

Anil R. Kumar, Ph.D., CSSBB

Department of Industrial and Systems Engineering
San Jose State University, San Jose, California 95132
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Education

Western Michigan University

Industrial Engineering

PhD 2007

Selected Funded Projects

1. *(Co-PI)* Modeling EMS Traffic Crash Data Using Quantitative Methods, **Office of Highway Safety, Michigan State Police**, (\$128,880), Jan 2015
2. *(Co-PI)* Assessment of Bed Surface and related products- Phase1, **Stryker Medical**, (\$65,000), April 2015
3. *(Co-PI)*

Provided litigation support for several FLSA, railroad cases (FELA) and “Suitable Seating” cases. Designed study, visited site, collected and analyzed data, prepared reports, and provided litigation support

Conducted office ergonomic evaluations at various government agencies (**IMF, Federal Board, and Office of the President**). Performed proactive/reactive workstation evaluations to identify hazards; recommend effective countermeasure to reduce or eliminate the work related musculoskeletal disorders

Lead and participated in ergonomic evaluations of stair chairs, birthing beds, manhole covers, side chairs and task chairs (**Stryker Medical Inc, East Jordan Iron Works, Haworth Inc**)

Conducted time studies in health care facilities to investigate the relationship between patient acuity, time standards, and productivity (**Bronson Methodist Hospital**)

Assisted in development of a Human Factors training seminar for **Stryker Medical Inc**

Participated in an investigation of the effects of certain medications on IV tubings for **Bronson Methodist Hospital**, Kalamazoo, MI

Developed an operating manual and conducted usability testing for **HighBraid Inc.** on BraidMagic (a braiding machine developed in Korea).

Ergonomically redesigned and evaluated manual Cleco pliers (hand tool to temporarily fasten sheet metals) for **Cessna**.

Evaluated hand-forearm systems (Greenleaf WristSystem , Wristcorder System and CyberGlove System) in terms of linearity, accuracy and sensitivity.

Conducted ergonomic evaluations for **Learjet Bombardier**:

- Increased user comfort and productivity of electronic box inspection workstation by applying Systematic Layout Planning (SLP) technique.

- Evaluated and controlled noise in the production area.

- Optimized lighting for the electronic box inspection workstation.

Designed a slider for the WSU Physical Plant to aid in manual material handling tasks.

Guided student groups on various projects in an aircraft manufacturing plant in Wichita (**Air Capitol Plating**) related to workplace design and layout.

Developed an assessment system of hand-transmitted vibration (SigVis), consisting of vibration signal acquisition, analysis, visualization, and ergonomic evaluation.

Publications

Peer Reviewed Journal Papers

Prieto DM, **Kumar A**, Kothari CL, Dickson C. (2016). Systematic identification of coordination gaps in pediatric care. *Front Public Health Serv Sys Res*, 5(4):12–20. DOI: 10.13023/FPHSSR.0504.03.

Kumar, AR., Butt, SE., Abudayyeh, O., Fredericks, TK., & Kuk, M. (in review). Statistical approaches to modeling EMS response time: A Michigan case study. *Transportation Research Record: Journal of the Transportation Research Board*.

Kumar, AR., Abudayyeh, O., Fredericks, TK., Kuk, M., Valente, M., & Butt, K. (in review). Trend analyses of emergency medical services for motor vehicle crashes: The Michigan case study. *Transportation Research Record: Journal of the Transportation Research Board*.

Kumar, AR., Fredericks, TK., and Butt, SE. (2015). Using a Psychophysical Approach to Identify a User’s Self Selected Thermal Comfort on a Task Chair. *International Journal for Industrial Ergonomics*, 46, 36-43

Fredericks, TK., Butt, SE., **Kumar, AR.**, & Bellinger, T. (2015). Do users desire symmetrical lumbar supports in task seating?. *Ergonomics*, 1-12.

Fredericks, TK., **Kumar, AR.**, Oda, NM., & Butt, SE. (2015). Psychophysically determined user acceptable oral reading speed (UAORS) for an 8-h work day.

Kumar, AR., Ware, BF., Fernandez, JE., Subramanian A, and Hunter M. (2011). Risk Factors with Using Back Mounted Equipment in Groundskeeping Tasks: A Literature Review. Proceedings of the 16th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Kempf M, Rommel S, Fernandez JE, and Subramanian A. (eds.), pp. 298-304.

Ware, BF., Subramanian, A., Kumar, AR., Fernandez, JE. (2011). HPI: Holistic Approach to Process Improvement. Proceedings of the 16th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Kempf M, Rommel S, Fernandez JE, and Subramanian A. (eds.), pp. 606-615.

Ware, BF., Kumar, AR., Smith, T., Baker, D. and Fernandez, JE. (2011). The Application of Ergonomics Principles in Groundskeeping Tasks. The Proceedings of the 23rd Annual International Occupational Ergonomics and Safety Conference. Ware BF, Kumar AR, and Fernandez JE (eds.). pp. 1-8.

Kumar, AR., Ware, B., and Hunter, M. (2010). Connections between Body Map Discomfort Surveys and Improper Workstation Configurations. The Proceedings of the 15th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Fernandez J, Mital A, Guerra A, Noriega S, Subramanian A, and Sanchez J (eds.). pp. 544-549.

Subramanian, A., Kumar, AR., Ghosh, R., and Bishu, RR. (2010). Development of a Computer Based Activity Planning Tool. The Proceedings of the 15th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Fernandez J, Mital A, Guerra A, Noriega S, Subramanian A, and Sanchez J (eds.). pp. 550-554.

Subramanian, A., Kumar, AR., Yang, W-H., Ghosh, R., and Bishu, RR. (2010). Development of a Software Tool to Improve Software Quality. The Proceedings of the 15th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Fernandez J, Mital A, Guerra A, Noriega S, Subramanian A, and Sanchez J (eds.). pp. 555-561.

McLean, T., Kumar, AR., Subramanian, A., and Bishu, RR. (2010). The Use of Multivariate Factor Analysis in the Development of Hand Sizes. Proceedings of the 22nd Annual International Occupational Ergonomics and Safety Conference. Marley RJ, Kumar AR, Ware BF, and Graver P (eds.). pp. 151-155

Fernandez, JE., Kumar, AR., Ware, BF., and Ibarra-Mejia, G. (2010). Remote Ergonomic Evaluation: Quality Assurance Process. Proceedings of the 22nd Annual International Occupational Ergonomics and Safety Conference. Marley RJ, Kumar AR, Ware BF, and Graver P (eds.). pp. 123-128.

Fernandez, JE., Ware, BF., Kumar, AR., and Subramanian, A. (2009). Office Ergonomics Assessment through a Virtual Ergonomist. The Proceedings of the 14th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Subramanian A, Mital, A, Kumar AR, Ware BF, Lafiandra M, Kattel B, and Fernandez JE (eds.). pp. 631-636.

Kumar, AR. (2009). A Fabric Classification Scheme Using Clustering Analysis. The Proceedings of the 14th Annual International Conference on Industrial Engineering Theory, Applications and Practice, Anaheim, California. Subramanian A, Mital, A, Kumar AR, Ware BF, Lafiandra M, Kattel B, and Fernandez JE (eds.). pp. 661- 664.

Subramanian, A., Kumar, AR., Yang, W-H., Amin-Kumar, S., and Bishu, RR. (2009). Use of Six Sigma Methodology to Improve Software Quality. The Proceedings of the 14th Annual International Conference on Industrial Engineering Theory, Applications and Practice, Anaheim, California. Subramanian A, Mital, A, Kumar AR, Ware BF, Lafiandra M, Kattel B, and Fernandez JE (eds.). pp. 643-649.

Subramanian, A., Bishu, RR., and Kumar AR. (2009). Integrating Ergonomics to the Quality-Lean Approach for Improving Productivity. The Proceedings of the 21st Annual International Occupational

Ergonomics and Safety Conference. Marley RJ, Kumar AR, Ware BF, and Lockhart TE (eds.). pp. 167-172.

Kumar, AR., Bishu, RR., and Ware, BF. (2009). Defining Hand Sizes: A New Approach Using Factor Analysis. The Proceedings of the 21st Annual International Occupational Ergonomics and Safety Conference. Marley RJ, Kumar AR, Ware BF, and Lockhart TE (eds.). pp. 230-232.

Kumar, AR., Ware, BF., Subramanian, A., McClellan, S., Noriega, E., and Fernandez, JE. (2008),

Butt, SE., Fredericks, TK., Kumar AR., and Amin, S. (2005). Postural and Error Analyses of Nurses Using The Foot-Section of Birthing Beds of Different Designs. The Proceeding of the 10th Annual International Journal of Industrial Engineering. Fredericks TK, Butt SE, Fernandez JE, and Mital A (eds.). pp. 830-835.

Kumar, AR., Candela, M., Fredericks, TK., and Butt, SE. (2005). Chair Controls and User Expectations: A Case Study. The Proceeding of the XIX Annual International Occupational Ergonomics and Safety Conference. Lockhart T and Fernandez JE (eds.). pp. 176-182.

Butt, SE., Fredericks, TK., Nelson, JK., Kumar, AR., and Bellingar, T. (2005). Aggregating Pressure Maps: A Case Study. The Proceeding of the XIX Annual International Occupational Ergonomics and Safety Conference. pp. 165-171.

Butt, SE, Fredericks, TK., Kumar AR., Wahl, J., Harrelson, K., Stephanie, M., Dumasius A., and Brown, E. (2004). An Evaluation of Physiological Work Demands on Registered Nurses over a 12-Hr Shift. Proceedings of the 17th International Occupational Ergonomics and Safety Conference: Building Bridges to Healthy Workplaces. Schulze LJH (ed.). pp. 219-222.

Evans, EE., Brown, EN., Kumar, AR., Fredericks, TK., and Butt, SE. (2004). A Safety of the Effects of Roofing Personal Safety Devices on Productivity in the Roofing Industry. Proceedings of the Fifth REU in Construction Engineering and Management Symposium held at Western Michigan University Sponsored by National Science Foundation (NSF). Abudayyeh O (ed.). pp. 33-38.

Adejumo, KA., Kumar, AR., and Butt, SE. (2004). Minimizing the Distance Traversed by Registered Nurse in a 12-Hour Shift as a Means of Workload Reduction. Proceedings of the Fifth REU in Construction Engineering and Management Symposium Held at Western Michigan University Sponsored by National Science Foundation (NSF). Abudayyeh O (ed.). pp. 28-32.

Fredericks, TK., Fernandez, JE., Choi, SD., and Kumar AR. (2003).

Kumar AR, Millet, B. Ray, PS. and Ware BF. The Proceedings of the 24th Annual International Occupational Ergonomics and Safety Conference, 2012.

Ware BF, Kumar AR, and Fernandez JE. The Proceedings of the 23rd Annual International Occupational Ergonomics and Safety Conference, 2011.

Marley RJ, Kumar AR, Ware, BF, and Graver, P. The Proceedings of the 22nd Annual International Occupational Ergonomics and Safety Conference, 2010.

Subramanian A, Mital, A, Kumar AR, Ware BF, Lafiandra M, Kattel B, and Fernandez JE. Proceedings of the 14th Annual International Conference on Industrial Engineering Theory, Applications and Practice, 2009.

Marley RJ, Kumar AR, Ware, BF and Lockhart TE. The Proceedings of the 21st Annual International Occupational Ergonomics and Safety Conference, 2009.

Fernandez JE, Schamburg J, Kumar AR, Subramanian A, and Evangelista P. Proceedings of the 13th Annual International Conference on Industrial Engineering Theory, Applications and Practice, 2008.

Leamon TB, Kumar AR, and Fernnian A, Mital, ATm[19p7(i)

May 2014- July 2014
IME 3120 (System Decision Making)
IME 6120 (Productions/ Operations Management)
IME 3420 (Ergonomics and Design)
Jan 2014- April 2014

Instructor, Engineering Management Department, The Catholic University of America
CMGT 561(Engineering Ergonomics)
June 2009-Aug 2009, June 2011-Aug 2011

Instructor, Industrial and Manufacturing Engineering Department, Western Michigan University
IME 305 (Work Analysis)
August 2003-December 2003, August 2004-December 2004, August 2005-December 2005
IME 442 (Ergonomics and Design)
January 2004-April 2004, January 2005-April 2005
IME 315 (Work Analysis Lab)
August 2005-December 2005

Teaching Assistant, Industrial and Manufacturing Engineering Department, Western Michigan University
IME 205 - Work Design (Lecture and Lab)
January 2006- April 2006
IME 642 - Ergonomics and Occupational Biomechanics
August 2004-December 2004, August 2005-December 2005
IME 315 - Work Analysis Lab
August 2004-December 2004
IME 442 - Ergonomics and Design
January 2004-April 2004

Teaching Assistant, Industrial and Manufacturing Engineering Department, Wichita State University
IME 549 - Industrial Ergonomics
January 2001-April 2001

Additional Experience

Selection Panel Member, Starting Gate 2014, Haworth College of Business

Event coordinator
Science Olympiad (March 2015)

Conference Organization

Assisted in the organization of the 1st Annual World Conference of the Society for Industrial and Systems Engineering– Washington DC., USA-2012)
Assisted in the organization of 24rd Annual International Occupational Ergonomics and Safety Conference – Ft. Lauderdale, USA-2012)
Assisted in the organization of 23rd Annual International Occupational Ergonomics and Safety Conference – Baltimore, USA-2011)
Assisted in the organization of 22nd Annual International Occupational Ergonomics and Safety Conference – Tempe, USA-2010)
Assisted in the organization of 21st Annual International Occupational Ergonomics and Safety Conference – Dallas, USA-2009)
Assisted in the organization of annual conference of the International Journal of Industrial Engineering (IJIE) Society (Las Vegas, USA-2003, Auckland, NZ-2004, Clearwater, USA-2005, Cancun, MX-2007, Las Vegas, USA-2008, Anaheim, USA-2009)

