and ATM data networks
- Created interactive web pages for developers and managers to assign, resolve, modify, and search software product bugs and fixes, using Perl

Software Developer

7/1997 – 3/1998

SPSS, Chicago, Illinois

- Developed statistics software, using FORTRAN

Research Associate

10/1993 - 8/1997

The University of Chicago, Chicago, Illinois

- Developed algorithms and performed extensive numerical analysis to obtain liquid metal surface structures from X-ray reflectivity and grazing incidence diffraction studies, using statistical physics, thermodynamics, quantum mechanics, electrodynamics, calculus, partial differential equations, Fourier transform, nonlinear least-square fitting, LAPACK, C, and Unix; the liquid surface height-height correlation was theoretically derived, using equipartition theorem and the X-ray reflectivity was computed from the height-height correlation function

coupled with proposed surface structures; the theoretical expression was used to fit the experimental data and expected values for the liquid surface tension and the parameters associated with surfaced structures were obtained

Research Assistant

8/1988 – 10/ 1993

Rutgers University and Exxon Research Laboratory, New Brunswick, New Jersey

- Carried out extensive numerical analysis, using calculus, complex analysis, Fourier transform, linear algebra, partial differential equations, matrix theory, statistical physics, thermodynamics, quantum mechanics, electrodynamics, nonlinear least-square fitting, FORTRAN/VMS, IMSL, and Cray X-MP
- Developed algorithms to study fluid membrane undulation correlations, using equipartition theorem; the theoretical membrane thermal undulation correlation expression was used to fit the experimental data and the expected value and standard deviation for the membrane bending rigidity were obtained
- Developed algorithms to study the resolution function for a high-resolution-small-angle X-ray spectrometer

Teaching Assistant

9/1985 – 8/1988

Rutgers University, New Brunswick, New Jersey

Summer Internship

1986

Fermi National Laboratory, Batavia, Illinois

- Accomplished a computer graphic project to display high-energy particle trajectories from experimental data, using FORTRAN

Education

Ph.D., Physics, Rutgers University, New Brunswick, New Jersey

1993

B.S., physics, Fudan University, Shanghai, China

1984

- Exxon Graduate Student Research Fellowship
- have an Advanced GRE in Physics score of 990 out of 1000

Personal

- Citizen of the United States