

YUFANG JIN

(Curriculum Vitae)

1513 River Reach Dr. #238
Orlando, FL 32828
Tell: (321) 662 - 6033 (C)
(407) 823 - 0190 (O)
Email: yjin@pegasus.cc.ucf.edu
Webpage: <http://pegasus.cc.ucf.edu/~yjin>

RESEARCH INTERESTS

- Vision Based Control for Mobile Robot, Trajectory Planning
- 2-D Objects Recognition
- Observer Design for Nonlinear Systems
- Synchronization and Parameter Estimation of Chaotic Systems
- DSP Based Control Application in Power Electronics

EDUCATION

- **Ph.D.EE** Systems, Control and Robotics, Department of Electrical and Computer Engineering, University of Central Florida, Expected May 2004, Advisor: Zhihua Qu
- **M.S.EE** Systems, Control and Robotics, Department of Electrical and Computer Engineering, University of Central Florida, December 2002
- **M.S.EE** Navigation, Guidance and Control, Chinese Academy of Aviation, China, March 1997
- **B.S.EE** Computer and Automation, Zhengzhou University, China, July 1994

HONORS AND AWARDS

- Excellence Award in Application of a Job Well Done, Microtronic Inc., 2001
- Enhancement Fellow of University of Central Florida, 2000
- Provost Awards of University of Central Florida, 1999
- Award for Excellent Master Thesis, Chinese Academy of Aviation, China, 1997
- Best Paper Award in Conference of Central China Inertia Navigation Association (CCINA), Chengde, China, Aug 1997
- University Scholarship of the Second Class, Zhengzhou University, China, 1990-1994

PROFESSIONAL EXPERIENCE

- **Research Experience**

Research Assistant, Department of Electrical and Computer Engineering, UCF, 08/99 -- Present

Undertook and applied fundamental research in nonlinear dynamic system, extreme control for converter in power electronic, and object recognition for vision based control for mobile robot; Published and presented papers in journals and conferences. Experienced projects include:

- 1) Observer design and parameter estimation of chaotic system
- 2) Fault-tolerant and self-recovery control for nonlinear system
- 3) Robust control of nonlinear system with unknown exogenous system

- 4) Near-optimal control of robotic systems
- 5) 2-D shape recognition using recursive landmark
- 6) DSP based control of Maximum Power Point Tracking (MPPT) of solar array
- 7) Readability of damaged character on semiconductor wafer, funded by Microtronic Inc.

- **Teaching Experience**

Instructor / Teaching Assistant, Department of Electrical and Computer Engineering, UCF

Teach class; Prepare and design assignments; Help students with their assignments and projects; Supervised newsgroups; Gave lab lectures and Marked assignments;

- 1) Undergraduate course: Signal Analysis and Communications, Instructor, UCF, Spring 2004
- 2) Graduate course: adaptive control, UCF, Spring/2003
- 3) Undergraduate course: Engineering Applications of Intelligent systems, UCF, Fall/2001
- 4) Undergraduate course: Computer Communication Networks, UCF, Fall/2001
- 5) Undergraduate course: Linear Control Systems, UCF, Fall/1999
- 6) Teaching Training from Faculty Center for Teaching and Learning (FCTL), University of Central Florida, 1999, 2000

- **Industry Experience**

Co-op, Microtronic Inc. Orlando, FL, 01/00 -- 06/03

Developed commercial software package of wafer inspection system for semiconductor industry. The system is designed to detect scratches and defects on semiconductor wafers. It's running in Agere System, Orlando, FL, and is also under test in Texas Instrument, Texas.

- 1) Developed GUI and wafer inspection system for process residue defects and scratches on semiconductor process wafer in C++
- 2) Integrated SQL database for wafer inspection system
- 3) Developed motion control software and control algorithm for 2-axis motors with NI data acquisition and motion control cards
- 4) Developed serial port communication between wafer handling robot and inspection system

Electrical Engineer, Luoyang Optoelectronic Equipment Research Institute, China, 07/95 -- 07/99

Participated in developing navigation, guidance and control (NGC) package for 6-degree-of-freedom hardware in Loop simulation platform for aircraft with INS/GPS; Managed project of target recognition with ultrasonic image;

- 1) Studied mid-term navigation and guidance accuracy of fight vehicles
- 2) Designed motion controller with TI DSP processor
- 3) Recognized targets with ultrasonic image

PUBLICATIONS

- **Journal:**

1. Yufang Jin, Zhihua Qu, "Adaptive synchronization and parameter estimation of Lorenz system", will submit to IEEE transactions on Circuits and Systems I: Fundamental Theory And Application.
2. Zhihua Qu, Ihlefeld C.M, Yufang Jin, Apiwat Saengdeejing, "Robust control of a class of nonlinear uncertain systems. Fault tolerance against sensor failures and subsequent self recovery," Transactions on Automatica, Vol. 39, No.10, Oct 2003

3. Zhihua Qu, Yufang Jin, “*Robust control of nonlinear systems in the presence of unknown exogenous dynamics*,” IEEE Transactions on Automatic Control, Vol.48, No. 2, Feb 2003
4. Zhihua Qu, Yufang Jin, “*A new nonlinear near-optimal control for space robotic systems*,” International Journal of Robotics and Automation, Vol. 18, No. 4, 2003
5. Dave Desrochers, Yufang Jin, Zhihua Qu, and Apiwat Saengdeejing, “*Algorithms to Generate Partially Damaged Characters and Readability Study for Autonomous Optical Character Recognition (OCR) Readers in Semiconductor Manufacturing*”, To appear International Journal of Computers and Applications, Vol. 27, No.1, 2005
6. Apiwat Saengdeejing, Zhihua Qu, N.Chaeroenlap and Yufang Jin, “*2-D shape recognition using recursive landmark determination and fuzzy ART network learning*, ” To appear Neural Processing Letters

- **Conference:**

1. Yufang Jin, Zhihua Qu, “*Stability analysis for a class of nonlinear systems with injected small persistent excitation signals*,” Prepared for Conference on Decision and Control 2004,
2. Yufang Jin, Zhihua Qu, “*Synchronization of Lorenz systems by adaptive observation*,” American Control Conference, Jun 2003, P3305-3310
3. Zhihua Qu, Yufang Jin, “*A new nonlinear near-optimal control for space robotic systems*,” The 2002 International Conference on Control and Automation, Xiamen, China, June16-19 2002, P119-225
4. Yufang Jin, Zhihua Qu, “*A nonlinear observer design for secure communication*,” the 4th international Conference on Nonlinear Problems in Aviation and Aerospace, Melbourne, FL, USA, May 2002
5. Zhihua Qu, Yufang Jin, “*Robust control of nonlinear systems in the presence of unknown Exogenous Dynamics*,” Proceedings of the 40th IEEE Conference on Decision and Control, Vol. 3, P2784 –2790
6. Zhihua Qu, Ihlefeld C.M, Yufang Jin, Apiwat Saengdeejing, “*Robust control of a class of nonlinear uncertain systems. Fault tolerance against sensor failures and subsequent self recovery*,” Proceedings of the 40th IEEE Conference on Decision and Control, Vol. 2, P1472-1478
7. Roger W. Johnson, Zhihua Qu, Sanjay Jayaram, Yufang Jin, “*Autonomous Satellite Health Monitoring and Control Systems: Redundancy and Fault Tolerance*,” the 4th international Conference on Nonlinear Problems in Aviation and Aerospace, Melbourne, FL, USA, May 2002
8. Roger W. Johnson, Zhihua Qu, Sanjay Jayaram, Yufang Jin, “*Autonomous spacecraft vehicle Health monitoring and control system based on real-time model-based simulation*,” Intelligence Systems & Control Conference, IASTED, Clearwater, FL, USA, Nov, 2001
9. Yufang Jin, Yimin Du, “*Combined navigation and simulation of flight vehicle. Accuracy of mid-term navigation*,” Conference of Central China Inertia Navigation Association, Chengde, China, Aug, 1997

- **Thesis And Technical Reports**

1. Yufang Jin, Apiwat Saengdeejing, Xiaohe Wu, Zhihua Qu, “*Final Report On EagleView and OCR Reader*”, Technical Report to Microtronic Inc. June, 2003

2. Yufang Jin, "Targets Recognition with Ultrasonic Pond Measurement", Technical Report to Luoyang Optoelectronic Equipment Research Institute, Dec. 1998
3. Yufang Jin, "*Combined Navigation and Simulation of Flight Vehicles*," Master Thesis, Mar, 1997

PROFESSIONAL ACTIVITIES

- Service, FIRST Regional Robotics Competition, Orlando, FL 2003
- Paper presenter at the 4th International Conference on Nonlinear Problems in Aviation and Aerospace CNPAA, 2002
- Volunteer of the 40th IEEE Conference on Decision and Control, Orlando, FL, 2001
- Student Member of Institute of Electrical and Electronics Engineers (IEEE)

PEFERENCES

- Professor Zhihua Qu (Ph.D. Advisor)
Department of Electrical and Computer Engineering
University of Central Florida
P.O.Box 162450, Orlando, FL 32816-2450
(407) 823-0189
Email: qu@mail.ucf.edu
- Professor Wasfy B. Mikhael
Fellow IEEE
Department of Electrical and Computer Engineering
University of Central Florida
P.O.Box 162450, Orlando, FL 32816-2450
(407) 823-3210
Email: mikhael@mail.ucf.edu
- Professor Issa Bartarseh
Interim Chair of Department of Electrical and Computer Engineering,
University of Central Florida
P.O.Box 162450, Orlando, FL 32816-2450
(407) 823-0185
Email: batarseh@mail.ucf.edu
- Professor S. Roy Choudhury
Department of Mathematics, University of Central Florida
P.O.Box 162450, Orlando, FL 32816-2450
(407) 823-2635
Email: choudhur@longwood.cs.ucf.edu
- Assistant Professor Thomas Xinzhang Wu
Department of Electrical and Computer Engineering,
University of Central Florida
P.O.Box 162450, Orlando, FL 32816-2450
(407) 823-5957
Email: tomwu@mail.ucf.edu