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## **EDUCATION**

PhD Industrial Engineering (Human Factors/Ergonomics). Texas Tech University. August, 1983.  
MS Safety. Central Missouri State University. May, 1974.  
BS Mechanical Engineering (Astronautical). Arizona State University. September, 1969.

## **EMPLOYMENT HISTORY**

*1981-Present* **ANALYTICA SYSTEMS INTERNATIONAL, Inc.** Consultant to attorneys, insurance companies, business, industry, and academia on human factors/ergonomics and systems safety. President/Owner.

*1990-1996* **ADVANTECH SOLUTIONS, Inc.** The design, development and manufacture of precision control air flow dampers. President/Owner.

*1997-Present* **UNIVERSITY OF ARIZONA.** Adjunct Associate Professor, College of Engineering and Mining, Systems and Industrial Engineering Department; Teaching human factors/ergonomics and safety.

*1979-1981* **UNIVERSITY OF ARIZONA.** Adjunct Assistant Professor, College of Engineering, Systems and Industrial Engineering Department and Medical Center, School of Health Related Professions. Human factors/ergonomics, safety, industrial engineering, systems engineering, research and curriculum development.

*1976-1978* **TEXAS TECH UNIVERSITY.** Research Assistant. Funded research in human factors lab. Teaching. Consultant to Occupational Safety and Health Administration and Arizona Center for Occupational Safety and Health.

*1974-1976* **3M COMPANY.** Senior Safety and Process Engineer. Responsible for safety, industrial hygiene and human factors activities at sixteen plant locations and for start-up of multi-million dollar process addition. Responsible for manufacturing improvement of several product lines. Provided consultation to corporate management, engineers, and scientists.

1973-1974      **CENTRAL MISSOURI STATE UNIVERSITY.** Research Assistant.  
Safety research and teaching.

1965-1973      **UNITED STATES AIR FORCE.** Captain. Managed repair, maintenance and construction functions and projects. Implemented computerized management information program. Managed Industrial Engineering and Quality Control operations. Intelligence analyst.

U.S. Citizen.

Past security clearances included Top Secret-Crypto (NSA).

### **US PATENTS HELD**

#5,427,146    Linearly Adjustable Fluid Damper, granted June 27, 1995

#5,218,998    Linearly Adjustable Damper, granted June 15, 1993

### **RESEARCH & PROJECTS**

St Paul Fireman's Fund, Worksite Accommodation Assessment, Tucson, AZ, 2009

La Posada Healthcare - Green Valley, AZ, Work Accommodation Assessment, Green Valley, AZ, 2006 - 2007.

*Walbro Engine Management*, Workstation Ergonomic Assessment and Training, Tucson, AZ 2005

*Brown & Caldwell*, Workstation Ergonomic Assessment, Tucson, AZ 2005.

*University of Arizona*, McKale Center, COF Testing, Tucson, AZ 2003.

*Research Integrations, Inc.*, Job Aid Task Order 3, Tempe, AZ 2002-2003.

*Research Integrations, Inc.*, Human Performance Considerations in Aircraft Flight Deck Certification and Design, Tempe, AZ 1998 to 2001.

*Macton, Inc.*, COF Testing, Mercer Island, WA 2000.

*Research Integrations, Inc.*, AATT Safety Analysis, Tempe, AZ 1998.

*Metromedia Technologies, Inc.* COF Testing of self-adhesive substrates. 1998.

*Minnesota Technology, Inc.* Assessment of technical and commercial aspects of integrated computer workstation. 1998.

*Paul Revere Insurance Company.* Ergonomic assessment for the purposes of identifying means to reduce or eliminate musculoskeletal stressors, particularly those related to CTS and UTS diagnoses. 1997.

*Therapy Worx.* Ergonomics Assessment for Mesa Fire Department; Mesa, AZ 1997.

*Therapy Worx & GS Consulting.* Ergonomics Back Program for Intel; Scottsdale, AZ 1997.

*Samsonite.* Ergonomics: Assessment of Selected Tasks, (with Tim Joganich); Tucson, AZ 1996.

*Arizona Electric Power Cooperative, Inc.* Cumulative Trauma Disorder Training Courses. Willcox, AZ 1993.

*AGM, Inc.* Human Factors and Safety Product Design Consultation. Tucson, AZ 1992-1993; 1995.

*Lighting Sciences Incorporated.* Research and Development of Specification Techniques and Instrumentation for Realistic Decoys; Visualization, 1989-90.

*Automated Printed Circuit Board Repair Facility. US Army Repair Depot, Sacramento, CA* Program Management and Human Factors/Ergonomics and Safety Design Issues. 1987-88.

*Hamersley Mining.* Human Factors and Systems Safety in Mining & Mining Related Operations. 1987-1988.

*Durodyne, Inc.* Human Factors and Systems Safety for prototype design of F-15 & F-16 Decoys. 1987-1988.

*Public Service Company of New Mexico (PNM).* Human Factors in Fossil-Fired Power Plant Design, Operations and Maintenance. 1984-1985.

*Norwest Mortgage, Inc.* The Identification, Evaluation, and Utilization of Human-Computer Interface Characteristics Pertinent to the Development of a User Instruction and Operational Manual for a Computerized Mortgage Origination and Processing System. 1984.

*Texas Tech University.* Ergonomic Lifting Task Capacity Determination as a Function of Task Variables. Dissertation Research. 1983.

*John Klaasen Designs.* The Ergonomic Characteristics of an Ergonomically Designed Computer Workstation Table Edge. 1983.

*Burr-Brown Research Corporation.* Work Definition and Evaluation for Manual Assembly of Circuit Boards. 1981-82.

*Arizona Center for Occupational Safety and Health.* Accident Control Workshop. Arizona Hospital Association and Southern Arizona Hospital Safety and Security Committee. Tucson, AZ 1978.

*Texas Tech University.* Ergonomic Determination and Modeling of Lifting Capacity. NIOSH. 1976-78.

*Texas Tech University.* Design Study to Determine Methods for Establishing Ergonomic criteria for Assigning Personnel to Air Force Jobs Requiring Heavy/Very Heavy Work. U.S. Air Force. Research Assistant. 1975-78.

*Texas Tech University.* MIL-STD-1472B Revision. U.S. Navy. Research Assistant. 1977-78.

*Texas Tech University.* An Ergonomic Analysis of Selected Sections in Subpart D, Walking and Working Surfaces. U.S. Occupational Safety and Health Administration. Research Assistant. 1978.

Human Factors & Safety Issues in the Hospitality Industry: 1982 - Present.

*Central Missouri State University.* Biorhythms. Masters Thesis. 1974.

## **ACADEMIC DEGREE, PROJECT, REPORT ADVISEMENT**

Doctoral Candidate committee member: Jennifer Lyall-Wilson. College of Engineering, University of Arizona, Tucson, Arizona, Spring 2007 - Present.

Senior Capstone Project: Hand Held Tube Sealing Unit for Blood Banking. College of Engineering. University of Arizona. Tucson, Arizona. Design Mentor. Fall 2005-Spring 2006.

Senior Capstone Project: Ergonomic Sensor Chair. College of Engineering. University of Arizona. Tucson, Arizona. Design Mentor. Fall 2004 - Spring 2005.

Smith, Sheena. A Systems Engineering Management Plan with an Application to the Heritage Roofing Company. Master's Report. Department of Systems and Industrial Engineering. University of Arizona. Tucson, Arizona. Committee Member. July 2004.

Molin, Cindy. Does Synergy Equal Success? Master's Report. Department of Systems and Industrial Engineering. University of Arizona. Tucson, Arizona. Committee Member. March 2004.

Kalogreades, Stelios. User Centered Web Site Design Methodology. Senior Capstone project. Department of Systems and Industrial Engineering. University of Arizona. Tucson, Arizona. Advisor. May 2001.

Lugo-Delanoy, Edelmayra. Multi-objective Analysis of the Optimal Segmentation of Digital-to-Analog Converters. Master's Report. Department of Systems and Industrial Engineering. University of Arizona. Tucson, Arizona. Committee Member. 2000.

Marei, Khaled. Master's Report. Department of Systems and Industrial Engineering. University of Arizona. Tucson, Arizona. Committee Member. 1999.

Castiano, Ellen. An Overview of Systems Safety. Master's Report. Department of Systems and Industrial Engineering. University of Arizona. Tucson, Arizona. Committee Chair. 1980.

Abdulkader, Abdulla. Tactile Computer Manipulator. Master's Report. Department of Systems and Industrial Engineering. University of Arizona. Tucson, Arizona. Committee Member. 1980.

Rosenberg, Jan. The Economics of Safety. Master's Report. Department of Finance - Safety Management. University of Arizona. Tucson, Arizona. Committee Chair. 1980.

Leonard, Banni. Manipulative Control Through Tactile Sensors. Master's Report. Department of Systems and Industrial Engineering. University of Arizona. Tucson, Arizona. Committee Member. 1980.

## **PUBLICATIONS**

G.M. Bakken, Jon R. Abele, H. Harvey Cohen. *Falls and Related Injuries: Slips, Trips, Missteps and their Consequences*. 2<sup>nd</sup> Edition, Tucson: Lawyers & Judges Publishing Company, (January, 2007)

Bakken, Gary M. Book Review of *Human Factors in Lighting*, 2<sup>nd</sup> Edition, by Peter Boyce, for ASSE, Professional Safety. 2005.

Karwowski, Waldemar, G.M. Bakken contributing author. *Human Factors Issues in Product Liability: An Overview*. Chapter Title: "Human-Centric Approach to Forensic Analysis for System Liability". New York: CRC Press, 2004.

Hyde, Alvin S., G.M. Bakken, Jon R. Abele, H. Harvey Cohen, Cindy A. LaRue. *Falls and Related Injuries: Slips, Trips, Missteps and their Consequences*. Tucson: Lawyers & Judges Publishing Company, June 2002.

Bakken, G.M. OSHA's Plan to Reduce Ergonomics Injuries. *Inside Tucson Business*,

April 22-28, 2002.

Bakken, G.M. and Jon R. Abele. *Innkeeper's Liability Management*. Tucson: Lawyers & Judges Publishing Company, 1995.

Bakken, G.M. Human Factors/Ergonomics in Litigation. *Nevada Lawyer*, 1(3), March, 1993.

Garg, A., G.M. Bakken and U. Saxena. Effect of Restraint Type and Height on Functional Arm Reach. *The Journal of the Human Factors Society*, 24(3), June 1983.

Bakken, G.M. Case Technology Management: Key to Practice Productivity? Pima County Bar Association: *THE WRIT*, January, 1983.

Bakken, G.M. PI, Product Liability Litigants Examine Human Factors. Pima County Bar Association: *THE WRIT*, October, 1982.

Ayoub, M.M., A. Mital, G.M. Bakken, S.S. Asfour, and N.J. Bethea. Development of Strength and Capacity Norms for Manual Materials Handling Activities: State of the Art. *The Journal of the Human Factors Society*, 22(3), June 1980.

Ayoub, M.M. and G.M. Bakken. *An Ergonomic Analysis of Selected Sections in Subpart D Walking and Working Surfaces*, Report to the Occupational Safety and Health Administration. Washington, D.C.. 1978.

Ayoub, M.M., N.J. Bethea, S. Deivanayagum, S. Panwalker, S.S. Asfour, G.M. Bakken, D. Liles, A. Mital, and M. Sherif. *Determination and Modeling of Lifting Capacity*. Report to NIOSH (DHEW). Cincinnati, OH. 1978.

Mital, A., M.M. Ayoub, S.S. Asfour, G.M. Bakken and N.J. Bethea, *Relationship between Lifting Capacity and Injury in Occupations Requiring Lifting*, 1978 Annual Human Factors Society Conference. Detroit, Michigan.

Ayoub, M.M., S. Deivanayagum, and G.M. Bakken. *A Preliminary Manual for Selected Anthropometric, Strength and Endurance Measurements*. Texas Tech University. Lubbock, Texas. 1977.

Bakken, G.M. *Safety Manual: Coating Operations*. 3M Company. Brookings, South Dakota. 1976.

Bakken, G.M. and R.J. Johnson. *Hazardous Spill Procedures*. 3M Company. Brookings, South Dakota. 1976.

Bakken, G.M. *Safety Tips for Hoist Operations (Tape-Cassette-Slides)*. 3M Company. St. Paul, Minnesota. 1975.

Bakken, G.M. *Establishing Criteria for Assigning Personnel to Air Force Jobs Requiring Heavy Work*. Texas Tech University, July 1978.

## **COURSES TAUGHT**

UA SIE 410A Human Factors and Ergonomics in Engineering & Design (2004 - Present)  
UA SIE 511 Human Factors and Ergonomics in Engineering & Design II (1998 to 2003)  
UA SIE 410 Human Factors and Ergonomics in Engineering & Design I (1997 to 2002)  
UA SIE 411 Human Factors and Ergonomics in Engineering & Design II (1998 to 2003)  
UA SIE 410 Industrial Ergonomics (1979-1981)  
UA SIE 365 Engineering Economics (Developed: 1979-1981)  
UA SIE 410 Work Analysis, Design and Measurement (1979-1981)  
UA SIE 310 Human Factors in Engineering Design (1979-1981)  
UA SIE 462 Production Systems Analysis (1979-1981)  
UA OSH 410 Physical Exposures (Developed: 1979-1981)  
UA OSH 486 Occupational Safety and Health (Product Safety - Developed: 1979-1981)  
UA OSH 488 Applied Industrial Safety (System Safety - Developed: 1979-1981)  
TTU Work Measurement and Design (1977)  
CMSU Introduction to Safety (1974)

## **PROFESSIONAL & HONOR ORGANIZATIONS**

Human Factors and Ergonomics Society  
Systems Safety Society  
Alpha Pi Mu  
American Academy of Forensic Sciences  
American Society of Biomechanics  
American Society of Safety Engineers  
American Society for Testing Materials (ASTM)  
Board of Certification in Professional Ergonomists  
Illuminating Engineering Society of North America  
Institute of Industrial Engineers  
International Code Council (ICC)  
International Council on Systems Engineering  
International Ergonomics Association  
National Safety Council  
National Safety Council - Arizona Chapter

Phi Kappa Phi  
Sigma Xi  
Society of Automotive Engineers

## **PROFESSIONAL ACTIVITIES**

Human Factors and Ergonomics Society Member: 1974-Present.  
Human Factors Standardization and Best Practices Working Group: 2005-Present  
National Forensic Technical Group Chairperson Elect: 1991-92.  
National Forensic Technical Group Chairperson: 1992-93.  
Arizona Chapter - Member: 1979-Present. Director: 1992-97. Secretary: 1996-2006.  
Director: 2007-Present.

Systems Safety Society Member: 1978-Present.  
Arizona Chapter - Member: 1993-2005, Secretary/Treasurer: 1993-98.  
Saguaro Chapter, Member 2005-Present, Treasurer 2005-Present;

Institute of Industrial Engineers Member: 1976-Present.  
Southern Arizona Chapter - Member: 1979-1997. President-Elect: 1983-1984.  
Treasurer: 1982-83. Board Member: 1981-1982. Secretary: 1980-81.  
Central Arizona Chapter - Member: 1997-Present.

International Council on Systems Engineering Member: 1993-Present. Southern  
Arizona Chapter - Member: 1993-Present. Systems Engineering Requirements  
Committee Chair:1994. Human Factors Task Force: 1993-1998.

University of Arizona Student Chapter Organizing Committee for Institute of Industrial  
Engineers Faculty Advisor: 1979-1980.

Pima Community College  
Industrial Safety Program Advisory Committee, Tucson, AZ: 1979-1980.

School of Health Related Professions, University of Arizona, Tucson, AZ  
Instructional Improvement Committee: 1979-1980.  
Admissions Committee: 1979-1980.  
Department of Occupational Safety and Health Program Admissions Committee: 1979-  
1980.

Arizona Center for Occupational Safety and Health Continuing Education  
Steering Committee, University of Arizona, Tucson, AZ: 1979-1980.

Public service consultations with local industrial and public organizations regarding  
industrial engineering and safety issues.

## PRESENTATIONS

Human Factors and Ergonomics in Design. Semiconductor Environmental Safety and Health Association (SESHA) / Centre for Research, Education and Training in Energy (CREATE) Miniconference on Emerging Technologies and Issues, Chandler, AZ, Oct 31-Nov 1, 2005.

*Nursing Home Litigation* Seminar for Lawyers & Judges, Tucson, AZ. November 15 and 16, 2002.

*Human Factors/Ergonomics in Accident Reconstruction* Seminar for Southwestern Association of Technical Accident Investigators, Inc., Las Vegas, NV. March 4, 2002.

*Human Factors in Litigation* Seminar for Tucson Legal Support Association, Tucson, AZ. July 19, 2001.

*Aging, Perception and Reaction, Traffic Accident Reconstruction & Litigation* Seminar for Lawyers & Judges Publishing Company, Tucson, AZ. Nov. 6-7, 1998.

*Applied Ergonomics* Southwest Safety Congress & Exposition: Safety 2001: Tools for Success; Arizona Chapter National Safety Council, Phoenix, AZ. May 29, 1997.

*Human Factors, Safety in Design* Seminar for Albanese Brooks Architects, Tucson, AZ. May 1997.

*Slips, Trips, Missteps & Falls* Seminar for Southern Arizona Chapter of American Industrial Hygiene Association, Tucson, AZ. May 1997.

*Slips, Trips, Missteps & Falls* Seminar for City of Tucson, AZ. April 1997.

Human Factors in Litigation Seminar for Western Forensic Engineers & Scientists. Tucson, AZ. 1996.

*Human Factors in Litigation* Seminar for Southern Arizona Trial Lawyers Association. Tucson, AZ. 1992.

*Human Factors in Litigation* Seminar for Southern Arizona Defense Bar Association. Tucson, AZ. 1991.

*Human Factors in Litigation* Seminar for Southern Arizona Trial Lawyers Association. Tucson, AZ. 1989.

*Human Factors & The Legal Investigator* Seminar for National Association of Investigators, Inc. Region Six Seminar. Tucson, AZ. 1989.

*Human Factors & Systems Safety* Seminars for Hamersley Mining Company. Perth,

Australia. 1987-1988.

*Human Factors in the Design, Operations and Maintenance of A Fossil-Fueled Power Generating Plant* Seminar for Public Service Company of New Mexico. 1985.

*Human Factors for the Industrial Hygienist* Seminar for University of Arizona. 1985.

*Decision-Making and Operations Research Techniques* Seminar for University of Phoenix. 1982.

*Materials Handling* Seminar for IBM General Products Division. Tucson, AZ. 1981.

*Human Factors in Management Information Systems* Seminar for University of Arizona. Tucson, AZ. 1980.

*Manual Materials Handling* Seminar for University of Arizona. Tucson, AZ. 1979.

*Toxicology and the Engineer* Seminar for University of Arizona. Tucson, AZ. 1979.

*Human Factors Research* Seminar for University of Arizona. Tucson, AZ. 1979.

*Human Factors/Ergonomics in Equipment Design* Seminar for Technical Session of Southwest Safety Congress. Tucson, Arizona. March, 1979.

*Development of Technological Humanists* Seminar for Virginia Polytechnic Institute and State University. Blacksburg, Virginia. 1978.

*Development of Technological Humanists* Seminar for University of Miami. Coral Gables, Florida. 1978.

*Development of Technological Humanists* Seminar for University of Arizona. Tucson, AZ. 1978.

*Development of Technological Humanists* Seminar for University of Texas. Arlington, Texas. 1978.

*Human Motion and Behavior Simulation* Seminar for Texas Tech University. Lubbock, Texas. 1978.

## **WORKSHOPS & SEMINARS ATTENDED**

*Workshop on Environmental Stress & Cognition.* On-line Workshop sponsored by New Mexico State University, 2005-2006.

*Multiple Mental Spaces.* Cognitive Science Society Webinar with Barbara Tversky of

Stanford University, February 25, 2005.

*How Our Hands Help Us Think.* Cognitive Science Society Webinar with Susan Goldin-Meadow, February 11, 2005.

*The Present and Future of Work.* Groove Networks Webcast with Merryl Tarricone, May 20, 2004.

*Embodiment and Ecological Control.* Cognitive Science Society Webinar with Andy Clark, April 9, 2004.

*Analogical Learning.* Cognitive Science Society Webinar with Dedre Gentner, March 5, 2004.

*Cognitive Principles of Interactivity and Design.* Cognitive Science Society Webinar with David Kirsch, December 5, 2003.

*Committee F13 Meeting and Workshop on Safety and Traction for Footwear.* ASTM International, Pasadena, CA. June 27 - 28, 2003.

*Lighting for The Aging Eye.* Illumination Engineering Society of North America, April, 2003.

*Solution Envisioning for Ontology-Based Applications.* Top Quadrant Webinar, February, 2003.

*Cognitive Task Analysis to System Design: Cognitive Task Analysis for Teams.* CTA Resource online seminar, October 2002.

*Cognitive Task Analysis to System Design: Designing to Support Situation Awareness.* CTA Resource online seminar, September 2002.

*The Unified Modeling Language and a Unified Systems Engineering Process.* University of Arizona, Tucson, AZ, September 2002.

*English XL VIT Certification Program.* International Safety Academy, Tampa, FL, April, 2002.

*Accidental Injury: Biomechanics & Prevention.* University of California School of Medicine, La Jolla, CA, 1999.

*Traffic Accident Reconstruction & Litigation,* Lawyers & Judges Publishing, Tucson, AZ, November 6-7, 1998.

*Human Performance Considerations in Aircraft Flight Deck Certification and Design,* FAA/JAA sponsored international workshop, Chandler, AZ, February, 1998.

*Are You Prepared for the ADA?* O'Connor, Cavanagh, Anderson, Westover, Killingsworth & Beshears, Tucson, AZ, 1992.

*Accidental Injury: Biomechanics and Prevention.* Medi/Legal Institute, San Diego, CA, 1991.

*Human Factors in Playground Design.* Human Factors Society, Tucson, AZ, 1990.

*Lighting and Its Effect in Our Daily Life.* Illuminating Engineering Society, Tucson, AZ, 1990.

*Biomechanics of Injury in Motor Vehicle Accidents.* Medi/Legal Institute, San Diego, CA, 1989.