Shi Guo

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Summary

10 years of extensive coding experience in c++ and Java, from both research and industry.
5 years of experience in computational physics focusing on quantum Monte Carlo simulation.
Strong math and algorithm background in linear algebra, statistics, numerical optimization.

EXPERIENCE

Principal Software Engineer, Cadence Design Systems, Inc. Nov.2020- Now
Designed and developed analog circuit simulation software Spectre using c++. Responsible for postlayout EMIR analysis feature.

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

Research Assistant, Department of Physics, North Carolina State University, Jun.2009-Jun.2013
Developed large-scale computation algorithms. Research focusing on computational physics modeling on electronic structure using quantum Monte Carlo method. Developed and maintained computational software code in C++.
Achievement Highlights

- Conducted parallel-computing simulations using first-principle methods, including Density Functional Theory, Quantum Monte Carlo, etc.
- Evaluated the dipole moment of weakly bonded ultracold molecules precisely and provided the data with good quality to research funding agency.
- Introduced new mathematical models for electron spin, built into the existing algorithm, redesigned every class and method in source code independently using C++(10k lines) for spin-orbit interaction calculation.
- Performed the first successful calculation in literature on spin-orbit effects of two dimensional electron gas in semiconductor devices.

EDUCATION

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

PUBLICATION

- **Shi Guo**, Michal Bajdich, Lubos Mitas and Peter J. Reynolds; Study of dipole moments of LiSr and KRb molecules by quantum Monte Carlo methods; Molecular Physics Vol. 111, Iss. 12-13,2013
- Cody A. Melton, Minyi Zhu, **Shi Guo**, Alberto Ambrosetti, Francesco Pederiva, and Lubos Mitas; Spin-orbit interactions in electronic structure quantum Monte Carlo methods; Phys. Rev. A 93, 042502