

Anil R. Kumar, Ph.D., CSSBB

Department of Industrial and Systems Engineering
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Education

Western Michigan University	Industrial Engineering	PhD	2007
Wichita State University	Industrial Engineering	MS	2001
University of Pune	Mechanical Engineering	BE	1997

Experience

Associate Professor	Department of Industrial and Systems Engineering, San Jose State University	2015- present
Assistant Professor	Industrial and Entrepreneurial Engineering & Engineering Management, Western Michigan University	2015-2015
Research Associate	Industrial and Entrepreneurial Engineering & Engineering Management, Western Michigan University	2013-2015
Managing Engineer	JFAssociates, Inc	2007-2013
Doctoral Associate	Industrial and Manufacturing Engineering, Western Michigan University	2002-2007
Research Assistant	Industrial and Manufacturing Engineering, Penn State University	1999-2001
Graduate Assistant	Physical Plant, Wichita State University	1998-1999

Professional Profile

Dr. Kumar has a PhD in Industrial Engineering and is a Certified Six-Sigma Black Belt. His areas of specialty include product design and development (medical products and healthcare), ergonomics, human factors, work measurement and analysis, lean manufacturing, production/operations management, and safety. He has conducted industry and government funded ergonomic and industrial engineering related research (leading to publications in journals and conference proceedings) in the healthcare setting, medical device manufacturers, manufacturing, aerospace and furniture industries. The work from some projects has resulted in development of innovative products such as the Zody Chair from Haworth, and Stairchairs with tracks from Stryker Medicals. He also has consulting experience in health care, aerospace, automobile, call centers, electronic manufacturing, food processing, furniture manufacturing and distribution, manufacturing, pharmaceutical, plastics manufacturing, retail, small and large assembly, transportation, U.S. government, and warehousing.

Dr. Kumar is a member of the Human Factors and Ergonomics Society, and the Institute of Industrial and Systems Engineers. In 2011-2012, he was the President of the International Society for Occupational Ergonomics and Safety. From 2007 until 2010, he served as the treasurer of the International Society for Occupational Ergonomics and Safety. He also served as the Secretary (2012-2013) of the HFES Potomac chapter. He is co-author of a number of international journal publications and has made presentations at a number of prestigious Industrial Engineering and Ergonomics conferences.

Credentials and Professional Honors

PhD, Industrial Engineering, Western Michigan University, 2007
MS, Industrial Engineering, Wichita State University, 2001
BE, Mechanical Engineering, University of Pune, 1997

Certified Six-Sigma Black Belt

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*) Reducing Inequities through Healthcare Triggers and Care Coordination, **Kellogg Foundation Grant**, (\$19,911), March 2015
4. (*PI*) Time and Motion Analysis-Phase I, **Stryker Medical**, \$9,240, August 2014
5. (*PI*) Time and Motion Analysis-Phase II, **Stryker Medical**, \$3,960, October 2014

Selected Relevant Experience

Consulting experience includes the following industrial sectors:

- Aerospace
- Automobile
- Call Centers
- Electronic manufacturing
- Food processing
- Foundry
- Furniture manufacturing and distribution
- Healthcare and hospital
- Higher Education
- Manufacturing
- Landscaping
- Pharmaceutical
- Plastics manufacturing
- Professional Staffing Services
- Postal Services
- Railroad
- Retail Clothing
- Security
- Small and large assembly
- Transportation
- U.S. Government
- Warehousing

Selected Projects

- Conducting feasibility studies for projects involving anthropometry, pressure, thermal and force requirements (commissioned work)
- Leading a project to determine the effects of armrest width settings on user comfort
- Conducting research to identify user's self-selected comfort for seat pans on task chairs (**Haworth Inc**)
- Led a project involving identification of ergonomics risk factors and other safety and health-related hazards for the US Government (**Architect of the Capitol**)
- Participated in litigation projects involving slips, trips and falls, lighting and noise issues for the **US Department of Justice**. Visited site, collected and analyzed data, and provided litigation support
- Provided hands-on training on manufacturing ergonomics to employees and production leads at a chip manufacturing company. This was to provide ergonomics awareness and to help promote safe work practices
- Streamlined process for tagging activities by utilizing lean techniques at several large retail clothing stores (e.g. **Victoria's Secret, BELK**) to help them update standards in their location in North America
- Streamlined processes by utilizing lean techniques for all key activities at a large online luxury clothing warehouse (**Net-A-Porter**) for the purposes of management controls, resource scheduling, and setting key performance indicators (KPI's)
- Provided hands-on training on time and motion studies to plant managers and manufacturing engineers at an architectural aluminum manufacturing company (**ALCOA**) to help them update standards in their manufacturing locations in North America
- Served as a project lead and team member on several time and motion projects involving a variety of occupational tasks. Designed study, visited site, collected and analyzed data, prepared reports, and provided litigation support

- 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. *International Journal of Industrial Ergonomics*, 50, 52-61.
- Fernandez JE, Ware BF, Marley, RJ, and **Kumar AR** (2010). Role of Physical Ergonomics in Litigation. *Ergonomics in Design: The Quarterly of Human Factors Applications*. 19. pp. 4-8.

- Ware, BF., **Kumar, AR.**, Subramanian, A., and Fernandez, JE. (2008). Establishing a Framework for Office Ergonomics Data Management: A Systems Approach. *International Journal of Industrial Engineering*. 14. pp. 456-462.
- Fredericks, TK., Kumar, AR. and Karim, S. (2008). An Ergonomic Evaluation of Metal Pouring Operation, *Industrial Journal of Industrial Ergonomics*. 38(2). pp. 182-192.
- You, H., **Kumar, A.**, Young, R., Veluswamy, P., and Malzahn, DE. (2004). An Ergonomic Evaluation of Manual Cleco Plier Designs: Effects of Rubber Grip, Spring Recoil, and Worksurface Angle. *Applied Ergonomics*. 36(5). pp. 575-583.

In preparation

- **Kumar, AR.**, Fredericks, TK., and Butt, SE. (in preparation). Influence of Time Duration on an User's Thermal Comfort for Different Seat Pan Materials. *International Journal for Industrial Ergonomics*.
- Fredericks, TK, Butt, SE, **Kumar, AR**, Burns, JD., Amin-Kumar, SG., Harms, KM., and Utkan, F. (in preparation). Postural and Biomechanical Analyses of Health Care Product Designs Used by Nurses.
- Fredericks, TK, Butt, SE, **Kumar, AR**, Burns, JD., Amin-Kumar, SG., Harms, KM., and Utkan, F. (in preparation). Postural and Biomechanical Analyses of Health Care Product Designs Used by EMS Personnel.
- Amin-Kumar, SG., Fredericks, TK., **Kumar, AR.**, and Butt, SE. (in preparation). A Study to Determine the Time Allocated to Different Activities by Nurses in the Neonatal Intensive Care Unit. *Journal of Nursing Mgmt.*

Conference Proceedings

Lauhon, P., Walsh, R., Binoniemi, B., Jayakusuma, T., Kumar, A.R. Fredericks, T.K, and Utkan, F. (2015). The Cost of Performance: A Study on the Effect of Marching Style and Tempo on Energy Expenditure during Marching. In *Proceedings of the 2015 Industrial and Systems Engineering Research Conference*. Cetinkaya, S., and Ryan, J, eds, Nashville, Tennessee, USA, May 30-June 2, 2015.

Amin, SG., Fredericks, TK., Butt, SE., and Kumar, AR. (2015). Determining the Time Allocated to Different Activities by Nurses in NICU. In *Proceedings of the 2015 Industrial and Systems Engineering Research Conference*. Cetinkaya, S., and Ryan, J, eds, Nashville, Tennessee, USA, May 30-June 2, 2015.

Fredericks, TK., Butt, SE., Kumar, AR., Amin, SG., Bellingar, T., and Utkan, F. (2014). Influence of Armrest Width and Task on Armrest Usage. In *Proceedings of the 2014 Industrial and Systems Engineering Research Conference*. Y. Guan and H. Liao, eds, Montreal, BC, Canada, May 31-June 3, 2014.

Butt, SE., Fredericks, TK., Kumar, AR., Bellingar, T., and Amin, SG. (2014). An Investigation to Determine Postures Selected by Users for an Office Side Chair. In *Proceedings of the 2014 Industrial and Systems Engineering Research Conference* Y. Guan and H. Liao, eds., Montreal, BC, Canada, May 31-June 3, 2014.

Amin, SG., Fredericks, TK., Butt, SE., and Kumar, AR. (2014). Measuring Mental Workload in a Hospital Unit Using EEG – A Pilot Study. In *Proceedings of the 2014 Industrial and Systems Engineering Research Conference*, Y. Guan and H. Liao, eds., Montreal, BC, Canada, May 31-June 3, 2014.

Kumar, AR., Subramanian, A., Ware, BF., and Fernandez, JE. (2012). Lean Tools and their Applications in an HPI Endeavor. Fernandez JE , Subramanian A, Santos D, Schmeidler N, Ware BF, and Kumar AR. (eds.), *Proceedings of the 1st Annual World Conference of the Society for Industrial and Systems Engineering*, pp. 380-385, 2012.

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), Applications and Ergonomic Guidelines for Dual Monitors. The Proceedings of the 13th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Fernandez JE, Schamburg J, Kumar AR, Subramanian A, and Evangelista P (eds.). pp. 351-355.

Ibarra-Mejia, G., Noriega-Morales, S., Ware, BF, Kumar, AR., Subramanian, A., and Fernandez, JE. (2008). Ergonomics in Mexico: Standards and their Application. The Proceedings of the 13th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Fernandez JE, Schamburg J, Kumar AR, Subramanian A, and Evangelista P (eds.). pp. 465-468.

Fernandez, JE., Halpern, M., Subramanian, A., Kumar, AR., and Ware, BF. (2008), Statistical Methods in Time Studies: Industrial Engineering and Health Care. The Proceedings of the 13th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Fernandez JE, Schamburg J, Kumar AR, Subramanian A, and Evangelista P (eds.). pp. 618-624.

Kumar, AR., (2008). Thermal Comfort and Seating: A Review. The Proceedings of the 13th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Fernandez JE, Schamburg J, Kumar AR, Subramanian A, and Evangelista P (eds.). pp. 356-357.

Ware, BF., Noriega, S., Kumar, AR., Sousk, JD., and Fernandez, JE. (2008). Ergonomics in Mexico: Issues and Opportunities. The Proceedings of the 20th Annual International Occupational Ergonomics and Safety Conference, Leamon TB, Kumar AR, and Fernandez JE (eds.). pp. 223-226.

Kumar, AR., and Fredericks, TK. (2007). A Psychophysical Protocol to Evaluate a User's Self-Selected Thermal Comfort. The Proceedings of the 20th Annual International Occupational Ergonomics and Safety Conference, Leamon TB, Kumar AR, and Fernandez JE (eds.). pp. 49-55.

Kumar, AR., Subramanian, A., Farris-Ware, B., Alchuru, S. and Fernandez, JE. (2007). Establishing a Framework for an Electronic Office Ergonomics Data Management System. The Proceeding of the 12th Annual International Journal of Industrial Engineering. Fernandez JE, Noriega SA, Mital A, Butt SE, and Fredericks TK (eds.). pp. 538-543.

Kumar, AR., and Fredericks, TK. (2007). A Review of Psychophysical Protocols and Applications: Can It be Used to Evaluate Thermal Comfort. The Proceeding of the 12th Annual International Journal of Industrial Engineering. Fernandez JE, Noriega SA, Mital A, Butt SE, and Fredericks TK (eds.). pp. 587-591.

Fredericks, TK., Butt, SE., Kumar AR., and Amin, S. (2006). Biomechanical Analyses of EMS Personnel Using Stair Chairs with Track Systems. The Proceeding of the 11th Annual International Journal of Industrial Engineering. Hagiwara M, Ikeda YT, Fernandez JE, and Mital A (eds.). pp. 330-335.

Fredericks, TK., Butt, SE., Kumar AR., and Amin, S. (2005). Biomechanical 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. 824-829.

- 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). The Effect of Lifting Dominance and Height on Maximum Acceptable Weight of Lift for Asymmetrical Lifting and Lowering Tasks. In Quality of Work and Products in Enterprises of the Future. Advances in Occupational Ergonomics and Safety 6. Strasser H, Kluth K, Rausch H, and Bubb H (eds.). pp. 239-242.
- Choi, SD., Mulgund, RM., Kapoor, A., Kumar, AR., and Houshyar, A. (2003). A Simulation Study of an Automotive Foundry Plant Manufacturing Engine Heads. Proceedings of the 2003 Advanced Simulation Technologies Conference, Orlando, Florida, Orlando, FL. Yücesan E, Chen C-H, Snowdon JL, and Charnes JM (eds.).
- Choi, SD., Kumar AR., and Houshyar, A. (2002). A Simulation Study of an Automotive Foundry Plant Manufacturing Engine Blocks. Proceedings of the 2002 Winter Simulation Conference, San Diego, CA. Yücesan E, Chen C-H, Snowdon JL, and Charnes JM (eds.). pp. 1035-1040.
- Fernandez, JE., Fredericks, TK., Choi, SD., Kumar, AR., Marley, RJ. (2002). The Effect of Time Study Methods on Accuracy. Advances in Industrial Engineering, Theory, Applications and Practice 7. Cho KK, Hwang HS, and Moon IK (eds.). pp. 226-229.
- Fredericks, TK., Choi, SD., Butt, SE., and Kumar, AR. (2002). Biomechanical Analyses of Paramedics Using Stairchairs. Advances in Occupational Ergonomics and Safety 5. Potvin J (ed.).
- Fredericks, TK., Choi, SD., Butt, SE., and Kumar, AR. (2002). Postural Analysis of Paramedics Using Stairchairs. Advances in Occupational Ergonomics and Safety 5. Potvin J (ed.).
- Butt, SE., Fredericks, TK., Choi, SD., and Kumar, AR. (2002). Comparison of Commercial Stairchairs using Data Envelopment Analysis. Advances in Occupational Ergonomics and Safety 5. Potvin J (ed.).

You, H., Young, R., Zimmerman, D., Ekrut, C., Kumar, AR., and Woo, LM. (2001). A Usability Test for the Operation Manual of BraidMagic. The Proceedings of 2001 Human Factors and Ergonomics Society, Santa Monica, CA.

Chao, AJ., Kumar, AR., Emery, CTND., Nagarajarao, K., and You, H. (2000). An Ergonomic Redesign and Evaluation of Manual Cleco Pliers. The Proceedings of IEA 2000/ HFES 2000 Congress of Human Factors and Ergonomics Society, Santa Monica, CA.

Published Abstracts

Kumar, AR., and Subramanian. A. (2012). Role of Industrial Engineer in Improving Quality of Life. The Proceedings of Capital Science 2012, A Conference presented by the Washington Academy of Sciences and its Affiliated Societies, March 31-April 1, Hosted by The National Science Foundation.

Kumar, AR., and Subramanian. A. (2012). The Need to Integrate Human Aspect in a Process Improvement Endeavor. The Proceedings of Capital Science 2012, A Conference presented by the Washington Academy of Sciences and its Affiliated Societies, March 31-April 1, Hosted by The National Science Foundation.

Subramanian. A., and Kumar, AR. (2012). Rating Employee Performance for Non-Manufacturing Jobs Using Work Measurement Techniques. The Proceedings of Capital Science 2012, A Conference presented by the Washington Academy of Sciences and its Affiliated Societies, March 31-April 1, Hosted by The National Science Foundation.

Kumar, AR., Ware, B., and Fernandez, JE. (2010). Virtual Office Ergonomics Evaluation: A Cost Effective Green Office Implementation Method. The Proceedings of Capital Science 2010, A Conference presented by the Washington Academy of Sciences and its Affiliated Societies, March 28-29, Hosted by The National Science Foundation.

Subramanian, A. and Kumar, AR. (2008). Role of Supply Chain Metrics and Quality Control in the Supply Chain Cycle. The Proceedings of the 13th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Fernandez JE, Schamburg J, Kumar AR, Subramanian A, and Evangelista P (eds.). pp. 809.

Amin-Kumar, S., Fredericks, T., Butt, S., Ramrattan, S., and Kumar, A.R (2008). Evaluation of Utility Covers (Abstract and Presentation). Proceedings of ICAM 2008 International Conference on Agile Manufacturing.

Technical Reports

Fernandez, J.E., Ware, B.F., Kumar, A.R., Hunter, M., and Subramanian, A (2011). An Ergonomic Evaluation of Tasks at the Architect of the Capitol (AOC).

Evans EE., Brown, EN., Kumar AR., Fredericks, TK., and Butt, SE. (2004). A Safety and Ergonomic Study of the Roofing Industry. Final Report to Center of Excellence in Occupational Safety, Kalamazoo, MI.

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. Final Report to Center of Excellence in Occupational Safety, Kalamazoo, MI.

Books and CD Proceedings Edited

Fernandez JE, Santos DL, Subramanian A, Schmeidler N, Ware BF and Kumar AR. Proceedings of the 1st Annual World Conference of the Society for Industrial and Systems Engineering, Washington, D.C, USA, 2012.

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 Fernandez JE. Proceedings of the 20th Annual International Occupational Ergonomics and Safety Conference, 2008.

Reviewer

- Ergonomics (Journal)
- IIE 2104 Annual Conference (Paper reviewer) – Human Factors Track
- Sociedade Portuguesa de Seguranca e Higiene Ocupacionais (SPSHO). (Paper Reviewer). International Symposium on Occupational Safety and Hygiene, 2013, 2014, 2015, 2016.
- Student Paper Award Reviewer for 1st Annual World Conference of the Society for Industrial and Systems Engineering– Washington DC., USA-2012.
- Brazilian Association of Production Engineering (ABEPRO). (Paper Reviewer). XVIII -International Conference on Industrial Engineering and Operations Management (ICIEOM 2012).
- Human Factors and Ergonomics Society (proposal reviewer). 56th Annual Meeting technical program for the Product Design Technical group. 2012
- Human Factors and Ergonomics Society (proposal reviewer). 55th Annual Meeting technical program for the Product design Technical group. 2011
- Human Factors and Ergonomics in Manufacturing & Service Industries (Journal)
- International Journal of Industrial Engineering (Journal)

Teaching Experience

Instructor, Haworth College of Business, Western Michigan University
MGMT 2750 (Analytical Foundations)
Instructor on record for Jan 2015- May 2015

Instructor, Industrial and Entrepreneurial Engineering and Engineering Manufacturing, Western Michigan University
IME 6420 (Ergonomics and Occupational Biomechanics)
August 2014- present
IME 3010 (Entrepreneurial Engr. II)
August 2014- Dec 2014, Aug 2013-Dec 2013

Instructor, Industrial and Manufacturing Engineering Department, Western Michigan University
IME 5570 (Modern Industrial Practices)

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)

- Assisted in the organization of 20th Annual International Occupational Ergonomics and Safety Conference – Chicago, USA-2008)

Presentations

Kumar, AR., “Influence of Armrest Width and Task on Armrest Usage”. *Presented at the 2014 Industrial and Systems Engineering Research Conference. Montreal, BC, Canada.*

Kumar, AR. “An Investigation to Determine Postures Selected by Users for an Office Side Chair”. *Presented at the 2014 Industrial and Systems Engineering Research Conference. Montreal, BC, Canada.*

Kumar, AR. (2014). Measuring Mental Workload in a Hospital Unit Using EEG – A Pilot Study. *Presented at the 2014 Industrial and Systems Engineering Research Conference. Montreal, BC, Canada,*

Kumar, AR. “Occupational Ergonomics Seminar.” Presented at the Architects of the U.S. Capitol, Washington, DC, October 2011.

Kumar, AR. The Application of Ergonomics Principles in Groundskeeping Tasks. Presented at the 23rd Annual International Occupational Ergonomics and Safety Conference, Baltimore, MD, June 2011.

Kumar, AR. Evaluating an Office Workstation. (Seminar) Presented at NeoCon East in Baltimore, October 2010.

Kumar, AR. Virtual Office Ergonomics Evaluation: A Cost Effective Green Office Implementation Method. Presented at 2010 Capital Science Conference organized by the Washington Academy of Sciences and its Affiliated Societies, and hosted by The National Science Foundation, Arlington, VA, March 2010.

Kumar, AR. A Fabric Classification Scheme Using Clustering Analysis. Presented at the 14th Annual International Conference on Industrial Engineering Theory, Applications and Practice, Anaheim, California, October 2009.

Kumar, AR. A Psychophysical Protocol to Evaluate a User’s Self-Selected Thermal Comfort. Presented at the 20th Annual International Occupational Ergonomics and Safety Conference, Chicago, IL, June 2008.

Kumar, AR. Thermal Comfort and Seating: A Review. Presented at the 13th Annual International Conference on Industrial Engineering Theory, Applications and Practice. Las Vegas, Nevada, October 2008.

Kumar, AR. A Review of Psychophysical Protocols and Applications: Can It be Used to Evaluate Thermal Comfort. Presented at the 12th Annual International Journal of Industrial Engineering, Cancun, Mexico, November 2007.

Kumar, AR. Biomechanical Analyses of Nurses Using The Foot-Section of Birthing Beds of Different Designs. Presented at the 10th Annual International Journal of Industrial Engineering, Clearwater, Florida USA, December 2005.

Kumar, AR. Postural and Error Analyses of Nurses Using The Foot-Section of Birthing Beds of Different Designs. Presented at the 10th Annual International Journal of Industrial Engineering, Clearwater, Florida USA, December 2005.

Kumar, AR. Chair Controls and User Expectations: A Case Study. Presented at the XIX Annual International Occupational Ergonomics and Safety Conference, Las Vegas, USA, June 2005.

Kumar, AR. An Evaluation of Physiological Work Demands on Registered Nurses over a 12-Hr Shift. Presented at the XVIII Annual International Occupational Ergonomics and Safety Conference, Houston, USA, June 2004.

Kumar, AR. A Simulation Study of an Automotive Foundry Plant Manufacturing Engine Blocks. Presented at the 2002 Winter Simulation Conference, San Diego, CA, USA, December 2002.

Kumar, AR. An Ergonomic Redesign and Evaluation of Manual Cleco Pliers. Presented at the IEA 2000/HFES 2000 Congress of Human Factors and Ergonomics Society, Santa Monica, CA, USA, August 2000.

Memberships and Professional Service Activities

- San Jose State University
 - College of Engineering (CoE) Proposal Review Committee (member since Dec 1, 2016).
 - College of Engineering (CoE) Undergraduate Curriculum Committee (member since Aug 2015).
 - ISE Dept Undergraduate Curriculum Committee (Chair since Jan 2016)
- Western Michigan University, General Committees
 - Injury Prevention Committee (member 2004-2007)
 - IME Department's Academic Planning Committee (student representative October 2004- January 2005)
 - College Research and Graduate Programs Council (student representative September 2003- August 2004)

Professional Honors/Awards

- 2014 Industrial and Systems Engineering Research Conference. Montreal, BC, Canada (Session Chair)
- Member Scientific Committee – SHO (Brazil) – 2012, 2013, 2014, 2015
- Annual International Industrial Ergonomics and Safety Conference, Conference Chair (2012)
- Annual International Industrial Ergonomics and Safety Conference, Conference Co-Chair (2008, 2009, 2010, 2011)
- Annual International Conference on Industrial Engineering-Theory, Applications, and Practice, Program Co-Chair (2008, 2009)
- Session Chair (Health Care) in the 12th Annual International Conference on Industrial Engineering-Theory, Applications, and Practice, Cancun, Mexico (November, 2007)
- Recipient of Western Michigan University's "All University Graduate Research and Creative Scholar Award" in 2006
- Recipient of Western Michigan University's "Graduate Research and Creative Scholar Award" for Industrial and Manufacturing Department in 2006
- Special Service Award presented for significant contribution towards organization of the International Journal of Industrial Engineering Annual Conferences for 2003, 2004, and 2005.
- Session Co-Chair (Work Measurement) in the 11th Annual International Conference on Industrial Engineering-Theory, Applications, and Practice, Clearwater, Florida (December, 2005)
- Served as the Engineering Representative on Western Michigan University's Injury Prevention Committee (November 2003-January 2007)
- Served as student representative (nominated by the Industrial and Manufacturing Department faculty of Western Michigan University) on the Department's Academic Planning Committee (October 2004-January 2005)
- Session Co-Chair (Management Information Systems) in the 9th Annual International Conference on Industrial Engineering-Theory, Applications, and Practice, Las Vegas, NV (November, 2003)
- Served as a student representative (nominated by the Industrial and Manufacturing Department) on Western Michigan University's College Research and Graduate Programs Council (September 2003-August 2004)
- Doctoral Associate granted by Industrial and Manufacturing Engineering Department, Western Michigan University, Kalamazoo, MI (August 2005-July 2006, August 2004-July 2005, August 2003-August 2004)

- Served as a host for Western Michigan University's Preview Day for the Department of Industrial and Manufacturing Engineering, Kalamazoo, MI (March 2002)
- Graduate Research Assistantship granted by Industrial and Manufacturing Department, Wichita State University, Wichita, KS (August 1999-May 2001)
- First Place Award by the American Society of Safety Professionals in the 2000 Wichita State University Engineering Open House, Wichita, KS
- Third Place Award by the Society of Mechanical Engineers in the 2000 Wichita State

Professional Affiliations

- Human Factors and Ergonomics Society
- Institute of Industrial Engineers

Memberships and Professional Service Activities

- Scientific Committee Member, XIX International Conference on Industrial Engineering and Operations Management (ICIEOM 2012), Minho, Portugal.
- Secretary: HFES Potomac Chapter (2012-2013).
- Past President: International Society for Occupational Ergonomics and Safety (ISOES) (2011-2012).
- Conference Chair/ Co-Conference Chair
 - ISOES (2019, 2010, 2011, 2012).
 - Co-Editor: ISOES (2008, 2009, 2010, 2011, 2012)
 - Annual International Conference on Industrial Engineering – Theory, Applications, and Practice – 2008, 2009, 2010, 2011
- Program Committee Member, XVIII International Conference on Industrial Engineering and Operations Management (ICIEOM 2012), Minho, Portugal.
- Program Chair, ISOES 2008, 2009, 2010
- Treasurer: International Society for Occupational Ergonomics and Safety (2007-2010). President-elect (2010), President (2011-2012)
- Western Michigan University
 - Injury Prevention Committee (Engineering Representative 2003-2007)
 - Industrial and Manufacturing Department Academic Planning Committee (member 2004 – 2005)
 - College Research and Graduate Programs Council (student representative 2003- 2004)