Dong Zhou

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Summary

A scientist and programmer. Author of 30+ journal articles with 1000+ citations. Reviewer for 10+ journals. Familiar with magnetic resonance imaging, quantum computing, and biophysics.

Skills

Python, C/C++, Go, Matlab, AWS, SQL
Computational physics/mathematics, Image processing, Machine learning
Mathematical modeling, Optimization with regularization, Stochastic processes

Experience

- Senior scientist, Schrödinger Inc. 2016-now

  Implement library for molecular dynamics trajectories analysis using Python and C++. Maintain atom mapping module (subgraph isomorphism) for free energy perturbation. Maintain scientific computing services using AWS, Go, Python, PostgreSQL, and Polymer.js.

- Postdoc in radiology, Weill Medical College of Cornell University 2012–2016

  Solved ill-posed inverse problems in medical imaging such as magnetic susceptibility and susceptibility tensor imaging, magnetic quadrupole imaging, phase unwrapping, etc, using Matlab, C, and C++. Developed probes for transcranial magnetic stimulation, both in simulation using COMSOL multiphysics, and on hardware.

- Postdoc in physics, Yale University 2011–2012

  Developed state preparation scheme using quantum bath engineering and two-qubit CNOT gate scheme using adiabatic phase on circuit QED systems (3D transmon). Simulated these schemes using Python package QuTip.

- Research assistant, University of Wisconsin-Madison 2007–2011

  Solved open quantum systems dynamics in the presence of classical noises (stochastic processes) both analytically and numerically using Matlab and C++. Developed schemes for quantum gate, quantum control, and entanglement preparation for quantum dot systems. Developed algorithm for graph isomorphism problem using continuous-time quantum random walk. Performed X-ray diffraction and synchrotron radiation (X-ray absorption near edge spectroscopy and microscopy) experiments on nacre and other biological samples.

Education

- Ph.D in physics, University of Wisconsin-Madison (GPA 4.0) 2006–2011
- Graduate study in physics, University of Georgia-Athens (GPA 4.0) 2004–2006
- B.S. in physics, Honored Mixed Class, Zhejiang University, China (GPA 3.8) 2000–2004

Honors and Awards

- International Society for Magnetic Resonance in Medicine (ISMRM) Merit Award, Magna Cum Laude, 2014
- International Student Academic Achievement Award, UW-Madison, 2011
- Ray and Anne Herb Award for Wisconsin Distinguished Graduate Fellowship, 2008
- Emanuel R. Piore Award for Highest Scorer on the Qualifier Exam, UW-Madison, 2007
- University Housing's Favorite Instructor Award for Fall 2006, UW-Madison, 2006
- Van Vleck Fellowship for Graduate Students in Physics, UW-Madison, 2006
- Honored Graduate of Zhejiang University, China, 2004
- Honorary Enrollment, Zhejiang University, China, 2000
- Tan Jiazhen (C. C. Tan) Scholarship for Outstanding High School Student in Biology, 1999
- Kang Hui Scholarship for Highest Scorer in High School Entrance Exam, Hangzhou, China, 1996

Patents

1. *Magnetic resonance imaging systems and methods for optimized parallel receive, excite, and shim (oPRES)*
   Hui Han, Yi Wang, John Stager, Junghun Cho, and **Dong Zhou**, pending