Shi Guo

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SUMMARY

9 years of programming experience in c++ and Java in both research and industry.
5 years of computational physics research focusing on quantum Monte Carlo simulation.
5 years of experience of production data analysis using python with scipy, pandas library.
[**External Project**] Implemented and coded option pricing algorithms(analytical and Monte Carlo) based various different models(Black-Scholes, Heston, Stochastic jump diffusion).

SKILLS

Programming: C++, Java, Python Scripting(Numpy), Matlab, Linux(Bash Script, Vim)
Coursework and Certificate: Probability and Measure Theory, Stochastic Calculus, Machine Learning and Deep Learning, SAS(Regression and Modeling Certificate), Algorithms and Data Structure.

EXPERIENCE

Application Engineer, Advantest America, Inc. July.2013-Feb.2020
Developed and delivered system on chip(SoC) test programs for Advantest 93K automated tester platform.

Achievement Highlights

- Developed test methods in C++/java for DC test, digital test, RF(Transmitter/Receiver) test.
- Developed universal test method library for On-Die Parametric test on different TI DSP device, provide device characterization results to R&D.
- Built data analysis tool using python(including scipy, pandas library) to do data analysis.

Research Assistant, Department of Physics, North Carolina State University, Jun.2009-Jun.2013
Conducted computational physics research focusing on electronic structure using quantum Monte Carlo method, developed and maintained computational software code in C++ for 3 years.

Achievement Highlights

- Conducted quantum Monte Carlo research(an algorithm based on stochastic process and Brownian motion with drift and branching).
- Applied quantum Monte Carlo to evaluate the expectation value of physical quantities for solid state and semiconductor systems.
- Carried out numerical wavefunction optimizations(steep descent, quasi-Newton, etc.) to reduce the data fluctuation.
- Evaluated the dipole moment of weakly bonded ultracold molecules precisely and provided the data with good quality to research funding agency.
- Developed, contributed quantum Monte Carlo software package by designing every class and method independently using C++(10k lines) to calculate spin-orbit interaction.

EDUCATION

- **Ph.D Physics**
  North Carolina State University, Raleigh, NC, USA, Dec.2013 GPA:3.63/4.0
- **B.S. Physics**, **Minor in Economics**
  Shanghai Jiaotong University, Shanghai, China, Jun.2007