

# YAO WANG

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## OBJECTIVE

To apply a full time engineer position in industry

## EDUCATION

**M.S., Mechanical Engineering**, July 2008

**State University of New York at Buffalo, Buffalo NY, USA**

- Advisor: Prof. Venkat N. Krovi
- Thesis: Symbolic Kinematics and Dynamics Analysis and Control of a General Stewart Parallel Manipulator

**B.S., Mechanical Engineering**, July 2006

**University of Science and Technology Beijing, Beijing, P. R. China**

- Advisor: Prof. Changsong Wang
- Thesis: Software Programming of Quasi-Dynamic Mechanical Properties Testing Experiment on the Crack Areas
- Distinguished UG thesis, 15 of 300 in Mech. Engineering Dept., 120 of 2400 in class

## WORKING EXPERIENCE

**CAD Engineer, Internship**, Jun 2007 - present

**Ethox International, Inc., Buffalo NY**

- Generating detailed Solid Works and AutoCAD drawings, parts and assemblies of various medical equipment and devices based on ANSI standards.
- Editing and updating existing drawings and database according to Engineering Changes standards to reflect the latest designs.

**Student Assistant**, Feb 2008 - May 2008

**CAD Application Grader, State University of New York at Buffalo**

## SKILLS

### Computation/Simulation Tools

MATLAB/Simulink, Real-Time Windows Target, xPC Target, SimMechanics, Symbolic Math Toolbox, Maple/DynaFlexPro, BlockBuilder for Simulink, AUTOLEV, LabVIEW

### Computer Aided Design

AutoCAD, Solidworks, SolidEdge, Pro/ENGINEER, Mechanical Desktop, Dynamic Designer, Visual Nastran

### Programming Languages

Visual Basic, C, VC++

### Animation/Graphical/Web Software

Dreamweaver MX, Premiere, Fireworks, 3D MAX, LabelMaster

### Operating Systems & Platforms

Windows 98, 2000, XP/Vista, UNIX, Linux

### Other software

Microsoft Office Package

### Hardware/Electronics

Basic Stamp, Intel 8051

### Language

Mandarin Chinese, English and Sichuan dialect

## RESEARCH EXPERIENCE

**Dynamic Modeling and Real-Time Simulation of Parallel Manipulators**, Aug 2007 – July 2008

- Explored the symbolic kinematic and dynamic analysis using DynaFlexPro under Maple and MATLAB/Simulink environment

- The software was reviewed in detailed and used to model the 6 DOF Stewart platform. Both forward and inverse dynamic models were developed
- Control using stabilizing inverse dynamics was implemented to enhance trajectory tracking of the system

### **Software Programming of Quasi-Dynamic Mechanical Properties Testing Instrumentation for Crack Areas in Metallic Samples, Mar 2006 – Jul 2006**

- Developed an integrated computer software framework for the *State Key Laboratory for Advanced Metals and Materials* to assist the national standardization establishment of quasi-dynamic mechanical properties of crack area within metallic samples using Nano Indenter II.
- Constructed a Visual Basic-based framework consists of GUI that facilitates: (a) automated load and displacement data acquisition through RS-232 interface, and (b) graphical and numerical data logging and display.

## **ACADEMIC PROJECTS**

### **Kinematics and Dynamics Analysis of an Astronaut in the Space, Spring 2007**

- Constructed closed-form analytical dynamic equations of an astronaut in the space using models with various degree-of-freedom using Kane's Method in AUTOLEV.

### **Hands-on Design, Implementation and Prototyping of Mechatronics Systems, Spring 2007**

- Wireless Distributed Sensing/Control Framework for iRobot *Create* Mobile Robot Platform.
- Digital Multimeter Prototype with Ohmmeter, A/D Voltmeter and D/A Voltage Converter.
- Burglar Alarm System Prototype.

### **Four-Bar Kinematic and Dynamic Analysis, Animation and Optimization, Aug 2005, Fall 2006**

- Constructed a Visual Basic-based GUI framework that allows recursive inverse kinematics and dynamic analysis and animation based on user's parametric.
- Programmed an optimization-based synthesis using *genetic algorithm* to achieve shortest path and structural compactness criteria in MATLAB.

### **Profit Optimization of Flight from Buffalo to Chicago on Airplane Cessna 208B, Fall 2006**

- Determined of the number of passengers/packages/cargo to be carried in a flight to optimize the airline's profit, while taking into account of the space, load and moment constraints due to the aircraft.

### **Design of Flying Saw Machine for Steel Manufacturing Process, Fall 2005**

- Involved in the complete design process, including the stress analysis, fatigue analysis, and individual part/element selection, for a flying saw machine for steel shearing application.
- Constructed and reported the final design in a detailed AutoCAD drawing.

### **Lego® MINDSTORM Electro-Mechanical Model of a Waste Collection Truck, Spring 2005**

- Building a toy prototype of a truck that is able to pick up a trash can and pour the trash into its container.

## **GRADUATE ACADEMIC COURSES**

System Identification	Robotics	Analytical Dynamics	Mechatronics
Continuous Control	Design Optimization	Machines & Mechanisms	System Analysis

## **AWARDS & EXTRA-CURRICULAR ACTIVITIES**

Vice President, Graduate Table Tennis Club, SUNY at Buffalo, May 2007 – May 2008

Honorable Mention, UB Engineering Graduate Student Poster Competition, School of Engineering and Applied Sciences, SUNY at Buffalo, Apr 07

Distinguished undergraduate thesis, University of Science and Technology Beijing, Jun 06

The Fourth Prize of People's Scholarship, P.R. China, 2004 – 2005

The Fourth Prize of People's Scholarship, P.R. China, 2002 – 2003