

## Degree Programs

Center for Ergonomics investigators are faculty members from and associated with several University of Michigan departments, institutes, and programs. Ergonomics-related Master's and Ph.D. degrees can be pursued through units including those listed below. Contact the Center for more details.

The Department of Industrial and Operations Engineering  
[ioe.engin.umich.edu](http://ioe.engin.umich.edu)

The Department of Biomedical Engineering  
[www.bme.umich.edu](http://www.bme.umich.edu)

The Department of Environmental Health Sciences  
[www.sph.umich.edu/ehs](http://www.sph.umich.edu/ehs)

Center For Ergonomics  
[c4e.engin.umich.edu](http://c4e.engin.umich.edu)

Robotics Institute  
[robotics.umich.edu](http://robotics.umich.edu)

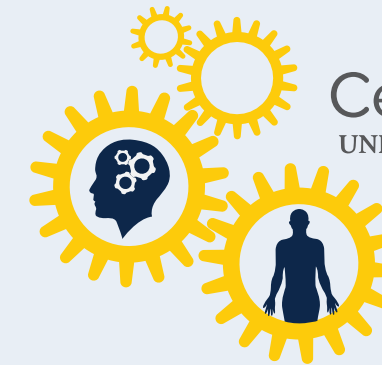
Design Science  
[isd.engin.umich.edu/degree-programs/design-science/](http://isd.engin.umich.edu/degree-programs/design-science/)

## Continuing Education

Non-degree, ergonomics continuing education programs are available for practicing professionals through the University of Michigan Center for Occupational Health and Safety Engineering. Additional information can be found at: [www.umcohse-programs.org](http://www.umcohse-programs.org)

### 3D SSPP™ and EEPP™

3D SSPP™ is a powerful analysis tool used to predict the capabilities of a population to perform a particular task. The Energy Expenditure Prediction Program™ (EEPP) is a software tool to estimate energy expenditure rates for materials handling tasks to help assure worker safety and health. Additional information can be found at: [c4e.engin.umich.edu/tools-services](http://c4e.engin.umich.edu/tools-services)



Center for Ergonomics  
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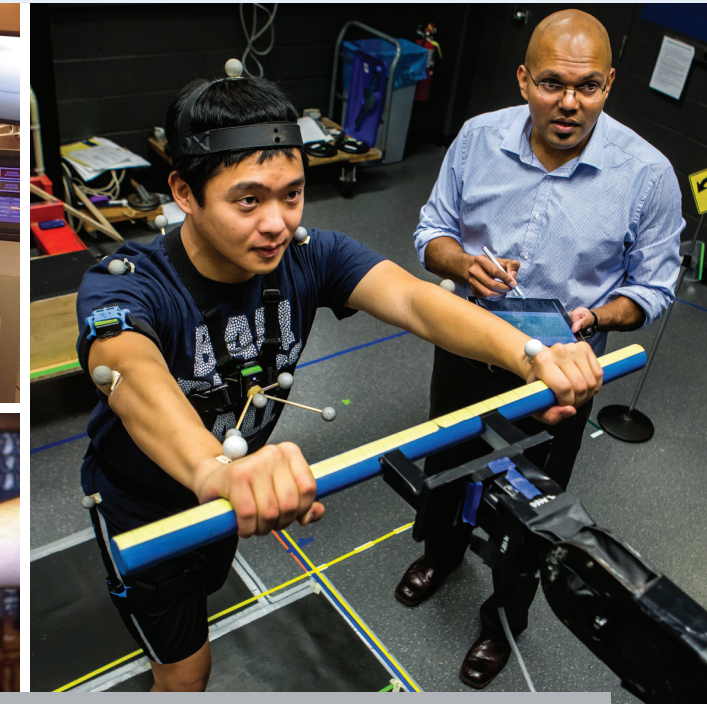
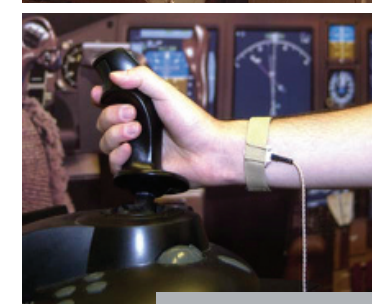
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Andrew C. Richner, Grosse Pointe Park  
Katherine E. White, Ann Arbor  
Mark S. Schlissel, *ex officio*

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DEDICATED TO IMPROVING  
HUMAN PERFORMANCE,  
SAFETY, AND WELL-BEING

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## About the Center

The Center for Ergonomics operates within the Department of Industrial and Operations Engineering in the College of Engineering. We have a long-standing history and distinguished record of research in the areas of Cognitive Ergonomics, Biomechanics and Work Physiology and Safety. We also provide instruction, both to graduate students in various departments across campus as well as professional ergonomists, engineers, and designers in private industry through our continuing education courses.

The mission of the Center for Ergonomics is to make workplaces and organizations safe, efficient, productive and enjoyable. We are dedicated to gaining and sharing a better understanding of how tools, technologies and work practices affect health and performance and how they can be improved through human-centered design. Our research also advances basic knowledge about people's psychological and physical abilities and limitations. Being part of the University of Michigan with over 250 degree programs uniquely qualifies us to take a systems-oriented and multi-disciplinary approach to engineering and design, combining cognitive, physical and organizational ergonomics and collaborating with experts in related disciplines.



## Center Investigators & Areas of Expertise



**Thomas J. Armstrong**  
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• hand work and hand tool design  
• upper extremity biomechanics and musculoskeletal disorders



**Richard E. Hughes**  
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**Nadine Sarter**  
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• multimodal interfaces  
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**Xi Jessie Yang**  
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• human factors in healthcare  
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• user experience design



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• biomechanical considerations in manual materials handling  
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**W. Monroe Keyserling**  
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• assessment and control of work-related musculoskeletal disorder risk factors  
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**Robert Werner**  
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• surveillance and causes of work-related musculoskeletal disorders



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• digital human modeling of special populations



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**Bernard Martin**  
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• sensori-motor systems  
• muscle fatigue  
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**Paul A. Green**  
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• modeling and evaluation of driver interfaces for workload and distraction  
• human-computer interaction



**Matthew Reed**  
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• modeling of human motions  
• vehicle interior design to meet posture requirements

## Research Areas

### Cognitive Ergonomics

The International Ergonomics Association (IEA) defines cognitive ergonomics as being “concerned with mental processes, such as perception, memory, reasoning, and motor response, as they affect interactions among humans and other elements of a system.”

### Biomechanics and Work Physiology

Biomechanics and work physiology are disciplines within the field of Physical Ergonomics which IEA defines as being “concerned with human anatomical, anthropometric, physiological and biomechanical characteristics as they relate to physical activity.”

### Safety

Research at the C4E is concerned also with the development of frameworks, methods, and models for analyzing and preventing mishaps and complex system failures in a variety of domains. Using a systems approach and/or epidemiology, we examine the contribution of cognitive/perceptual, technological, and organizational factors to incidents and accidents.