



FELLOW PROFILE

Catherine M. Burns



Degrees:

- PhD Mechanical and Industrial Engineering, University of Toronto
- MASc. Industrial Engineering, University of Toronto
- BAsC. Systems Design Engineering, University of Waterloo
- PEng. Professional Engineers of Ontario

Current status: Professor, Systems Design Engineering, University of Waterloo; Director, Centre for Bioengineering and Biotechnology, University of Waterloo

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Biography: As a systems design engineering student, we experienced a very broad ranging technical and design oriented program where one pillar of the program was ergonomics. I quickly gravitated to this elective direction, eventually completing a minor in psychology along with my engineering degree. While interviewing for graduate schools, I met Kim Vicente, a dynamic young professor

who was just starting at the University of Toronto. His ideas and passion for cognitive work analysis and ecological interface design were inspiring and allowed me to combine my interests in both psychology and engineered systems.

After my master's degree at the University of Toronto I worked at Westinghouse in Pittsburgh for a year. At Westinghouse I met a very strong and experienced team of control room and display designers and began to appreciate the challenges and the historical commitment of those who worked in nuclear human factors. It was a domain that had had some serious accidents in the past, had a tight regulatory environment, challenging complexity for the operator, and yet the people who worked in the field were still challenging the boundaries of design, and passionate about finding smart and effective new ways to help humans work. This environment encouraged me to return for a PhD degree at Toronto where I investigated ecological integration concepts in nuclear power displays.

While finishing my degree at Toronto, a position as a human factors faculty opened up at Waterloo, which had been my home school. I saw the opportunity to grow and advance the human factors program at Waterloo in new directions, moving beyond physical ergonomics to human factors in complex engineered systems. While I have been at Waterloo, the human factors program has grown and my research has extended the ideas of cognitive work analysis and ecological interface design in new directions. Currently I am working in healthcare, finance, and automated vehicles. I am also leading a research centre in bioengineering and biotechnology where I work to develop funding opportunities for faculty. This involves learning about my colleagues research and developing new connections to help them take their work further, so I see it as another dimension of human factors, in many ways.

Employment History

- 2012–present, Director, Centre for Bioengineering and Biotechnology, University of Waterloo
- 1998–present Professor, Systems Design Engineering, University of Waterloo

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

There have been so many. I think overall though that I am more influenced by people than individual articles.

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

I use researchgate as my article repository.

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

I am so thankful for my smart and hard working students and so many friendly and wise senior people who helped me along the way. Find the nicest, smartest people you can find and work with them.