Bin Shi

Personal Data

Place and Date of Birth:	Hubei Province, China|17th May 1994
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Project Experience

Current
Sept. 2016

Graduate Student, Hangzhou
Quantum Control and Quantum Information

1. Quantum Optimal Control. Time scaling transformation was introduced into GRAPE to improve the theoretical fidelity of quantum states and to shorten the numerical optimal time, by which the time period was unequally divided.

2. Quantum Parametric Oscillators. The harmonic oscillators were studied which were connected by a periodic or quasi-periodic coupling and interacting with a common heat bath. Parametric excitation with multiple driving terms could determine whether entanglement survived. Role of frequencies was also studied.

3. Other research includes the optimal control of NMR, superconducting quantum system and NV center. The underway research includes the Quantum Zermelo Navigation, the systems with switched potential wells.

June 2016
Sept. 2015

Senior Project, Hangzhou
Tip Control of the Flexible Beam Driven by Linear Motors

Modeled the flexible beam driven by linear motors, linearized the nonlinear cantilever system by modal analysis and truncation, identified the parameters of the hardware platform by frequency-domain analysis and designed a controller (*PID and fuzzy control*). The paper was rated as excellent graduation thesis of Zhejiang University.

Aug. 2015
July. 2015

Summer Intern at Googoltech, Shenzhen
Singularity Analysis based on Product of Exponentials (POE)

Analyzed the singularities of the industrial robot arm, built the kinematics and inverse kinematics of the robot arms in Googoltech using DH and POE respectively, on Matlab and compared the two modeling methods.

June 2015
Sept. 2014

ZJUDancer Participator, Hangzhou
Robocup Humanoid League Kidsize Soccer Competition

Calibrated the exterior parameters of the soccer robots as a member of the gait group of ZJUDancer, designed new postures and checked parameters to make sure that robots could fulfill the designated movements accurately.

Jan. 2015
Sept. 2013

PROW Participator, Hangzhou
Painting Robots On Web (PROW)

Modeled the self-designed 4-dof robot arm and planned the trajectories. The project aimed at drawing a portrait of a person after taking a picture. The project was rated as excellent Student Research Training Program of Zhejiang University.

EDUCATION

MAR. 2019 (EXPECTED)	Master's Degree in CONTROL SCIENCE AND ENGINEERING **Zhejiang University**, Hangzhou Field of Research: Quantum Optimal Control	Advisor: Prof. Chao XU GPA: 90.77/100
JUNE 2016	Bachelor's Degree in MECHATRONICS , **Zhejiang University**, Hangzhou Thesis: "Tip control of the flexible beam driven by linear motor based on vibration modal analysis"	Advisor: Prof. XiaoCong ZHU Overall GPA: 3.67/4.0 (83.88/100) The last two years GPA: 3.86/4.0 (87.16/100)

PUBLICATIONS AND WORKING PAPERS

B.Shi, C.Xu, et al. Frequency Control of Entanglement in Quantum Parametric Oscillators, *Physical Review A*, under review.

B.Shi, C.Xu, R.Wu, Time Scaling Transformation in Quantum Optimal Control Computation, *37th IEEE Chinese Control Conference*, 2018, accepted. (Finalists of IEEE Control Systems Society (CSS) Beijing Chapter Young Author Prize)

CERTIFICATES AND MAJOR HONORS

JUNE	2018	TOEFL®: 96 (R:28; L:20; S:23; W:25)
JULY	2017	GRE®: 318 (Q:170;V:148) 97;39th percentile; AWA: 4.0/6.0 (60th percentile)
JUNE	2016	Certificate of Chu Kochen Honors Program, Zhejiang University
DEC.	2015	Scholarship for Excellence in Research and Innovation, ZJU
JULY	2015	Robocup Humanoid League Kidsize Soccer Competition **2nd place**
FEB.	2015	Mathematical Contest In Modeling (MCM) **Meritorious Winner**
SEPT.	2011	Chinese Mathematical Olympiad In Senior **Provincial 1st division**

LANGUAGES

CHINESE:	Mothertongue
ENGLISH:	Fluent

COMPUTER SKILLS

Basic Knowledge:	PYTHON, LINUX, Adams, Ansys, Proteus
Intermediate Knowledge:	MATLAB, LaTeX, C/C++, CAD, Solidworks, Photoshop

INTERESTS AND ACTIVITIES

Academic Interests:	Quantum control and quantum information; Dynamic systems and control; Robotics
Potential Interests:	Artificial Intelligence; Biophysics
Hobbies:	Cinematographic and Literature Art, Swimming, Badminton
Social Activity:	Two-Star Volunteer, Zhejiang University Vice-monitor (2013-2015)
Teaching Assistant:	Object Oriented Programming (C++), undergraduate level