



**Human
Factors
and
Ergonomics
Society**

FELLOW PROFILE

Name: Shrawan Kumar

**Degrees, certifications,
etc.:** BSc, MSc, PhD, DSc, FRSC,
OC

Current status: Professor Emeritus and
Professor



Biography (How you got involved in the field, your major career activities and milestones):

My involvement with ergonomics and human factors has been, to be truthful, unintentional and accidental. I had never heard of the field or the term. While I was growing up in India I wanted to be a physician but did not have the financial means to realize my dream. Though I was the only child of my parents, their lack of resources prevented me to do anything that involved expense. So, I continued to go to school and from one grade to the next but fortunately my good grades kept on pushing me to the next stage with sufficient scholarship that my education remained burden free and I graduated with a master's degree in zoology. Again, having done well I got a teaching position at the University college in zoology. I particularly enjoyed teaching animal physiology. However, in recesses of my heart I had ambition to go further. I had dreamed of doing a PhD degree from the University of Michigan.

After four years of teaching there was some accumulation of funds and there were some changes in life which enabled me to consider immigrating to UK. I was admitted to PhD program at Oxford and London but I had to wait for a year at Oxford and 6 months at London for graduate scholarship but I received one at the University of Surrey immediately. Due to lack any personal funds and lack of mentorship I could not refuse University of Surrey's offer. So my research in low back pain started which in some respects bore similarity to physiology that I liked. I was also very interested in working with humans rather than animals. This excited me and I got interested and motivated. I completed my PhD in three and one half year. Before I had defended my thesis I was offered a position as a post-doctoral fellow at Trinity College Dublin, Ireland in Engineering Sciences. I had a liking for interdisciplinary work and moved to Ireland to take up the position. The project was in Production Engineering (Industrial Engineering) focused on work station design for an industrial job in addition to other things.

I completed the three year project in two years and left the position to return to my native India. I stayed in India for a little over a year before I came to Canada and started my career at the University of Toronto in the Department of Physical Medicine and Rehabilitation as a research associate. Finally, I was offered a position at the University of Alberta in the Department of Physical Therapy as an Assistant Professor in 1977. In 1979 I was promoted to the rank of Associate professor and in 1982 I received my promotion to the rank of professor and tenure. Throughout I pursued my interest in low back research.

However, the youthful ambition of solving the problem for good was getting progressively frustrated in spite of publishing original and meaningful research. This caused me considerable mental anguish and began to look at the problem holistically. Such an interdisciplinary examination led me to develop "Theories musculoskeletal injury causation". It was for the first time I began to reconcile with the limitations of science in solving nature's problem and felt more at ease with what I had done and learnt. These efforts led to over 450 peer reviewed scientific publications and works in the area of musculoskeletal injury causation/prevention with special emphasis on low-back pain.

At different stages in my career I have served as an editor and consulting editor of International Journal of Industrial Ergonomics and Ergonomics respectively. I have also undertaken reviewing responsibilities for many journals, conferences and agencies. Also I have consulted on about 300 personal injury cases with many prominent law firms in Canada in the provinces of Alberta, British Columbia, Ontario and Saskatchewan. I have had the audacity of appearing as an expert witness in different courts in over 40 cases in Canada. These have been in the areas of whiplash, low back pain, auto accidents, occupational accidents and physical injuries.

Employment History (List top 5 positions):

Director, Physical Medicine Institute, University of North Texas Health Science Center (UNTHSC), Fort Worth, TX

Director of Research, OMM Department, UNTHSC, Fort Worth, TX

Director of Research, Department of Physical Therapy, University of Alberta, Canada

Chair, Graduate Program, Department of Physical Therapy, University of Alberta.

Professor, UNTHSC, U of Alberta, Visiting Professor, University of Michigan, Adjunct Professor, University of Queensland, Australia.

What were your significant contributions to the field?

Establishing the field of "Rehabilitation Ergonomics".

Theories of musculoskeletal injury causation.

Spinal rotation physiology, mechanics, and ergonomics in evolutionary perspective.

Ergonomics, mechanics and physiology of low velocity vehicular impacts and their effects on cervical spine.

Margin of safety assessment for the low back.

Inventing multiple devices for ergonomic investigations.

Developing the first version of Code of Ethics for Ergonomists for the International Ergonomics Association.

Did you receive any notable awards or recognition during your career?

The University of Surrey, UK awarded me a peer reviewed D.Sc. Degree in 1994. An entirely unthinkable event happened when I was invited to be a Visiting Professor for the year 1983-1984 at the University of Michigan, Center for Ergonomics, Department of Industrial Engineering. Upon my return from Michigan I was appointed a McCalla Research Professor 1984-85 at the University of Alberta. I received an Honorary Fellowship from the Association of Canadian Ergonomists (formerly known as Human Factors Association of Canada), was also made a Fellow of the Human Factors and Ergonomics Society of USA, the Ergonomics Society of UK and the International Ergonomics Association. The Ergonomics Society awarded me Sir Frédéric Bartlett Medal for excellence in ergonomics

research in 1997. The same year the Human Factors and Ergonomics Society awarded me the 'Distinguished International Colleague' honor. In the year 2000 I was fortunate to be awarded Jack Kraft Innovator Award by the Human Factors and Ergonomics Society, USA and Ergonomics Development Award by the International Ergonomics Association for conceptualizing and developing the sub-discipline of Rehabilitation Ergonomics. The Royal Society of Canada elected me a Fellow in 2004. The Governor General of Canada awarded the highest Canadian civil honor by making me an "Officer of Order of Canada" in 2010. I was also fortunate to receive the "Distinguished Alumnus" award from my alma mater, the University of Allahabad (a prominent and pre-eminent seat of learning), India in 2010.

Which articles in the journal *Human Factors* would you say were the most influential to you and your research or practice?

This is very hard to say as my research has drawn from numerous journals including Human Factors

Please provide any links to your online articles, essays, blogs, Wikipedia pages, etc., that pertain to your research, publications or practice.

Most can be accessed through Google.

What advice would you give someone considering HF/E as a profession?

Follow your heart, make your plans and work hard for them. Seek and consult a mentor. Do not drift like I did, you will waste a lot of time.