Huadong Wu
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OBJECTIVE

A fulltime position involving applied research in computer science that will utilize my expertise in intelligent sensing, information fusion, pattern recognition (classification, diagnosis, and prognosis), and preferably my strong engineering research and development experience

SUMMARY OF QUALIFICATIONS

- Expertise in artificial intelligence techniques via research in sensor data fusion, context-aware HCI, robotics application, sensory signal processing, and intelligent sensing
- Proficient in software programming, familiar with Windows and Unix OS and various commonly used tools via ~8 years of various research projects and robotics graduate courses
- Skillful in mechanical design and system control via 8+ years of engineering research and development practice, through the full R&D life-cycle of several robotic products

EDUCATION

School of Computer Science, Carnegie Mellon University, Pittsburgh, Pennsylvania 15213, USA
  Ph.D. in Robotics (emphasis on intelligent sensing and sensor data fusion), May 2004
  M.S. in Robotics (emphasis on pattern recognition and signal processing), August 1998

Shanghai Jiao Tong University, Shanghai, China
  M.S. in Inertial Navigation (emphasis on system control and signal processing), February 1987
  B.S. in Precision Instrument (Mechanical & Electrical Engineering double-major), July 1984

EXPERIENCE

May 2004 – current, Postdoctoral Research Associate, Radiology Dept., Univ. of Pittsburgh, Pittsburgh, PA

- Medical image processing: try to register pathological liver specimen slices with the MRI images taken prior surgical transplant, to recognize MRI image pathological signature in long run

Sep.1995 – May 2004, Ph.D. student & Research Assistant, Robotics Institute, SCS CMU, Pittsburgh, PA

- **Sensor fusion for context-aware computing (thesis research)**: to make computers understand human situational context, this research introduced the Dempster-Shafer Evidence Theory into this domain and practically improved it for context uncertainty management, developed a sensor fusion system architecture suitable for handling distributed sensors in a highly dynamic configuration
- **Aging-aircraft skin inspection by coin-tap test**: a research project in signal processing, sensor fusion, and pattern recognition. To detect disband defection in sandwich material structure; this research found a new way to combine information from different sensing modalities
- **Vehicle sound pattern recognition and its source localization**: a research project in signal processing and pattern recognition. To autonomously detect and track the noise of typical sources (armed vehicles) in battlefield, this research creatively transferred a human face recognition method to effectively recognize sound signatures
- **Odor sensor research**: a research project to invent "smell sensors" for nursing home usage. This research studied the dynamic behavior of several tin-oxide based solid state gas sensors under an alternating heating voltage, explored the high-dimensional feature space of the sensor array's responses to targeted and related gas compositions

Summer'2001 internship, Robert Bosch Research and Technology Center North America, Pittsburgh, PA

- Transferring a sensor fusion software package from Linux platform to Windows 2000 platform, improving documentation and enhancing it with some context-aware computing features

Summer'2000 internship, Motorola Applications Research Labs, Schaumburg, Illinois

- Sensing and sensor technology literature research and sensor technology roadmap study for the Context-aware Computing Research Project in Motorola Research Labs

Feb.1987 – Jun.1995, Engineer, Robot & Automation Research Institute, Beijing, China

- Went through the full research and development life cycle of several industrial robots, the work carried out included concept design, plan comparison and implementation, mechanical design, manufacturing support, programming and debugging of control system, mechanical system improvement, robotic application support.
- Completed a variety of other mechanical design and improvement projects

SKILLS

- Computer Language: Java, C, C++, Basic, SQL, Perl, FORTRAN, Assembly, HTML/XML, etc.
- Operating System: familiar with Microsoft Windows and UNIX through various hands-on projects
- Software Tools: MS Office, Sun One Studio, MS Visual Studio, Matlab, Rational Rose, JBuilder, Unix GNU suit, Mathematica, OriginLab, S-plus, MySQL, Apache, AutoCAD, etc.
- System Control: experienced in PID control, frequency analysis, robot & automation, etc.
- Mechanical Engineering: 8+ years of experience in machine, equipment, and parts' design

SELECTED PUBLICATIONS

- *Sensor Fusion Using Dempster-Shafer Theory II: Static Weighting and Kalman Filter-like Dynamic Weighting*, Huadong Wu, Mel Siegel and Sevim Ablay (Motorola), IMTC (IEEE annual Instrumentation and Measurement Technology Conference) 2003 proceedings, Vail, CO USA, May 20-22, 2003
- *Sensor Fusion for Context-Understanding*, Huadong Wu, Mel Siegel, Sevim Ablay (Motorola), IMTC'2002 Proceedings, Anchorage, AK, USA, 21-23 May 2002
- *Odor-Based Incontinence Sensor*, Huadong Wu, Mel Siegel, IMTC'2000 Proceedings, Baltimore, MD USA, May 1-4, 2000, selected in the IEEE Transactions on Instrumentation and Measurement Special Edition
- *Correlation of Accelerometer and Microphone Data in Coin Tap Test*, Huadong Wu, Mel Siegel, IMTC'1999 Proceedings, selected in the IEEE Transactions on Instrumentation and Measurement, Vol. 49, No. 3, June 2000, page 493 - 497, (ISSN 0018-9456).
- *Vehicle Sound Signature Recognition by Frequency Principle Component Analysis*, Huadong Wu, Mel Siegel and Pradeep Khosla, IMTC'1998 proceedings, selected in the IEEE Transaction on Instrumentation and Measurement Vol. 48, No. 5, October 1999, page 1005 - 1009, (ISSN 0018-9456)
- *Error Analysis of HRGP-1A Painting Robot*, Huadong Wu, Proceedings of the second National Symposium on Robotics, Beijing, China, Oct. 1990

HONORS

- Graduate Fellowship since from the Robotics Institute, School of Computer Science, Carnegie Mellon University, September 1995 – August 2003
- Recipient of Motorola University Partnership in Research (UPR) Grant, 2001 – 2003
- Three papers selected in IEEE Transactions Special Issues of Instrumentation and Measurement
- The paper "*Error Analysis of HRGP-1A Painting Robot*" won the second prize in the 1990 Young Scholars' Thesis Competition in the Ministry of Space and Aeronautics Industry, China