

# Shi Guo

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## Summary

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

## EXPERIENCE

**Application Engineer**, Advantest America, Inc. July.2013-Now

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, provided device characterization results to R&D.

**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.

**Teaching Assistant** Department of Physics, North Carolina State University, Sep.2007- May.2011

### Achievement Highlights

- One-to-one tutor for undergraduate math and physics for two semesters.
- Led physics labs of undergraduate physics for two semesters.
- Grader for undergraduate and graduate physics classes.

## 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