

## CURRICULUM VITAE

Yan Xiao, Ph.D.

Professor; Human Factors Engineer and Patient Safety Scientist  
Plano, Texas

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### Contact Information

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Foreign Language Chinese (native)

### Education

1982 B.A.Sc. Mechanical Engineering Lanzhou Jiaotong University, Lanzhou, China  
1985 M.A.Sc. Systems Engineering Beijing Institute of Technology, Beijing, China  
1994 Ph.D. Human Factors Engineering University of Toronto, Toronto, Canada

### Employment History

#### Primary Positions

1985-1988 North Vehicle Research Institute, Beijing, China  
Systems Engineer  
1994-2009 University of Maryland School of Medicine, Baltimore, Maryland  
1994-1995 Instructor of Anesthesiology  
1995-2001 Assistant Professor of Anesthesiology  
2001-2009 Associated Professor of Anesthesiology, with Tenure  
2009-2009 Professor of Anesthesiology, with Tenure  
2009-2017 Baylor Scott & White Health, Dallas, Texas  
Director, Human Factors and Patient Safety Science  
2017- University of Texas at Arlington, Arlington, Texas  
Professor with Tenure, College of Nursing and Health Innovations

#### Secondary Positions

1991-1993 Doctoral Fellow  
IBM Canada Centre for Advanced Studies, Toronto, Canada  
1994-1994 Research Associate  
Department of Industrial Engineering, University of Toronto  
Toronto, Canada  
1997-2001 Affiliate Assistant Professor of Information Systems  
University of Maryland Baltimore County  
2000-2003 Special Member, Graduate Faculty  
University of Maryland College Park  
2007-2009 Affiliate Associate Professor of Information Systems  
University of Maryland Baltimore County  
2009-2009 Visiting Professor, Department Management, Technology, and Economics  
Swiss Federal Institute of Technology (ETH Zurich)  
2009-2010 Affiliate Professor of Information Systems

2009-2017 University of Maryland Baltimore County  
Adjunct Professor, College of Nursing and Health Innovation  
University of Texas at Arlington

### **Professional Memberships**

1995-2006 Member, Institute of Electrical and Electronic Engineers  
2003-2009 Member, Academy of Management  
2004-2006 American Telemedicine Association  
2004-2008 Member, Society of Critical Care Medicine  
2004-2014 Member, American Medical Informatics Association  
1994-present Member, Human Factors and Ergonomics Society  
1998-present Member, Association of Computing Machinery  
2006-present Senior Member, Institute of Electrical and Electronic Engineers

### **Administrative Services**

#### Institutional Service

1994-2009 Humans Factor Engineer, University of Maryland, Baltimore  
1997-1997 Reviewer, School of Medicine Intramural Grants  
1997-2002 Department of Anesthesiology Information Technology Committee  
1998-2009 Associate Member, Graduate School, University of Maryland, Baltimore  
1999-2009 Member, Claims/Risk Management Committee,  
University of Maryland Medical Systems  
2005-2009 Director, Research in Patient Safety, Program in Trauma  
University of Maryland School of Medicine  
2005-2009 Member, Research Committee, Program in Trauma  
2006-2009 Member, Medication Reconciliation Team,  
University of Maryland Medical Center  
2006-2009 Member, Process Improvement Steering Committee,  
University of Maryland Medical Center  
2009-2017 Member, Patient Safety Committee, Baylor Scott & White Health  
2012-2017 Co-Chair, Device Safety Subcommittee, Baylor Scott & White Health  
2012-2017 Co-Chair, Infusion Safety Steering Committee, Baylor Scott & White Health  
2013-2017 Co-Chair, Clinical Alarms Safety Steering Committee, Baylor Scott & White  
Health  
2014-2016 Member, Medication Reconciliation Steering Committee, Baylor Scott & White  
Health  
2015-2017 Co-Chair, Colon SSI Reduction Bundle Collaborative, Baylor Scott & White  
Health  
2017- Member, Promotion and Tenure Committee, University of Texas at Arlington  
College of Nursing and Health Innovation

#### Local Service

1992-1993 Student Chapter of Human Factors and Ergonomics Society  
Secretary (University of Toronto)  
1999-2001 Doctoral dissertation committee (University of Illinois Urbana-Champaign) for  
F. Jacob Seagull (*Auditory alarms and visual attention*)

- 2000 Gemstone Program (University of Maryland College Park)  
Mentor and review panel member
- 2000-2002 Doctoral dissertation committee (University of Maryland College Park) for  
Seokhwa Yun (*Leadership in an Intense Situation*)
- 2003-2006 Doctoral dissertation committee (University of Maryland Baltimore) for  
Yen-Chiao (Angel) Lu (*Adoption of Mobile Computing Technology*)
- 2004-2006 Doctoral dissertation committee (University of Maryland Baltimore) for  
Young-Ju Kim (*Time to Surgery and Outcomes in Head Trauma Patients*)
- 2005-2007 Doctoral dissertation committee (University of Maryland Baltimore County) for  
Min Lin (*At Right Place at the Right Time - Personal Time Management*)
- 2007-2009 Doctoral dissertation committee (University of Maryland Baltimore County) for  
Danny Ho
- 2007-2009 Doctoral dissertation committee (Carnegie Mellon University) for Peter Scupelli  
(*Designing information hotspots for the surgical suite: How architecture,  
artifacts, and people's behavior converge to support coordination*)
- 2008 External examiner for doctoral dissertation of Vanessa Vogwill (University of  
Toronto)
- 2012-2013 Doctoral dissertation committee (Central Michigan University) for Judy Cash  
(*Nursing Home Quality: Structure and Process with Geographic Perspective*)

#### National Service

- 1997 National Patient Safety Foundation,  
Panel member, NPSF Workshop on Assembling the  
Basis for Progress in Patient Safety
- 1998 Institute of Electrical and Electronics Engineers (IEEE)  
Session Chair in Annual Meeting of Systems, Man, & Cybernetics
- 1996-2000 Human Factors and Ergonomics Society  
Symposium Chair in Annual Meeting  
Member, Health Care Task Force Advisory Committee
- 2002 Member, Expert Panel on the Effect of Health Care Working Conditions on  
Patient Safety, Agency for Healthcare Research and Quality
- 2003 Institute of Electrical and Electronics Engineers (IEEE)  
Co-Chair, Local Arrangement and member, Program Committee  
Annual Meeting of Systems, Man, & Cybernetics
- 2003-2004 American Telemedicine Association  
Chair, Human Factors Special Interest Group
- 2004-2006 American Telemedicine Association  
Vice Chair, Human Factors Special Interest Group
- 2006 Human Factors & Ergonomics Society  
Co-Chair, symposium on large scale coordination

- 2007 Human Factors & Ergonomics Society  
Co-Chair, symposium on team performance measures
- 2009 Human Factors & Ergonomics Society  
Chair, panel on cognitive artifacts
- 2011-2016 Institute of Electrical and Electronics Engineers (IEEE)  
Co-Chair, Technical Committee on Human-Computer Interaction
- 2014- Anesthesia Patient Safety Foundation  
Member, Scientific Evaluation Committee
- 2016- Human Factors & Ergonomics Society  
Jerome H. Ely Human Factors Award Subcommittee member

Federal Government Public Advisory Committee Membership

- 2000-2003 National Science Foundation  
Member, Grant Review Panels (Study Section)  
Directorate for Computer & Information Science & Engineering
- 2002-2003 National Science Foundation  
Member, CAREER Awards Review Panels  
Directorate for Computer & Information Science & Engineering
- 2002-2003 NASA/NSBIR Smart Medicine Systems  
Member, Peer Review Group
- 2003 National Academy of Engineering and Institute of Medicine (NAE/IOM)  
Workshop member and group leader, "Engineering and the Health Care System"
- 2005 Swiss Federal Institute of Technology  
Special external reviewer
- 2005 Ireland Health Research Board  
Special external reviewer
- 2005 National Science Foundation  
Member, Grant Review Panel (Study Section)  
Directorate for Computer & Information Science & Engineering
- 2006 Agency for Healthcare Research and Quality  
Special emphasis panel on simulation
- 2007 National Science Foundation  
Member, Grant Review Panel (Study Section)  
Directorate for Computer & Information Science & Engineering
- 2007 The Canada Foundation for Innovation  
Expert reviewer for Research Hospital Fund Large-Scale Institutional Endeavours
- 2008 United States-Israel Binational Science Foundation  
Special external reviewer
- 2010 Office of National Coordinator for Health Information Technology

- Member, Review Panel for Strategic Health IT Advanced Research Projects (SHARP) Program
- 2010 Ireland Health Research Board  
Special external reviewer
- 2010 National Institute of Child Health and Human Development  
Member, *Patient Safety in the Setting of Neonatal Intensive Care*
- 2011 National Science Foundation  
Member, Grant Review Panel (Study Section)  
Directorate for Computer & Information Science & Engineering
- 2012 Department of Defense  
Forward Surgical, Enroute Care, Shock, and Tissue Stabilization Program Review Panel (FO #: W81XWH-12-FEST-IIA)
- 2013 National Institutes of Health Center for Scientific Review Special Emphasis Panel  
Member, Patient Safety Research During Neonatal Care (ZRG1 HDM-T)
- 2014 National Science Foundation  
Member, Partnerships for Innovation Grant Review Panel
- 2011-15 Agency for Healthcare Research and Quality  
Standing Member, Healthcare Safety and Quality Research (HSQR) Study Section
- 2015-6 Agency for Healthcare Research and Quality  
Ad Hoc Member, Healthcare Safety and Quality Research (HSQR) Study Section
- 2017 European Union Joint Programme Initiative on Antimicrobial Resistance  
Special reviewer, Comparison of prevention, control and intervention strategies for AMR infections through multidisciplinary studies, including One Health approaches.

Reviewer for Professional Scientific Meeting Submissions

- 1996-2012 Human Factors and Ergonomics Society Annual Meetings
- 1998-2010 IEEE International Conference on Systems, Man, and Cybernetics
- 2000-2005 ACM Conference in Human Factors in Computing Systems
- 2004-2007 ACM Conference in Computer Supported Cooperative Work
- 2006 IFAC Symposium on Information Control Problems in Manufacturing
- 2007-2014 American Medical Informatics Association Annual Symposium

Reviewer for Journals

- 1996-1996 Journal of American Society For Information Science
- 1997-1997 International Journal of Human-Computer Studies
- 1998-2014 Applied Ergonomics

2001-2009 Computer Supported Cooperative Work  
 2001-2009 ACM Transactions on Computer-Human Interaction  
 2002-2003 Quality and Safety in Health Care  
 2006 Journal of Palliative Care  
 2005-2013 Journal of Biomedical Informatics  
 2006 Annals of Emergency Medicine  
 2007-2009 Critical Care Medicine  
 2007-2012 Safety Science  
 2007-2013 Applied Ergonomics  
 2009-2010 Journal of Healthcare Engineering  
 2002-present Human Factors  
 2005-present Ergonomics  
 2007-present Anesthesia & Analgesia

#### Editorial Board for Journals

2004-2013 Associate Editor, *IEEE Transactions on Systems, Man, & Cybernetics, Part A: Human Systems*  
 2007-present Editorial Board, *Human Factors*  
 2009-present Editorial Board, *Journal of Cognitive Engineering and Decision Making*  
 2009-present *F1000 Medicine* faculty member

#### Teaching Service

##### Instructor

1995 Guest lecturer, *Advanced Topics in Cognitive Science*.  
 George Mason University (15 students). Contact hours: 2.  
 1997 Instructor, IFSM 464/664 *Telemedicine in Trauma Care*  
 3 credit course in Department of Information Systems,  
 University of Maryland Baltimore County (12 students)  
 Development of curriculum for the new course  
 Three hours per week for the fall semester (12 lectures). Contact hours: 36  
 1998 Instructor, IFSM 698C/498C *Telemedicine in Trauma Care*  
 3 credit course in Department of Information Systems,  
 University of Maryland Baltimore County (8 students)  
 Three hours per week for the fall semester (12 lectures). Contact hours: 36  
 2000 Guest lecturer, *Informatics and Technology Context of Health Care*.  
 Videotaped for webcasting every year for Nurs 405  
 School of Nursing, University of Maryland. Contact hour: 1  
 2004 Instructor, *Patient safety*. One hour lecture to freshman medical students,  
 School of Medicine, University of Maryland (140 students). Contact hour: 1

- 2005 Guest lecturer, *Human Factors in Medicine*.  
Man-Machine Systems, Delft University of Technology,  
Delft, The Netherlands (40 students). Contact hours: 2
- 2009 Lecturer, *Coordination in Healthcare*  
Department Management, Technology, and Economics  
Swiss Federal Institute of Technology  
Zurich, Switzerland (10 PhD students). Contact hours: 16
- 2016 Human Factors 101: what every healthcare professional should know  
Baylor Scott & White Health human factors workshops (1.5 days)
- 2017 Human Factors 101: what every healthcare professional should know  
Baylor Scott & White Health human factors workshops (1 day)
- 2018 Human Factors in Health Care (NURS 3347). Credit hours: 3. Elective for RN-BSN  
programs. University of Texas at Arlington

#### Mentored Post-Doctoral Fellows (total 4)

- 2001-2002 F. Jacob Seagull (PhD, University of Illinois Urbana-Champaign)
- 2004 Anne Miller (PhD, University of Queensland, Australia)
- 2005-2006 Ayse Gurses (PhD, University of Wisconsin, Madison)
- 2007-2008 Ayan Sen (MD)

#### Awards to mentored students

*Nominees for Harriet H. Werley Best Paper, first authored by students  
(By American Medical Informatics Association)*

- 2000 1. Caterina Lasome
- 2001 2. Jacqueline Moss
- 2002 3. Jacqueline Moss
- 2003 4. Yen-Chiao Lu
- 2003 5. Cheryl Plasters

*American College of Surgeons Committee on Trauma Resident Competition  
(Eastern Association for the Surgery of Trauma)*

- 2004 6. James Guzzo

*Grant to mentored student (NLM R03)*

- 2004 7. Jacqueline Moss (at University of Alabama, Birmingham)

*First place award, UMSOM Medical Student Summer Research*

- 2007 8. Jason Cervenka

#### Residents, Medical and Pharmacy Students

- 2004 1. Leslie Hoover (UMSOM Medical Student, 10 contact hours)
- 2004 2. Jim Guzzo (UMSOM Resident, 20 contact hours)
- 2007 3. Jason Cervenka (UMSOM Medical Student, 50 contact hours)
- 2016 4. Sidney Pho (University of North Texas Health Science Center)

#### Doctoral Students (degree program, current affiliation)

- 1996-2000 1. Shao-Shan Chiang (UMBC, National Yang Ming University, Taiwan)

- 1999-2001 2. Seokhwa Yun (University of Maryland College Park, Seoul National University)
- 1999-2002 3. Jaqueline Moss (Univ. of Maryland School of Nursing, University of Alabama at Birmingham)
- 1999-2001 4. Caterina Lasome (Univ. of Maryland School of Nursing)
- 1999-2003 5. Sharyn Gardner (University of Maryland College Park, California State University, Sacramento)
- 2002-2006 6. Yen-Chiao (Angel) Lu (Univ. of Maryland School of Nursing, National Taichung University of Science and Technology)
- 2002-2004 7. Cheryl Plasters (Univ. of Maryland School of Nursing)
- 2003-2006 8. Young-Ju Kim (Univ. of Maryland School of Nursing, College of Nursing, Sungshin Women's University, Seoul, Korea)
- 2005-2006 9. Kamalika Das (University of Maryland Baltimore County)
- 2007-2009 10. Peter Scupilli (Carnegie Mellon University, Carnegie Mellon University)
- 2006-2010 11. Danny Ho (University of Maryland Baltimore County)
- 2012-2013 12. Judy Cash (Central Michigan University)

#### Masters Students

- 1996-1998 1. Richard Spencer (George Mason University)
- 2000-2001 2. Sammy Hsu (University of Maryland Baltimore County)
- 2001-2002 3. Yonggong Huang (University of Maryland Baltimore County)
- 2002-2203 4. Janet Lee (Univ. of Maryland School of Nursing)
- 2002-2003 5. Rebecca Roys (Univ. of Maryland School of Nursing)
- 2002 6. Kathleen McGrown (Univ. of Maryland School of Nursing)
- 2003 7. Bhrath Ramakrishna (University of Maryland Baltimore County)
- 2003-2004 8. Anadi Mahajan (University of Maryland Baltimore County)
- 2003-2004 9. Hao Hu (University of Maryland Baltimore County)
- 2005-2006 10. Melissa Strader (George Mason University)
- 2006-2007 11. Victoria Shelby (Univ. of Maryland School of Nursing)
- 2007-2008 12. Sun-Ah Lee (Univ. of Maryland School of Nursing)
- 2011 13. Craig Harrington (Univ Texas Houston)

#### International Visiting Students

- 2002 1. Jos deVisser (Technical University of Delft, the Netherlands)
- 2005 2. Daan Venekamp (Technical University of Delft, the Netherlands)
- 2005 3. A. Matin Wasei (Technical University of Delft, the Netherlands)
- 2006 4. Emiel Verdaasdonk, MD (Technical University of Delft, the Netherlands)
- 2007 5. Barbara Kuenzle (Swiss Federal Institute of Technology, Zurich, Switzerland)

#### Undergraduate Students (Full-Time During Summer)

- 2000 1. Ian Wu (University of Maryland College Park)
- 2001 2. Amaly Rahman (University of Maryland School of Medicine)
- 2001 3. Di Qian (Georgia Institute of Technology)
- 2001-2004 4. Sung Park (UMBC)
- 2002-2003 5. Eric Boehm (University of Maryland College Park)
- 2003 6. Anju Sidhu (East Virginia Medical School)
- 2003 7. Neeraj Saradana (East Virginia Medical School)
- 2004 8. Marina Kobayashi (Carnegie Mellon University)

- 2005 9. Rahat Husain (St Louis University-School of Medicine)
- 2005 10. Roshni Prabhu (University of Maryland College Park)
- 2008 11. Jeremy Martz (Georgia Institute of Technology)
- 2008 12. Wayne Chang (University of Maryland Baltimore County)
- 2008-2009 13. Jennifer Jarin (University of Maryland School of Nursing)
- 2010 14. Andre Samuel (Baylor University)
- 2011 15. Sandy Nyugen (Baylor University)

## Active Grant

### Ongoing Research Support

- 9/19-9/23 PI: Xiao, Y (R18 HS027277), 9/30/2019-9/29/2023  
Title: PROMIS Learning Lab: Partnership in Resilience for Medication Safety  
Sponsor: Agency for Healthcare Research and Quality  
Total costs: \$2,500,000  
Role: PI (25%)  
The goal of this project is to create a learning laboratory for patient safety in primary care, which designs and tests innovative and practical solutions based on systems engineering methods and concepts to improve medication safety in ambulatory and community settings.
- 9/19-8/23 PI: Walji, M (R18 HS027268), 9/1/2019-8/31/2023  
Title: Open Wide Learning Lab (OWLL): Improving Patient Safety in Dentistry  
Sponsor: Agency for Healthcare Research and Quality  
Total costs: \$2,500,000 (estimate)  
Role: Co-I (20%)  
The goal of this project is to systematically identify threats to dental patient safety and iteratively test improvement strategies to prevent them.
- 9/19-5/20 PI: Li, C (1937143), 9/1/2019-5/31/2020  
Title: RAISE: C-Accel Pilot - Track A1: Credible Open Knowledge Network  
Sponsor: National Science Foundation  
Total costs: \$999,870  
Role: Senior Personnel (6.25%)  
The goal of this project is to develop new capability and resources for enabling a credible open knowledge network that can help ensure the quality of knowledge rich applications and aid in debunking misinformation.
- 9/18-8/22 PI: Xiao, Y (1838621), 9/1/2018-8/30/2022  
Title: SCH: INT: Collaborative Research: Novel Computational Methods for Continuous Objective Multimodal Pain Assessment Sensing System (COMPASS)  
Sponsor: National Science Foundation  
Role: Site PI; Consortium co-PI (8.33%)  
Total costs: \$171,560  
The goal of this project is to develop sensor and algorithms for physiological and imagery data-based pain assessment
- 11/17-10/20 PI: Xiao, Y  
Title: The STARS (Science and Technology Acquisition and Retention) Program  
Sponsor: The University of Texas System Board of Regents  
Total costs: \$400,000  
The goal of this funding is to provide start up fund for Dr. Xiao's research, mainly for equipment and space modification needs. Salary support is not allowable cost for this funding.
- 09/15-09/19 PI: Xiao, Y (R01 HS024436)

Title: Patient-Centric Risk Model for Medication Safety During Care Transitions  
Agency for Healthcare Research and Quality

Total costs: \$1,500,000 (estimate)

Role: PI (09/15-05/17), co-I (10/17-9/2019), 6%

The major goals of this project are to develop a risk model for medication safety during care transitions and to identify patient-centric risk factors through home visits of discharged patients.

### **Completed Grants**

- 5/94-4/96 PI: Mackenzie, CF  
Co-I 50% effort  
Development and Enhancement of a Model of Performance and Decision Making under Stress  
Office of Naval Research (N00014-91-J-1540)  
Total costs: \$827,241 Indirect costs: \$256,730
- 6/95-5/98 PI: Mackenzie, CF  
Co-I 50% effort  
Remote Decision-Making for the Trauma Patient  
National Aeronautics and Space Agency (NCC2-921)  
Total costs: \$390,727 Indirect costs: \$104,484
- 11/96-12/98 PI: Gagliano, D  
Site PI 20% effort  
Mobile Telemedicine Testbed for Patient Transport  
National Library of Medicine/TRW (GMTP096001)  
Total costs: \$166,030 Indirect costs: \$43,031
- 11/96-2/98 PI: Mackenzie, CF  
Co-I 20% effort  
Technology Effects on Team Performance in Emergency Medicine  
Army Research Laboratories (MEDTEAMS 96-002).  
Total costs: \$455,917 Indirect costs: \$79,340
- 11/99-6/00 PI: Gagliano, David  
Site PI 10% effort  
Informatics and Other Technology for the National Heart Attack Alert Program  
National Library of Medicine. (GUMB 990001)  
Total costs: \$49,993 Indirect costs: \$9,447
- 1999-2000 PI: Mackenzie, CF  
Co-I 10% effort  
Clinical Encounter Information Transfer  
Dynamic Research Corporation  
Total costs: \$100,000 Indirect costs: \$18,890
- 4/99-3/01 **PI: Xiao, Y**  
PI 10% effort  
Auditory Warning Signals in Critical Care Settings  
National Patient Safety Foundation  
Total costs: \$49,968 Indirect costs: \$7,000 indirect costs
- 4/99-3/01 PI: LaMonte, M.P.

Co-PI 20% effort  
 TeleBAT: Mobile Telemedicine for Brain Attack Team  
National Medical Technology Testbed. (024-FY97)  
 Total costs: \$249,938 Indirect costs: \$41,368  
 11/99-6/02 PI: Gagliano, D  
 Site PI 20% effort  
 Medical Nomadic Computing Applications for Patient Transport  
National Library of Medicine (N01-LM-85606)  
 Total costs: \$1,000,754 Indirect costs: \$162,976  
 8/99-11/02 **PI: Xiao, Y**  
*Consortium Project Leader* 50% effort  
 Distant Leadership under Stress  
Department of Defense. (DASW01-99-K-0003)  
 Total costs; \$607,866 Indirect costs: \$95,614  
 11/99-9/02 **PI: Xiao, Y**  
*Consortium Project Leader* 12% effort  
 Coordination Processes and Awareness Support  
National Science Foundation. (IIS-9900406)  
 Total costs: \$199,998 Indirect costs: \$37,794  
 8/00-8/05 **PI: Xiao, Y**  
 PI 10% effort  
 The Mobile, Digitally-Connected Doctor (MobiDoc) Project  
Nortel Networks (RAP-161565)  
 Total costs: \$400,000 Indirect costs: \$75,588  
 10/00-9/04 **PI: Xiao, Y**  
*Consortium Project Leader* 12.5% effort  
 Expertise Coordination and Information Technology in High Velocity Work  
 Environments  
National Science Foundation (ITR-0081868)  
 Total costs: \$515,534 Indirect costs: \$63,281  
 1/01-12/04 PI: Mackenzie, CF  
 Co-PI 10% effort  
 Brief Risky High Benefit Procedures: Best Practice Models  
Agency for Healthcare Research Quality (HS 11279-01)  
 Total costs: \$545,914 Indirect costs: \$103,161  
 1/02-12/07 PI: Sears, A  
 Site PI 8% effort  
 Universal Access for Situational Induced Impairments  
National Science Foundation (ITR-0121570)  
 Total costs: \$145,054 Indirect costs: \$27,411 (Total project \$1,000,000  
 estimated)  
 7/02-12/02 **PI: Xiao, Y**  
 PI 10% effort  
 Telemed and Advanced Tech – Refined Training Tools for Medical Readiness  
Aptima  
 Total costs: \$40,000 Indirect costs: \$7,559 indirect

9/01-9/05 **PI: Xiao, Y**  
 PI 20% effort  
 Developmental Center for Education and Research in Patient Safety  
Agency for Healthcare Research Quality (P20 HS11562)  
 Total costs: \$600,000 Indirect costs: \$113,382

11/02-10/04 PI: Jarrell, B.  
 Co-I 10% effort  
 Operating Room of the Future  
University of Maryland Medical Systems  
 Total costs: \$350,000 Indirect costs: \$72,222

1/03-8/06 PI: Klein, KJ  
 Site PI 10% effort  
 Leadership: Enhancing Team Adaptability in Dynamic Settings  
Department of Defense (UMCP Z856401)  
 Total costs: \$192,798 Indirect costs: \$36,433

5/03-9/05 PI: Mackenzie, CF  
 Co-I 10% effort  
 Telemed and Advanced Tech – Refined Training Tools for Medical Readiness  
Aptima  
 Total costs: \$150,000 Indirect costs: \$28,346

8/04-8/05 **PI: Xiao, Y**  
 PI 5% effort  
 Informatics for Heart Attack Alert  
Northrop-Grumman  
 Total costs: \$20,000

10/05-9/06 PI: Sisley, A  
 Co-PI 5% effort  
 Trauma Team Training  
US Airforce  
 Total costs: \$199,458 Indirect costs: \$41,158

7/05-9/06 PI: Seagull, FJ  
 Co-PI 2% effort  
 Multimedia-Enhanced Emergency Medical Procedure Checklist  
National Aeronautics and Space Administration (SMS00702)  
 Total costs: \$166,063

2/08-4/09 PI: Hall, KK  
 Co-I 10% effort  
 Evaluation of Risk by Active Surveillance in the Emergency Department  
Agency for Healthcare Research and Quality (P 20 HS 17111-01)  
 Total costs: \$163,967 Indirect costs: \$33,834

9/03-8/09 **PI: Xiao, Y**  
*Consortium Project Leader* 17% effort  
 Large Scale Collaboration in Critical Environments  
National Science Foundation (ITR-0325087)  
 Total costs: \$674,712 Indirect costs: \$133,036 (Total project \$1,500,000 estimated)

- 9/06-9/09 PI: Park, A.  
Co-PI 15% effort  
Operating Room of the Future  
US Army Medical Research & Material Command (W81XWH-062-0057)  
Total costs: \$2,923,390
- 10/07-9/09 PI: Harris, A.  
Co-I 10% effort  
Attaining Safety for Patients through Interdisciplinary Risk Reduction Efforts (ASPIRRE).  
Agency for Healthcare Research and Quality (Contract #: HHS A29020060015).  
Total costs: \$96,130 Indirect costs: \$24,923
- 9/07-9/09 PI: Scalea, T  
Co-I 10% effort  
Early Support of Intracranial Perfusion  
U. S. Army W81XWH-07-2-0118  
Total costs: \$2,008,086
- 10/07-1/09 PI: Bochicchio, GV  
Co-I 10% effort  
Early aggressive glycermia control  
US Air Force (FA7014-07-C-0042)  
Total costs: \$1,813,726 Indirect costs: \$374,261
- 11/05-12/10 **PI: Xiao, Y**  
*Consortium Project Leader* 8% effort  
Supporting rapid transfer of information and responsibility  
National Science Foundation (IIS-0534646)  
Total costs: \$403,463 Indirect costs: \$78,997 indirect (Total project \$1,000,000 estimated)
- 05/09-11/10 PI: Gurses, A  
Co-I & **Site PI** 4% efforts  
Improving Patient Trajectory Management and Care Coordination with a Multidisciplinary Checklist  
Johns Hopkins University (subcontract award from National Patient Safety Foundation)  
Total costs: \$20,000 (estimate; total project \$100,000 estimated)
- 09/08-09/12 PI: Kennerly, D  
Co-I 10% effort  
Improving the Safety of Primary Care by Measuring Adverse Events and Improvement  
Agency for Healthcare Research and Quality (R18 HS017908-01)  
Total costs: \$ 900,000 (estimated).
- 10/10-9/13 PI: Hazlehurst, B  
Co-I 5% effort  
Enhancing CER with standardized natural language processing of EMR data  
Agency for Healthcare Research and Quality (R01 HS019828)  
Total costs: \$ 892,000 (estimated; total project \$ 8,696,942)
- 09/10-09/12 PI: Grissom, T

- Co-I 7.2% effort  
 Training Protocols and Assessment in the Distributed Human Patient Simulation (DHPS) Program  
 US Airforce  
 Total costs: \$25,088
- 07/10-03/14 PI: Zhang, J  
 Co-I & **Site PI** 5% efforts  
 National Center for Cognitive Informatics and Decision Making in Healthcare  
 University of Texas at Houston (subcontract award from Office of National Coordinator for Health Information Technology/HHS, Subaward #0007512 (project 1)  
 Total costs: \$250,000 (estimate; total project \$15,000,000 estimated)
- 7/11-8/14 PI: Fink, J  
 Co-I 5% effort  
 Does under-recognition of kidney disease affect patient safety?  
 National Institutes of Health/NIDDK (R01 DK09008)  
 Total costs: \$8,672 for Year 1
- 7/10-8/15 PI: Fink, J  
 Co-I  
 Does under-recognition of kidney disease affect patient safety?  
 National Institutes of Health/NIDDK (R01 DK084017)  
 Total costs: \$25,140 for Year 1
- 04/11-03/15 PI: Mancini, M.E  
 Co-I & **Site PI** 10%  
 Improving Physician and Nurse Communication with Serious Gaming  
Agency for Healthcare Research and Quality (R18 HS20416)  
 Total subaward costs: \$357,000 (estimate; total project \$1,000,000 estimated)
- 09/12-08/16 PI: Butler, K  
 Co-I 10%  
 Improvement of clinical workflow with health information technology  
Agency for Healthcare Research and Quality (R01 HS 021233)  
 Total costs: \$450,000 (estimate; total project \$1,790,000 estimated)
- 06/17-8/17 Professional Service Order (HHSN261201700084M)  
 Create a Framework on the Concepts of Distributed Cognition as Applied to Cancer Care Delivery  
National Cancer Institute  
 Total costs: \$3,496

### **Unrestricted Grants**

1. 2000 Mackenzie, CF, **Xiao Y.**, & Hu, P. TRW Inc. May, 2000 [\$20,000]
2. 2003 **Xiao, Y.**, & Seagull, J. Datex-Ohmeda. October, 2003 [\$25,000]
3. 2003 **Xiao, Y.** Northrop Grumman. December, 2003 [\$20,000]
4. 2004 Seagull, FJ & **Xiao Y.** Aethon Inc. July, 2004 [\$7,500]
5. 2007 **Xiao Y.** Aethon Inc. January, 2007 [\$7,500]

## **Publications**

### **Peer Reviewed Journal Papers**

1. **Xiao, Y.**, Hunter, W.A., Mackenzie, C.F., Jeffries, N.J., Horst, R., & LOTAS Group. Task complexity in emergency medical care and its implications for team coordination. Human Factors, 38(4):636-645. 1996. [[PMID 8976626](#)]
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3. Mackenzie, C.F., Jeffries, N.J., Hunter, A., Bernhard, W., **Xiao, Y.**, & LOTAS Group. Comparison of self reporting of deficiencies in airway management with video analyses of actual performance. Human Factors, 38(4):623-635. 1996. [[PMID 8976625](#)]
4. **Xiao, Y.**, & Vicente, K. A framework for epistemological analysis in empirical (laboratory and field) studies. Human Factors, 42(1): 87-101. 1999. [[PMID 10917148](#)]
5. Mackenzie, C.F., Martin, P., **Xiao, Y.**, & The LOTAS Group. Video analysis of prolonged uncorrected esophageal intubation, Anesthesiology, 84(6):1394-1503. 1996. [[PMID 8669692](#)]
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8. Mackenzie, C. F., Jaber, M., Dutton, R., Hu, P., & **Xiao, Y.** Overview of Simulators in Comparison With Telementoring for Decision Making, The American Journal of Anesthesiology, 27(4):186-194. 2000. [[PMID 8669692](#)]
9. **Xiao, Y.**, Gagliano, D., LaMonte, M., Hu, P., Gaasch, W., Gunawardane, R., & Mackenzie, C.F. Design and evaluation of real-time mobile telemedicine system for ambulance transport. Journal of High Speed Networks, 9:47-56. 2000.
10. Moss, J., **Xiao, Y.**, & Zubaidah, S. The operating room charge nurse: Coordinator and communicator. Journal of American Medical Informatics Association, 9(6 suppl):S70-S74. 2002. [[PMID 11825234](#)]
11. Mackenzie, C.F., & **Xiao, Y.** Video techniques and data compared with observation in emergency trauma care. Quality Safety Health Care. 12:ii51-57. 2003. [[PMID 14645896](#)]
12. Mackenzie, C.F., Hu, P., **Xiao, Y.**, & Seagull, J.F. Video acquisition and audio system network (VAASNET) for analysis of workplace safety performance. Biomedical Instrumentation and Technology, 37(4): 285-291. 2003. [[PMID 12923982](#)]
13. Moss, J., & **Xiao, Y.** Improving Operating Room Coordination: Communication Pattern Assessment. Journal of Nursing Administration: 34(2):93-100. 2004. [[PMID 14770069](#)]
14. McGrow K, Roys R, Maloney RC, **Xiao Y.** Using wireless technologies to improve information flow for interhospital transfers of critical care patients. Critical Care Nurse. 24:66-73. 2004. [[PMID 15098312](#)]
15. Dexter, F., Epstein, R.H., Traub, R.D., & **Xiao, Y.** Making Management Decisions on the Day of Surgery Based on Operating Room Efficiency and Patient Waiting Times. Anesthesiology, 101(6): 1444-1453. 2004. [[PMID 15564954](#)]
16. LaMonte, M.P., **Xiao, Y.**, Hu, P.F., Gagliano, D.M., Bahmouth, M.N., Gunawardane, R.D., Mackenzie, C.F., Gaasch, W.R., & Cullen, J. Shortening time to stroke treatment using

- ambulance telemedicine: TeleBAT. Journal of Stroke & Cerebrovascular Diseases. 13(4): 148-154. 2004. [[PMID 17903967](#)]
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  18. Mackenzie, C.F., **Xiao, Y.**, & Horst, R. Video task analysis in high performance teams. Cognition, Technology, and Work, 6(3): 139-147. 2004. [DOI: [10.1007/s10111-004-0155-1](#)]
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  20. Seagull, F.J., **Xiao, Y.**, & Plasters, C. Information Accuracy and Sampling Effort: A Field Study of Surgical Scheduling Coordination. IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans. 24(6): 764-771. 2004. [DOI: [10.1109/TSMCA.2004.836782](#)]
  21. **Xiao, Y.**, Seagull, F.J., Mackenzie, C.F., Klein, J. Adaptive leadership in trauma resuscitation teams: a grounded theory approach to video analysis. Cognition, Technology & Work, 6(3): 158-164. 2004. [DOI: [10.1007/s10111-004-0157-z](#)]
  22. **Xiao Y**, Hu, P, Hu H, Ho D, Dexter F, Mackenzie CF, Seagull FJ, Dutton D. Algorithm for Processing Vital Sign Monitoring Data to Remotely Identify Operating Room Occupancy in Real-Time. Anesthesia & Analgesia. 101(3):832-829, 2005 [[PMID 16115998](#)]
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  24. Lu YC, **Xiao Y**, Sears A, Jacko J. A Review and a Framework of Handheld Computer Adoption in Healthcare. International Journal of Medical Informatics. 74(5):709-722. 2005. [[PMID 15893264](#)]
  25. **Xiao Y**, Kim YJ, Gardner SD, Faraj S, Mackenzie CF. Communication Technology in Trauma Centers: A National Survey. Journal of Emergency Medicine. 30(1):21-28. 2006. [[PMID: 16434331](#)]
  26. Seagull FJ, Mackenzie CF, **Xiao Y**, Bochicchio GV. Video-based Ergonomic Analysis to Evaluate Thoracostomy Tube Placement Techniques. Journal of Trauma. 60(1):227-232. 2006 [[PMID 16456461](#)]
  27. Gurses AP, **Xiao Y**. A systematic review of the literature on multidisciplinary rounds to design information technology. Journal of American Medical Informatics Association. 13(3):267-276. 2006 [[PMID 16501176](#)]
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  29. Hu P, **Xiao Y**, Ho D, Mackenzie CF, Hu H, Voigt R, Martz D. Advanced Visualization Platform for Surgical Operating Room Coordination: Distributed Video Board System. Surgical Innovation. 13(2):129-135. 2006 [[PMID: 17012154](#)]
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38. Mackenzie CF, **Xiao Y**, Hu PF, Seagull FJ, Fitzgerald M. Video as a Tool for Improving Tracheal Intubation Tasks for Emergency Medical and Trauma Care. Annals of Emergency Medicine. 50(4):436-42, 2007 [PMID: [17881317](https://pubmed.ncbi.nlm.nih.gov/17881317/)]
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40. Miller A, **Xiao Y**. Multi-Level Strategies to Achieve Resilience for an Organization Operating at Capacity: A Case Study at a Trauma Centre. Cognition, Technology, & Work. 9(2):51-66. 2007 [DOI: [10.1007/s10111-006-0041-0](https://doi.org/10.1007/s10111-006-0041-0)]
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47. Gurses AP, Seidl K, Vaidya V, Bochicchio GV, Harris A, Hebden J, **Xiao Y**. Ambiguity and guideline compliance: A qualitative study of how intensive care units follow guidelines. Quality and Safety in Health Care 17:351-359. 2008 [[PMID 18842974](#)] (**Editor's choice**)
48. **Xiao Y**, Hu P, Moss J, de Winter J, Venekamp D, Mackenzie CF, Seagull FJ, Perkins S. Opportunities and challenges in improving surgical work flow. Cognition, Technology & Work. 10:313-321, 2008. [DOI: [10.1007/s10111-007-0087-7](#)]
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53. Cardarelli M, Vaidya V, Conway D, Jarin J, and **Xiao Y**. Dissecting Multidisciplinary Cardiac Surgery Rounds: Data, Wisdom, Time and Money. Annals of Thoracic Surgery 88(3):809-13. 2009 [[PMID 19699903](#)]
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Full-Length Peer Reviewed Published Proceeding Papers

1. **Xiao, Y.,** Zhang, S.W., & Zhang, Y. An Internal Model Approach in the Modelling of Human Preview Control. Proceedings of the 1988 IEEE Conference on Systems, Man, and Cybernetics, NY:IEEE, 839-844. 1988.
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60. Dutton RP, Kahraman S, Hu P, **Xiao Y**, Scalea T. High resolution ICP and CPP data better predict outcome of severe TBI. Am Soc Anesth Ann Mtg 2009. A1459 (Presented 10/17/2009)

#### Journal Articles (Non-Peer Reviewed)

1. **Xiao, Y.**, Milgram, P., & Ryman, A.G., Implementation and Evaluation Scheme for Stereoscopic Display of Networks, IBM Tech Report 74.126. Sept. 1993.
2. **Xiao, Y.** Report of The LOTAS. Trauma Care (publication of International Trauma Anesthesia and Critical Care Society). 1995.
3. **Xiao, Y.**, & The LOTAS Group. Trauma Care (publication of International Trauma Anesthesia and Critical Care Society), 6(2):18. 1996.
4. Cullen, J.S., Gagliano, D., Gaasch, W., Gunawardane, R., Hu, P. F-M., Lamonte, M. P., Mackenzie, C. F., & **Xiao, Y.** Mobile Medicine Testbed. TRW Systems and Information Journal Review, 7(1): Spring/Summer. 1999.
5. **Xiao, Y.**, Seagull, F.J. Toward a user friendly health care environment: The case of alarms. Forum (Risk Management Foundation, Harvard Medical Institutions), 21(2): 17-18, Summer. 2001.
6. Mackenzie, C. F., & **Xiao, Y.** Meeting Reports. Video as Research Data Conference. Anesthesiology, 99(1); 245. 2003.

#### Books/Chapters in Books

1. **Xiao, Y.**, Milgram, P., & Doyle, D.J. Capturing and modeling planning expertise in anesthesiology: Results of a field study. In C. Zsombok & G. Klein (Eds.): Naturalistic Decision Making, Mahwah, NJ:LEA, pp. 197-205. 1997.
2. **Xiao, Y.**, & Zhang, S. W. The Effects of Supervisor's Knowledge in a Complex Automated System. In W. Karwowski, H.R. Parsaei & M. Wilhelm (Eds.): Ergonomics of Hybrid Automated Systems, New York: Elsevier, pp.33-37. 1988.
3. **Xiao, Y.**, & The LOTAS Group. Understanding Coordination in a Dynamic Medical Environment: Methods and Results. In M. McNeese, E. Salas, & M. Endsley (Eds.): New Trends in Collaborative Activities: Understanding System Dynamics in Complex Environments, Santa Monica, CA: Human Factors and Ergonomics Society, 242-258. 2001.
4. Yun, S., Faraj, S., **Xiao, Y**, Sims, H.P. ,Jr. Team leadership and coordination in trauma resuscitation. In. Beyerlein, M.M., Johnson, D.A., & Beyerlein, S.T. (Eds.): Team-Based Organizing, JAI: Amsterdam, pp. 189-214. 2003.
5. Mackenzie, C.F., **Xiao, Y.** Stop Bad Things from Happening to Good People in Shock Trauma Centers. In: Human Error in Healthcare: Inside stories, Bogner, S. (Ed). Erlbaum. 2003.
6. **Xiao, Y.**, & Seagull, F.J. An analysis of problems with auditory alarms: defining the roles of alarms in process monitoring tasks. In Haas, E. & Edworthy, J.(Eds.): The Ergonomics of Sound: Selections from Human Factors and Ergonomics Society Annual Meetings, 1985-2000, Santa Monica, CA: Human Factors & Ergonomics Society. 2003.

7. **Xiao, Y.**, Milgram, P. Dare I Embark On A Field Study? Toward An Understanding Of Field Studies, The Qualitative Report, 8(2):306-313. 2003.
8. Mackenzie, C.F., **Xiao, Y.**, Lam, D., Hu, P., & Ogilvie, C. Telemedicine in emergencies. In Bangert, D.C., Doktor, R. (Eds.): Human and Organizational Dynamics in e-Health. Radcliffe Publishing: Oxford, pp. 249-267. 2005.
9. **Xiao, Y.**, Gagliano, D., LaMonte, M.P. Mobile telemedicine for stroke. In Perdikouri M, Giovas P, Papadoyannis D, (Eds): [Telemedicine in practice] (Greek Telemedicine Handbook), En Plo Editions, Athens, pp.179-185. 2005.
10. Mackenzie, C.F., **Xiao, Y.** Video Analysis in Health Care. In P. Carayon (Ed.): Handbook of Human Factors and Ergonomics in Health Care and Patient Safety. Mahwah, NJ: LEA, pp 663-678, 2007
11. LaMonte MP, Bahouth MN, **Xiao Y**, Hu P, Mackenzie C. Telemedicine Applied to Stroke Care. In Bhardwaj A, Alkayed NJ, Kiersch JR, & Traystman RJ (Eds), Acute Stroke: Bench to Bedside. Informa Healthcare USA, NY , pp 415-419, 2007
12. **Xiao, Y.**, Seagull, F. J., Mackenzie, C. F., Klein, K. J., & Ziegart, J. Adaptation of Team Communication Patterns: Exploring the Effects of Leadership at a Distance, Task Urgency, and Shared Team Experience. In S.P.Weisband (Ed.): Distant Leadership. Mahwah, NJ: LEA. Pp. 71-95, 2007
13. Mackenzie CF, Seagull FJ, **Xiao Y**, Hu PF. Training for patient safety in invasive procedures: A novel use of real clinical video clips. In Croskerry P, Cosby KS, Schenkel SM & Wears RL. Patient Safety in Emergency Medicine. Philadelphia, PA:Wolter Kluwer. Pp.308-314, 2009
14. Mackenzie CF, Jeffcott S, **Xiao Y**. Measuring the impact of time pressure on team task performance. In Flin, Rhona and Mitchell, Lucy (ed.): Safer Surgery: Analysing Behaviour in the Operating Theatre. Oxon, UK:Ashgate. 2009
15. Kuenzle B, **Xiao Y**, Miller A, Mackenzie CF, Survey of healthcare teamwork rating tools: Reliability, validity, ease of use, and diagnostic efficacy. In Patterson et al, Macro-cognition Metrics and Scenarios: Design and Evaluation for Real-World Teams. Ashgate Publishing. Ch.9, pp.123-136. 2010
16. Mackenzie CF, **Xiao Y**. Video Analysis: An Approach for Use in Healthcare. In: Carayon P (ed.). Handbook of Human Factors and Ergonomics in Healthcare and Patient Safety. Lawrence Erlbaum and Associates; 2011; 31:521-534.
17. **Xiao Y**, Probst CA. Engagement and macroergonomics: Using cognitive engineering to improve patient safety. In Fairbanks CT, Burns C, and Bisantz A (Eds), Cognitive Engineering Approaches in Health Care, CRC Press/Taylor and Francis, 2014
18. **Xiao Y**, Probst CA. Usability Experience Survey. In Zhang J & Walji M (Eds), Better EHR: Usability, workflow & cognitive support in electronic health records, University of Texas Health Sciences Center at Houston. 2014. pp151-6
19. Tang C, **Xiao Y**, Chen Y, Gorman PN. Design for Supporting Healthcare Teams. In Patel VL, Kannampallil TG, Kaufman D (Eds), Human Computer Interaction in Healthcare, Springer, 2015; 215-239

#### Letters to Journal

1. **Xiao Y**. Missing the connection? [Letter] IEEE Engineering in Medicine & Biology Magazine. 16(1):9, 1997

Invited Contributions

1. **Xiao Y**, Mackenzie CF, Seagull FJ. Video to improve patient safety: clinical and educational uses [Perspective]. AHRQ WebM&M [serial online]. May 2015. Available at: <http://webmm.ahrq.gov/perspective.aspx?perspectiveID=177>.

## **Presentations and Invited Speeches**

### **Institutional and Departmental Presentations**

- 1994 (December 7). Grand Round, Department of Anesthesiology, University of Maryland. *For the Sake of Patient Safety: Human Factors Research in Anesthesiology*.
- 1997 (May 14). Pre-ITACCS Symposium: Human Factors in Trauma Care, Baltimore, MD.
- 2000 (July 21). The Annual Summer Institute in Nursing Informatics Program, University of Maryland, Baltimore, School of Nursing. *Ambulance on the Web*.
- 2001 (February 8). University of Maryland Program in Trauma Grand Rounds. *Mobile Digitally Connected Doctor Project*.
- 2001 (August 30). University of Maryland Program in Trauma Grand Rounds. *Patient Safety*.
- 2002 (March 14). University of Maryland Program in Trauma Grand Rounds. *Telemedicine*.
- 2003 (February 6). University of Maryland Program in Trauma Grand Rounds. *Video as tool for coordination*.
- 2003 (October 13). University of Maryland Program in Trauma Grand Rounds. *Human factors and technology research*.
- 2005 (February 10). University of Maryland Program in Trauma Grand Rounds. *Patient safety research*.
- 2006 (March 3). University of Maryland Department of Radiology Medical Informatics Seminar. *Information visualization for process management*.
- 2007 (July 19). The Annual Summer Institute in Nursing Informatics Program, University of Maryland, Baltimore, School of Nursing. *The "Resolution" and "Bandwidth" of Workplaces – implication for observational studies*.
- 2007 (October 2) University of Maryland National Study Center for Trauma and EMS Trauma/EMS Research Conference. *Compliance to evidence based practices: Barriers and interventions*.
- 2010 (March 16). Baylor University Medical Center Department of Anesthesia Grand Round. *Human Factors and Patient Safety*.
- 2013 (March 20). Baylor University Medical Center Department of Surgery Grand Round. *Surgical Safety Outcomes: Recent Advances*.

### **Presentations at National and International Professional Organizations**

1. 1990 (October 9). Third UNB AI Workshop, University of New Brunswick, Fredericton, New Brunswick, Canada. *Distributed Plan Verifier*.
2. 1992 (November 9). CAS Conference, Canada: Toronto, Canada. *Visualization of Large Networks in 3-D Space: Issues in Implementation and Experimental Evaluation*.
3. 1992 (October 12-16). Human Factors Society 36th Annual Meeting, Atlanta, GA. *Incident Evolution and Task Demands: An Analysis and a Field Study of "Going Sour" Incidents*.
4. 1993 (October 11-15). Human Factors and Ergonomics Society 37th Annual Meeting, Seattle, WA. *Two Classes of Problem Solving Situations in Managing Complex Systems*.
5. 1993 (October 15). The 25th Annual Conference of Human Factors Association of Canada, Hamilton, Ontario, Canada. *Off-Loading, Prevention, and Preparation: Planning Behaviors in Complex System Management*.

6. 1994 (June 15). Second Conference in Naturalistic Decision Making, Dayton, Ohio. *Planning expertise in anesthesiology*,
7. 1995 (May 12). 8<sup>th</sup> Annual Trauma Anesthesia and Critical Care Symposium, Baltimore, Maryland. *Decision Making Models*.
8. 1995 (October 9-13). Human Factors and Ergonomics 39th Annual Meeting, San Diego, CA. *Medical Case Rounds: A Medium for Training and Studying Real-Life Decision Making*.
9. 1995 (October 9-13). Human Factors and Ergonomics 39th Annual Meeting, San Diego, CA. *Decision Making in Dynamic Environments: Fixation Errors and Their Causes*.
10. 1996 (April 13-18). 11th World Congress of Anesthesiologists, Sydney, Australia. *Observe with Tools*.
11. 1996 (August 25-28). Third Annual Symposium on Human Interaction with Complex Systems, IEEE Computer Society, Dayton, OH. *Medical Teams*.
12. 1996 (June 2). Second Symposium on Simulators in Anesthesiology Education, Rochester, New York. *Analyzing Video Data: Challenges and Solutions*.
13. 1996 (October 13-15). Conference on Examining Errors in Health Care, American Association for Advancement of Science and Joint Commission on Accreditation of Healthcare Organizations, Rancho Mirage, CA. *Informal Teams*.
14. 1996 (October, 19-23). American Society of Anesthesiologists Annual Meeting, New Orleans, LA. Oral poster presentation. *Alarms: Silenced, ignored, missed*.
15. 1996 (September 2-6). Human Factors and Ergonomics 40th Annual Meeting, Philadelphia, PA. *Remote Decision Making in Dynamic Tasks Environments*.
16. 1996 (September 2-6). Human Factors and Ergonomics Society 40th Annual Meeting, Philadelphia, PA. *Distributed Decision Making*.
17. 1997 (June 10). Association for the Advancement of Medical Instrumentation (AAMI) Annual Meeting, Washington, DC. *Evaluating Mobile Telemedicine*.
18. 1997 (May 15-17). 10<sup>th</sup> Annual Trauma Anesthesia and Critical Care Symposium and World Exposition, Baltimore, MD. *Modeling of Team Coordination Strategies*.
19. 1997 (September 22-26). Human Factors and Ergonomics 41st Annual Meeting, Albuquerque, NM. *Uncertainty in trauma patient resuscitation*.
20. 1997 (September 22-26). Human Factors and Ergonomics 41th Annual Meeting, Albuquerque, NM. *Nurses, surgeons, and anesthesiologists as teleconsultants: The effect of experience background on remote diagnosis*.
21. 1998 (April 20-22). NATO HFM Symposium on "Collaborative Crew Performance in Complex Operational Systems", Edinburgh, UK. *Coordination in Complex Medical Systems*.
22. 1998 (May 21-22). National Association of EMS Physicians (NAEMSP), Alexandria, VA. *EMS Agenda for the Future: Ambulance-on-the-Web*.
23. 1998 (October 11-14). IEEE International Conference on Systems, Man, and Cybernetics, San Diego, CA. *Micro-theory methodology in critical incident analysis*.
24. 1999 (April 25-28). Health Tech '99, Baltimore, MD. *Mobile Telemedicine*.
25. 1999 (May 13-15). 12<sup>th</sup> Annual Trauma Anesthesia and Critical Care Symposium and World Exposition, Chicago, IL. *Alarms-Friends or Foes?*
26. 1999 (September 27-October 1). Human Factors and Ergonomics 43rd Annual Meeting, Houston, TX. *An Analysis of Problems with Auditory Alarms: Defining the Role*.

27. 2000 (July 29-August 4). International Ergonomics Association/Human Factors and Ergonomics Society 2000 Congress, San Diego, CA. *Managing the Monitors: An Analysis of Alarm-Silencing Activities During An Anesthetic Procedure.*
28. 2000 (July 29-August 4). International Ergonomics Association/Human Factors and Ergonomics Society 2000 Congress, San Diego, CA. *Patients Monitoring Technology: Friend or Foe?*
29. 2001 (October 8-12). Human Factors & Ergonomics Society 45th Annual Meeting. Minneapolis, MN. *Practice of High Reliability Teams: Observations in Trauma Resuscitation.*
30. 2001 (September 16-20). The Seventh European Conference on Computer-Supported Cooperative Work, Bonn, Germany. *Cognitive Properties of a Whiteboard: A Case Study in a Trauma Centre.*
31. 2002 (August 1-6). Academy of Management 62<sup>nd</sup> Annual Meeting. Denver, CO. *Practices of highly skilled teams in high-velocity, high-stake environment: trauma patient resuscitation.*
32. 2002 (September 30-October 4). Human Factors & Ergonomics Society 46th Annual Meeting. Baltimore, MD. *Adaptation of team structure of trauma resuscitation teams.*
33. 2002 (September 30-October 4). Human Factors & Ergonomics Society 46th Annual Meeting. Baltimore, MD. *Transactive responsibility systems and high reliability teams: a tentative formulation.*
34. 2003 (August 24-29). International Ergonomics Association 25<sup>th</sup> Triennial Congress, Seoul, South Korea. *Coordination Practices for Patient Safety: Knowledge, Cultural, and Supporting Artifact Requirements.*
35. 2003 (June 23-27). International Conference on Human Computer, Crete, Greece. *An Observational and Interview Study on Personal Digital Assistant (PDA) Uses by Clinicians in Different Contexts.*
36. 2003 (November 11). American Medical Informatics Association Fall Symposium, Washington, DC. Panel presentation. *Cognitive Properties of a Whiteboard.*
37. 2003 (October 13-17). Human Factors & Ergonomics Society 47th Annual Meeting. Denver, CO. *Team communication patterns as measures of team processes: exploring the effects of task urgency and shared team experience.*
38. 2003 (October 13-17). Human Factors & Ergonomics Society 47th Annual Meeting. Denver, CO. *Why are they not responding to our alarms? Another analysis of problems with alarms.*
39. 2003 (October 5-8). IEEE International Conference on Systems, Man, and Cybernetics, Washington, DC. *Distributed Monitoring In a Dynamic Environment: Trade-Offs of Information Access and Privacy.*
40. 2003 (October 5-8). IEEE International Conference on Systems, Man, and Cybernetics, Washington, DC. *Distributed Monitoring and a Video-Based Toolset.*
41. 2004 (October 10-13). IEEE International Conference on Systems, Man, and Cybernetics, The Hague, Netherlands. *Cultural and Institutional Conditions for High Reliability Teams.*
42. 2004 (September 13). Second International Conference on Information Technology in Health Care, Portland, Oregon. *Accidental CSCW Systems: The Resolution and Bandwidth of Workplaces.*

43. 2004 (September 27). Panel presentation, Agency for Healthcare Research and Quality conference on Patient Safety. *Impact of video-based training in sterile practices.*
44. 2004 (September 27). Panel presentation, Agency for Healthcare Research and Quality conference on Patient Safety. Washington, DC. Panel chair. *Observational and Ethnographic Studies: Insights into Medical Error and Patient Safety.*
45. 2005 (September 25-30). Human Factors & Ergonomics Society 49th Annual Meeting. Orlando, FL *Negotiation and Coordination: A Preliminary Field of Conflict Management in Large Scale Collaboration.*
46. 2006 (July 26-29). The 28<sup>th</sup> Annual Conference of the Cognitive Science Society, Vancouver, British Columbia, Canada. *Distributed Cognition in Healthcare.*
47. 2006 (June 3-6). 12th IFAC Symposium on Information Control Problems in Manufacturing. Saint-Etienne, France. *Dynamic Management in Perioperative Processes: A Modeling and Visualization Paradigm*
48. 2007 (October 1-5). Human Factors & Ergonomics Society 51st Annual Meeting. Baltimore, MD. Panel Co-Chair. *Developing and using team performance measures in healthcare: lessons learned.*
49. 2007 (October 7-10). IEEE International Conference on Systems, Man, and Cybernetics, Montreal, Canada. *Resilience in Intensive Care Units: A Transactive Responsibility Model.*
50. 2008 (April 9). Academy of Computing Machinery (ACM) Conference on Human Factors in Computing Systems (CHI), Florence, Italy. *Front-Stage and Back-Stage Information Processes of Critical Discourse in Intensive Care Settings.*
51. 2008 (August 16). American Psychological Association Annual Meeting, Boston, MA. Panelist: *Collaborative Systems in Health Care: Implications for Improving Patient Safety.*
52. 2008 (November 10). American Medical Informatics Association Fall Symposium, Washington, DC. Panelist: *Computerized Status Boards in Acute Care Settings: Promise and Pitfalls.*
53. 2008 (November 9). American Medical Informatics Association Fall Symposium, Washington, DC. Panelist: *Distributed Cognition in Healthcare.*
54. 2008 (October 1-5). Human Factors & Ergonomics Society 52nd Annual Meeting. New York, NY. Panel Co-Chair. *Developing and using team performance measures in healthcare: lessons learned.*
55. 2009 (November 16) American Medical Informatics Association Fall Symposium. *Fitting Computerized Support into the Workflow: Enhancing Paper-Based Cognitive Aid in a Pediatric Intensive Care Unit*
56. 2009 (October 22) Human Factors & Ergonomics Society 51st Annual Meeting. User created cognitive artifacts: What can they teach us about design of information technology?
57. 2010 (October 3) Surgical Outcome Club of American College of Surgeons, Washington, DC. *Video analysis of surgical team performance*
58. 2010 (September 30) Human Factors and Ergonomics Society Annual Meeting, San Francisco, CA. Debate: *Is There Low Hanging Fruit in Healthcare Human Factors?*
59. 2010 (September 30) Human Factors and Ergonomics Society Annual Meeting, San Francisco, CA. Debate: *Supporting cognition and decision making in clinical work.*

60. 2011 (September 29). Human Factors and Ergonomics Society Annual Meeting, Las Vegas, NV. *Studying Clinical Communication to Inform Health Information Technology Design*
61. 2012 (October 25). Human Factors and Ergonomics Society Annual Meeting, Boston, MA. *Learning about Healthcare: Preparing Human Factors Professionals for a Career in Healthcare.*
62. 2012 (October 25). Human Factors and Ergonomics Society Annual Meeting, Boston, MA. *Human Factors in the Wild: dilemmas and solutions from human factors engineers working in healthcare.*
63. 2012 (October 25). Human Factors and Ergonomics Society Annual Meeting, Boston, MA. *Using Human Factors And Systems Engineering To Improve Care Coordination.*
64. 2013 (October 1). Human Factors and Ergonomics Society Annual Meeting, San Diego, CA. *Human Factors in the Wild: Insight from developing solutions in healthcare.*
65. 2013 (October 1). Human Factors and Ergonomics Society Annual Meeting, San Diego, CA. *Human Factors in the Wild: Insights Into Teaching HF to Frontline Professionals in Healthcare*
66. 2014 (October 30). Human Factors and Ergonomics Society Annual Meeting, Chicago, IL. *Building High-Performance Surgical Teams: Theoretical and Practical Considerations for Team Consistency*
67. 2015 (October 29). Human Factors and Ergonomics Society Annual Meeting, Los Angeles, CA. *Human Factors in the Wild: Bringing Value to Frontline Care Providers via Low-Tech Methods and Solutions.*
68. 2017 (October 12). Human Factors and Ergonomics Society Annual Meeting, Austin, TX. *Human Factors in the Wild: Solutions for Mitigating the Negative Impact of Interruptions in Health Care*
69. 2018 (March 27). International Symposium on Human Factors and Ergonomics in Health Care, Boston, MA. *Ideas for Improving Coordination: "Principles" based on Distributed Cognition.*
70. 2018 (June 24). Abebe, E., Hannum, S., Gurses, AP., Xiao, Y. Identifying Gaps for Patient-Centric Model of Medication Management during Care Transitions. AcademyHealth Annual Research Meeting. June 24-26, 2018. Seattle, WA.

#### Keynote and special invited presentations

1. 1993 (June 23). Chalk River Laboratories, Atomic Energy of Canada. *Problem Solving in Managing Complex Systems.*
2. 1995 (September 4)., Department of Psychology, George Mason University, Fairfax, VA. *Human Factors Research in Emergency Medicine.*
3. 1996 (January 22). NASA Ames Research Center, Moffett Field, CA. *Remote Diagnosis for Trauma Patient Resuscitation.*
4. 1997 (April 14). Krasnow Institute, George Mason University, Fairfax, VA. *Defining Cognition in Working Settings.*
5. 2000 (June 15). Army Research Institute, Ft. Leavenworth, KS. *Distant Leadership Under Stress.*

6. 2000 (October 6). National Patient Safety Foundation, Chicago, IL. *Videotaping for patient safety*.
7. 2001 (October 18-21). University of Arizona Distant Leaders Workshop. *Structures of Trauma Resuscitation Teams With Local and Distant Leaders: A Communication Analysis*.
8. 2004 (July 16). Center for Technology in Government, State University of New York at Albany. *Information technology and coordination*.
9. 2004 (October 14). Delft University of Technology, Delft, the Netherlands. *Patient safety and coordination research in medicine*.
10. 2005 (June 21). Telemedicine and Advanced Technology Research, Frederic, MD. *Human factors and video technology for patient safety*.
11. 2005 (October 12). Engineering Research Center for Computer-Integrated Surgical Systems and Technology, Department of Computer Science, Johns Hopkins University. *Modeling and simulation to support real-time management of peri-operative processes*.
12. 2006 (April 14). Keynote for simulation fair, Dartmouth Medical School. *Video for Patient Safety*.
13. 2008 (January 15). Johns Hopkins University Quality and Safety Research Group. *Communication patterns in rounds*.
14. 2008 (March 6). University of Maryland Institute for Systems Research, College Park, Maryland. *Coordination Challenges in Hospital Care*.
15. 2008 (March 12). Distinguished Alumni Lecture, University of Toronto, Toronto, Canada. *The Resolution and Bandwidth of Workplaces*.
16. 2008 (September 19). Johns Hopkins University Grandround on Health Informatics, Baltimore, Maryland. *Communication in an information arena: Supporting clinical communication through informatics*.
17. 2009 (February 18). Special Seminar, Baylor Health Care Systems, Dallas, Texas. *Compliance to Evidence-Based Practices: Barriers and Facilitators*.
18. 2009 (April 23). Keynote speaker at 12<sup>th</sup> Symposium of Cassatt Insurance Group and Abington Memorial Hospital, Pennsylvania. *Overview of Human Factors and Communication in Healthcare*.
19. 2009 (July 6-7). Summer doctoral course at Department of Management, Technology and Economics, Swiss Federal Institute of Technology Zurich. *Coordination and work flow management in health care*.
20. 2009 (July 8). Invited lecture at University Hospital Zurich Institute for Anesthesiology, Zurich, Switzerland. *Simulation, live teams, and videotape: All for the sake of patient safety*.
21. 2009 (August 21). Invited presentation at Oregon Health and Science University Department of Medical Informatics & Clinical Epidemiology, Portland, Oregon. *Rounding Partner: Technology to support information transfer in intensive care units*.
22. 2010 (September 26). Invited presentation at Joint Medical Informatics Conference in Taiwan, Republic of China. *Human Factors and Informatics*.
23. 2011 (June 12). Invited presentation at European Anaesthesiology Congress, Amsterdam, the Netherlands. *Video-based assessment of team performance*.

24. 2011 (November 7). Invited lecture at Department of Industrial and Systems Engineering, Texas A&M University, College Station, Texas. *Opportunities for Human Factors Research in Health Care*.
25. 2012 (July 16). Invited lecture at University of Wisconsin Summer Course on Human Factors in Healthcare, Madison, Wisconsin. *Human Factors Engineering in Healthcare - Practical Application*.
26. 2013 (February 24). Invited Keynote Speaker at CHI/CSCW Workshop, San Antonio, Texas. *Computer Supported Cooperative Work: Task paradigms, theoretical frameworks, and practical impact*.
27. 2013 (November 20). Invited lecture at University of Maryland Baltimore County (UMBC). *Improving EHR usability: Experience from within a healthcare organization*.
28. 2013 (June 5). Invited Speaker at American Society of Health-System Pharmacists Summer Meeting, Minneapolis, Minnesota. *Incorporating human factors concepts during implementation and optimization of information technology*.
29. 2015 (August 21). Invited speaker at Healthcare Safety Conference by Texas Department of State Health Services. *Human factors 101*
30. 2015 (August 21). Invited speaker at Healthcare Safety Conference by Texas Department of State Health Services, Houston, Texas. *Improving Physician and Nurse Communication with Serious Gaming*
31. 2016 (September 27). Invited Panel Speaker, C3 US-Arab Business and Healthcare Summit, New York City (the Union League Club). *Designing for Patient Safety – Best Practices to Reduce Medical Errors*
32. 2016 (December 6). Invited Speaker at Knowledge Media Design Institute, University of Toronto, Toronto, Canada. *From Features to Patient Safety: Opportunities for Human Factors*
33. 2018 (February 23). Invited Grandround Speaker, Department of Hospital Medicine (Visiting Professor), University of Colorado, Denver, Colorado. *Skills, behaviors, teamwork, and work system: Human factors pearls for patient safety and quality improvement*

### **Theses**

- 1985 Master's thesis. *An Internal Model Approach in the Modelling of Human Preview Control*. Beijing Institute of Technology. Advisor: S.W. Zhang
- 1994 Doctoral dissertation. *Interacting with Complex Work Environments: A Field Study and a Planning Model*. University of Toronto. Advisor: P. Milgram.

### **Patents**

- 2005 US 8,135,602 (issued March 13, 2012). "Techniques for delivering coordination data for a shared facility", with Fu Ming "Peter" Hu, Jacob F. Seagull & Colin F. Mackenzie
- 2009 US 8,832,558 (issued September 9, 2014) and Canadian 2,739,829 (issued May 2, 2017). "Predetermined Presentation of Patient Data at Bedside", with Marcelo Cardarelli & Vinay Vaidya

### **Other Certificate(s)**

- 2017 Private Pilot License #3897530, US Federal Aviation Administration.