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Dept. of Mechanical & Aerospace Engineering
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OBJECTIVE To obtain a full time position in the design and development of embedded control software. Specific areas of interest and experience include: the design of object-oriented software for the control of and interaction with physical systems, programming embedded single board computers, networked applications for remote monitoring and control, and distributed control architectures for industrial systems.

SKILLS & QUALIFICATIONS

Computer Programming:

- Object-oriented software design
- Distributed, embedded machine control
- Real-time programming (under VxWorks)
- Client-Server network applications, Socket programming
- Vision system programming (Matrox, Adept, Imaging Technologies)
- Robot programming, Network-based robot motion server
- General workcell control
- Platform independent remote user interface for machine control.
- Data manipulation
- CNC Lathe, Vertical Machining Center (G code)

Languages:

- C/C++
- Java
- V+ (Adept Robotic language)
- Familiar with: Perl, Postscript, Matlab, FORTRAN, Shell Scripting, XWindows GUI, G Code

Development Environments:

- MS Visual C++ (6.0)
- GCC/GDB (GNU tools)
- Tornado (VxWorks)

OS Experience:

- Linux
- Win NT/XP
- Sun OS
- Solaris
- VxWorks
- QNX
- LynxOS

System Administration:

- System setup & configuration
- User account management
- Network configuration (DNS, DHCP, Samba)
- Break-in analysis
- Security tools (OpenSSL, OpenSSH, stunnel, tripwire)
- Operating Systems (Linux, Windows NT, SunOS, Solaris, QNX, LynxOS)

Networking:

- (TCP/UDP)/IP
- Ethernet
- Microsoft Windows Networking (SMB)

Packages / Applications:

- MS Office
- Matlab
- Mathematica
- MS Visual C++ (6.0)
- I-DEAS Solid Modeling
- Autocad
- Outlook PIM
- Doxygen
- X Windows
- KDE

Project Management Managed multiple projects with senior undergraduate and graduate students.

- Remote Control of an Intellex 605T 5-Axis Robot from a Web Page.
- Neural Network for Vision Recognition on a Flexible Parts Feeder
- Characterization of Individual Part Throughput Behaviors of the Agile Feeding System
- Vision Systems for Monitoring Mechanical Wear
- A Robotic Test-bed for Studying the Flight Control Behavior of Tobacco Hornworm Moths

- Mechanical Design**
- 2D & 3D design of mechanical components
- Robot gripper design
- Mechanisms
- Reconfigurable automation components

SELECTED WORK EXPERIENCE

Post-Doctoral Associate

1999 - Present

Case Western Reserve University, Department of Mechanical & Aerospace Engineering Center for Automation and Intelligent Systems Research (CAISR)

- Designed and implemented a distributed, object-oriented controller for a high-speed parts feeding system using C, C++, Java, and V+ (~25k lines of code). Created on-line and hard-copy documentation for the software (user's manual, reference manual, how-to's).

- Designed and constructed a second generation high-speed, flexible parts feeding system.
- Published and presented papers at international conferences dealing with flexible parts feeding systems.
- Completed a Masters Degree in Computer Science concentrating in the area of object-oriented machine control architectures.
- Designed and oversaw the construction and programming of a robotic testbed for studying the flight control schemes used by moths (Tobacco Hornworm moth).

System Administrator (Part-time) 1998 - Present

Case Western Reserve University, CAISR

- General system administration tasks on a mixture of Sun workstations, PC's, and single board computers running SunOS, Solaris, Linux, and Windows NT, VxWorks, QNX, and LynxOS.
- Spear-headed the implementation of secure access to lab resources.
 - Remote login access via OpenSSL and OpenSSH.
 - Secure mail access using POP3S and stunnel.
 - Removal of all insecure/unnecessary services on lab computers.

Research Assistant 1994 - 1998

Case Western Reserve University, Department of Mechanical & Aerospace Engineering, CAISR

- Industry sponsored, agile manufacturing research project utilizing a number of Adept SCARA robots, machine vision, flexible part feeders, object-oriented software, and real-time processing.
- Assembly team leader responsible for all mechanical aspects of the project. Design and implementation of: the workcell; assembly hardware; flexible parts feeders; grippers; interchangeable assembly stations.
- Implemented a controller (using C++ and V+) for the flexible parts feeders by modifying existing workcell software and merging it with additional feeder specific software.

<p>EDUCATION Case Western Reserve University <i>Master of Science</i> January, 2002 Thesis: "An Object-Oriented Software Architecture for the Control of Flexible Parts Feeding Systems" (Available on web site)</p> <p><i>Doctor of Philosophy</i> January, 1999 Dissertation: "Elements of Agility in Manufacturing" (Available on web site)</p> <p><i>Master of Science</i> August, 1993 Thesis: "Testing of Vibration Damping Bindings used on Alpine Ski Equipment" (Available on web site)</p> <p><i>Bachelor of Science</i> May, 1991</p>	<p>Cleveland, Ohio Computer Science GPA: 4.0</p> <p>Mechanical Engineering GPA: 3.87</p> <p>Mechanical Engineering GPA: 3.9</p> <p>Mechanical Engineering</p>
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SELECTED PUBLICATIONS

- G.C. Causey. "An Object-Oriented Software Architecture for the Control of Flexible Parts Feeding Systems." M.S. Thesis, Dept. of Electrical Engineering and Computer Science, Case Western Reserve University, Jan 2002.
- G.C. Causey. "An Object-Oriented Controller Architecture for Flexible Parts Feeding Systems." CAISR Technical Report Number TR01-003, 2001.
- M.S. Branicky, G.C. Causey, and R.D. Quinn. "Modeling and throughput prediction for flexible parts feeders." *Proc. IEEE Intl. Conf. on Robotics and Automation*, pp. 154-161, San Francisco, CA, April 2000.
- M.S. Branicky, G.C. Causey, and R.D. Quinn. "Toward a science of flexible feeding." *Proc. IEEE/ASME Intl. Conf. on Advanced Intelligent Mechatronics*, pp. 380-385, Atlanta, GA, Sept. 1999.
- G.C. Causey, R.D. Quinn, and M.S. Branicky. "Testing and analysis of a flexible feeding system." *Proc. IEEE Intl. Conf. on Robotics and Automation*, pp. 2564-2571, Detroit, MI, 10-15 May 1999.
- G.C. Causey. "Elements of Agility in Manufacturing". Ph.D. Dissertation, Dept. of Mechanical and Aerospace Engineering, Case Western Reserve University, January 1999.

PROFESSIONAL AFFILIATIONS & ACTIVITIES

Institute of Electrical and Electronics Engineers (IEEE)
 American Society of Mechanical Engineers (ASME)
 National Society of Professional Engineers (passed the EIT exam).

Co-Chair: *Flexible Parts Feeding and Fixturing: From Research to the Factory Floor*
 Workshop at the 2000 IEEE International Conference on Robotics and Automation, San Francisco CA

COMMUNITY INVOLVEMENT

Treasurer Bible Baptist Church Bedford, Ohio