Dong Zhou

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Summary

Scientist and programmer. Author of 30+ papers with 1000+ citations, Erdös number ≤ 5. Familiar with magnetic resonance imaging, quantum computing, and biophysics.

Skills

Python, Go, C/C++, aws/gcloud
Computational physics/mathematics, Image processing, Machine learning

Experience

- Senior scientist/Senior developer I, Schrödinger Inc. 2016-present

  Implement crystal structure prediction library (Python). Implement analysis library for molecular dynamics trajectories (Python, C++). Maintain scientific computing web services for FEP+ (aws/gcloud, Go, Python, PostgreSQL, gRPC, Docker, Polymer.js). Maintain atom mapping module (subgraph isomorphism) for free energy perturbation. Design and implement various other APIs for the FEP+ products.

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

  Solved ill-posed inverse problems such as magnetic susceptibility and susceptibility tensor imaging, magnetic quadrupole imaging, 3D phase unwrapping (Matlab, C/C++). Developed probes for transcranial magnetic stimulation both in simulation (COMSOL multiphysics) and on hardware (electronics, 3D printing).

- Postdoc in physics, Yale University 2011–2012

  Developed state preparation scheme using quantum bath engineering, and adiabatic phase based two-qubit CNOT gate scheme on circuit QED hardware (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 stochastic noises both analytically and numerically (Matlab). 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 experiments and data analyses for nacre and other biological samples (machining, X-ray diffraction, X-ray absorption near edge spectroscopy and microscopy using synchrotron radiation). Implemented GUI program for spectra analysis (KaleidaGraph).

Education

- Ph.D in physics, University of Wisconsin-Madison (GPA 4.0, CR 71) 2006–2011
- Graduate study in physics, University of Georgia-Athens (GPA 4.0, CR 49) 2004–2006
- B.S. from Honored Mixed Class, Zhejiang University, China (GPA 3.8, CR 196) 2000–2004