



Applied Cognitive Sciences

Richard Thomas Gill, Ph.D., CHFP, CXL

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LICENSE:

Certified Human Factors Professional, 1994-present
By the Board of Certification in Professional Ergonomics
License Number: 0526

Certified XL Tribometrist, 2002-present
By the International Safety Academy
License Number: A2002-0272

EDUCATION:

University of Illinois, 1982
Ph.D. in Mechanical Engineering
Area of Specialization: Human Factors

Wright State University, 1978
M.S. in Systems Engineering
Area of Specialization: Human Factors

Massachusetts Institute of Technology, 1973
1 year Graduate Study in Electrical Engineering

Wright State University, 1972
B.S. in Systems Engineering

ACADEMIC EXPERIENCE:

Professor of Mechanical Engineering at the University of Idaho (1995-2002): Teaching responsibilities include human factors, math modeling, mechanics, and statistics. Additional responsibilities include appointment as an adjunct professor in the Department of Psychology and Director of Idaho Space Grant Consortium.

Associate Professor of Mechanical Engineering at the University of Idaho (1990-1995): Teaching responsibilities include human factors, math modeling, mechanics, and statistics. Additional responsibilities include appointment as an adjunct professor in the Department of Psychology and Director of Idaho Space Grant Consortium.

Assistant Dean for the College of Engineering at the University of Idaho (1989-1990): Administrative responsibilities included the overall administration of the Engineering Science curriculum, coordinating statewide off-campus programs, managing engineering cooperative education programs, and recruiting new students. Position also included teaching and research responsibilities.

Assistant Professor of Mechanical Engineering at the University of Idaho (1987-1988): This tenure track appointment was 65% Mechanical Engineering and 35% Engineering Sciences. Teaching responsibilities included math modeling, mechanics, statistics, and course development in human factors. Additional responsibilities included a position as an adjunct professor in the Department of Psychology to assist in the development of an interdisciplinary research laboratory and graduate program in human factors.

Assistant Professor of Engineering Science at the University of Idaho (1984-1987): This tenure track appointment was 50% in the Engineering Science Department and 50% in the Mathematics and Applied Statistics Department. Teaching responsibilities included courses in engineering mechanics, applied probability and statistics, and developing a course in human factors in engineering design. Additional responsibilities included helping staff the Statistical Consulting Center.

Assistant Professor of Engineering at Wright State University (1980-1984): Served as Program Director for the Human Factors Engineering Program. Teaching responsibilities included engineering statics, engineering dynamics, human factors engineering, senior seminar, and systems approach to human factors. Also held a joint appointment with the WSU School of Professional Psychology where the primary responsibility was to assist in the development of a Doctor of Psychology degree in Human Factors.

Tutor for the State of Ohio (1978): Worked as a personal tutor for individual college students being rehabilitated from mental illnesses.

Student Tutor (1969-1972): Worked as a tutor for Wright University, Dean of Students Office. Tutored courses in Mathematics and Physics.

PROFESSIONAL EXPERIENCE:

Human Factors Engineering Consultant for Applied Cognitive Sciences (1983-Present): I have been retained as an expert witness, for both the plaintiff and defense, on over 2000 legal cases nationwide, and internationally. I have been qualified as an expert in human factors engineering, accident reconstruction, mechanical engineering, safety engineering, and risk management. Work has also included contracts from U.S. government agencies (USAF Aeromedical Research Laboratory and Idaho National Engineering Laboratory) as well as private industry (Arvin Industries, The Vendo Corporation, Key Tronic Corporation, Port Townsend Paper, Hewlett Packard, Manco Industries, Fun-Kart Association, Anchor Industries, and so forth).

Research Scientist for the USAF Office of Scientific Research (1983): This was an appointment at the USAF Aeromedical Research Laboratory. The work focused on assessing the relationship between acceleration-stress and pilot workload. In addition, I also worked on a project concerning the effects of high-onset rates of acceleration on pilot performance.

Graduate Research Assistant at the University of Illinois (1978-1981): Responsibilities included the conception and formulation of various research projects in the fields of Engineering Psychology and Mechanical Engineering.

Human Factors Engineer for the United States Air Force Human Resources Laboratory (1976-1978): Worked concurrently in two major fields: (1) visual simulation and (2) motion and force simulation. This included conducting in-house research as well as serving as program manager for externally conducted research.

Electronics Engineer for the United States Air Force Foreign Technology Division (1974-1976): Position required a Top-Secret security clearance. The work involved the selection and analysis of intelligence data to predict foreign military trends and capabilities.

Process Control Engineer for Industrial Nucleonics Corporation (1973-1974): Worked on the development of an infra-red moisture gauge to allow real-time computer control for tobacco dryers. Responsibilities included the development of a calibration technique and system installation at an operational site.

Computer Operator for Synergy, Inc. (1970-1972): Operated a CDC 6600 Computer at Wright Patterson Air Force Base while attending undergraduate school.

HONORS AND AWARDS:

- University of Idaho College of Engineering Outstanding Academic Advisor, 1998
- University of Idaho College of Engineering Outstanding Senior Faculty, 1996
- University of Idaho Alumni Award for Excellence, 1994
- American Society for Engineering Education Centennial Certificate Awardee, 1993
- Best Paper Award from American Society for Engineering Education Regional Conference, 1991
- ASUI Outstanding Faculty Award, 1991
- University of Idaho Alumni Award for Excellence, 1988
- Recipient of the New Engineering Educator Excellence Award from American Society for Engineering Education, 1987
- Recipient of the Dow Outstanding Young Faculty Award from the American Society for Engineering Education, 1986
- Selected as an S.C.E.E.E. fellow for the Air Force Office of Scientific Research Summer Faculty Research Program, 1983
- Graduated first in class at the University of Illinois (GPA 5.0 out of 5.0), 1981
- Recipient of the "Science and Engineering Career Motivation Award", Dayton Board of Education, 1978

- Graduated first in class at Wright State University (GPA 4.0 out of 4.0), 1978
- Awarded National Science Foundation Traineeship to Massachusetts Institute of Technology, 1972
- Graduated first in class at Wright State University, summa cum laude (GPA 3.9 out of 4.0), 1972
- W.S.U. Foundation Scholarship, 1972
- Member of Tau Beta Pi National Engineering Honor Society, 1971
- W.S.U. Foundation Scholarship, 1971
- Golding Award (Outstanding Junior Engineer) at Wright State University, 1971

PUBLICATIONS:

- Gill, R., and Gordon, S. "Cognitive Task Analysis." In C. Zsombok and G. Kline (Eds.), Naturalistic Decision Making, pp. 131-140, Lawrence Erlbaum Associates, 1997.
- Gill, R. "Towards Protection from Cumulative Trauma Disorder Litigation." Advances in Industrial Ergonomics and Safety VII, Taylor and Francis, Ltd., 1996.
- Gill, R., Gordon, S., McGehee, D., and Dean, S. "Integrating Cursor Control into the computer Keyboard." In Human Factors Perspectives on Human-Computer Interaction: Selections from Human Factors and Ergonomics Society Annual Meeting Proceedings, 1983-1994, Human Factors Society, 1995.
- Gill, R., Gordon, S., and Babbitt, B. "Embedding Intelligent Tutoring into Real Time Simulation." Proceedings of the Eighth Symposium on Aviation Psychology, 1995.
- Babbitt, B., Bell, H., Crane, P., Sorensen, H., Gordon, S., and Gill, R. "Intelligent Tutoring System: F-16 Flight Simulation." Proceedings of the 1994 American Institute of Aeronautics and Astronautics (AIAA) Computing in Aerospace Conference, 1994.
- Gill, R. "A Comprehensive Evaluation of Warning Label Design." In K. Laughery, M. Wogalter, and S. Young (Eds.), Human Factors Perspectives on Warnings, pp. 50-52, Human Factors and Ergonomics Society, 1994.
- Gill, R., and Gordon, S. "Conceptual Graph Analysis: A Tool for Curriculum Development, Instructional Design, and Trainee Evaluation." Proceedings of the 1993 Interservice/Industry Training Systems and Education Conference, pp. 861-870.
- Gordon, S. E., Schmierer, K. A., and Gill, R. T. "Conceptual Graph Analysis: Knowledge Acquisition for Instructional System Design." Human Factors, 35, pp. 459-482, 1993.
- Gordon, S. E., and Gill, R.T. "Knowledge Acquisition with Question Probes and Conceptual Graph Structures." In T. Lauer, E. Peacock, and A. Graesser (Eds.), Questions and Information Systems, pp. 29-46. Hillsdale, N J: Lawrence Erlbaum Associates, 1992.
- Gill, R, Gordon, S., McGehee, D., and Dean, S. "Integrating Cursor Control into the Computer Keyboard." Proceedings of the Human Factors Society's 35th Annual Meeting, Vol. 1, pp. 256-260, 1991.
- Gill, R., Dingus, T. "Human Factors and Engineering Design High School Summer Workshop." Proceedings of the Human Factors Society's 34th Annual Meeting, Vol. 1, pp. 522-524, 1990.
- Dingus, T., Gordon, S., and Gill, R. "A New Program for the Remote Training of Human Factors Professionals." Proceedings of the Human Factors Society's 34th Annual Meeting, Vol. 1, pp. 534-536, 1990.
- Gill, R., and Stauffer, L. "Developing Appropriate Evaluation Criteria for Assessing the Value Added by Mechanical Engineering Education Programs." Proceedings of the 1989 American Society for Engineering Education Annual Conference, Vol. 3, pp. 1263-1265, 1989.
- Gordon, S., and Gill, R. "Question Probes: A Structured Method for Eliciting Declarative Knowledge." AI Applications in Natural Resource Management, Vol. 3, pp. 13-20, 1989.
- Gill, R. "Mail-order Errors: The Role of Human Factors." Dickinson's PSAO, Vol. 3, No. 12, pp. 6-7, Dec. 1988.
- Christensen, J., Topmiller, D. and Gill, R. "Human Factors Definitions Revisited." Human Factors Bulletin, pp. 7-8, Oct. 1988.
- Dingus, T., Hyde, R., Hyde, T., Frame, M. and Gill, R. "The Speed and Accuracy of a Spatial Communication Task as a Function of Operator Location." Proceedings of the 21st Annual Meeting of the Human Factors Association of Canada.
- Gill, R., Gordon, S., Moore, J. and Barbera, C. "The Role of Knowledge Structures in Problem Solving." Proceedings of the 1988 American Society for Engineering Education Annual Conference, Vol. 2, pp. 583-90, 1988.
- Junker, A., Levison, B. and Gill, R. "A Systems Engineering Based Methodology for Analyzing Human Electroocortical Responses." AFAMRL Technical Report AAMRL-TR-87-030, May 1987.
- Gill, R., Barbera, C. and Precht, T. "A Comparative Evaluation of Warning Label Designs." Proceedings of the Human Factors Society's 31st Annual Meeting, Vol. 1, pp. 476-78, 1987.
- Gordon, S., Gill, R., and Dingus, T. "Designing for the User: The Role of Human Factors in Expert System Development." Artificial Intelligence Applications in Natural Resource Management, Vol. 1, No. 1, pp. 35-46, 1987.
- Gill, R. "The Need for Human Factors in the Design of Expert Systems." Proceedings of the 1987 Frontiers in Education Conference, 1987.
- Gill, R., and Dingus, T. "A Structural Approach to Teaching Relative Motion." Proceedings of the 1987 American Society for Engineering Education Annual Conference, Vol. 4, pp. 1806-08, 1987.
- Barbera, C. and Gill, R. "Human Factors in Warning Label Design." Proceedings of Interface, 1987.
- Gill, R., Kenner, K. and Junker, A. "Steady State EEG as A Measure of Peripheral Light Loss." Proceedings of the Human Factors

[Society's 30th Annual Meeting](#), Vol. 2, pp. 1249-52, 1986.

- Kenner, K, Junker, A. and Gill, R. "Visual Evoked Response in the Periphery, The Beginnings of an Objective Measure of G-Induced PLL." [Proceedings of the National Aerospace and Electronics Conference](#), Vol. 3, pp. 909-12, May 1986.
- Gill, R., and Albery, W. "The Effects of Acceleration Stress on Human Workload and Manual Control." [Proceedings of the 21st Annual NASA Conference on Manual Control](#), 1985.
- Albery, W., Ward, S. and Gill, R. "Effects of Acceleration Stress on Human Workload." [AFAMRL Technical Report](#), AAMRL-TR-85-039, 1985.
- Gill, R., and Gordon, S. "The Effectiveness of Group Projects in Teaching Engineering Mechanics." [Proceedings of the 1984 American Society for Engineering Education](#), 5(5), pp. 27-33, 1984.
- Gill, R., Obleski, M. Gordon, S. and Albery, W. "The Effects of Acceleration on Cognitive Processing." [Proceedings of Mid-Central Ergonomics/Human Factors Conference](#), April 1984.
- Gill, R. "Pilot Workload and G-Stress: A Potential Interaction?" USAF Summer Faculty Research Program - Final Reports. [Published by Southeastern Center for Electrical Engineering Education](#), December 1983.
- Pierce, B., Obleski, M. and Gill, R. "Human Factors in Aerospace: A Student Chapter Project." [Human Factors Bulletin](#), April 1983.
- Gill, R., and Wickens, C. "Operator Workload as a Function of the System State." [Proceedings of the 18th Annual NASA Conference on Manual Control](#), 1982.
- Gill, R., Wickens, C., Reid, R. and Donchin, E. "Pseudo-Quickening: A New Display Technique for Manual Control of Higher Order Systems." [Proceedings of the Human Factors Society's 26th Annual Meeting](#), 1982.
- Gill, R., Wickens, C., Donchin, E. and Reid, R. "The Internal Model as a Means of Analyzing Human Performance." [Proceedings of the 1982 I.E.E.E. International Conference on Systems, Man and Cybernetics](#), 1982.
- Hull, J., Gill, R. and Roscoe, S. "Locus of Stimulus to Visual Accommodation: Where in the World, or Where in the Eye?" [Human Factors](#), 24, pp. 311-19, 1982.
- Wickens, D., Gill, R., Kramer, A., Ross, W. and Donchin, E. "The Cognitive Demands of Second Order Manual Control: Applications of the Event-Related Brain Potential." [Proceedings of the 17th Annual NASA Conference on Manual Control](#), NASA, 1981.
- Ritchie, M., Gill, R. and Jankowski, R. "The Education and Placement of Human Factors Engineers." [Proceedings of the North Central Section, American Society for Engineering Education](#), Dayton, OH, pp. 82-87, April 1981.
- Albery, W., and Gill, R. "Development and Validation of Drive Concepts for an Advanced G-Cueing System." [Proceedings of the 1978 American Institute of Aeronautics and Astronautics](#), 1978.

PRESENTATIONS:

- Gill, R., and Dixon, L. "Human Factors Engineering." Invited Presentation by the Rotary Club of Spokane, November 2015.
- Gill, J., Gill, R., and Colcombe, A. "Safety by Design: Not Always." Invited Presentation by the Idaho Trial Lawyers' Association, September 2013.
- Gill, R., Gill, J., and Doerzaph, Z. "Systems Safety and Human Factors." Invited Presentation to the 2nd Annual Brains, Trains, & Automobiles Conference, April 2010.
- Gill, R. and Gill, J. "Safety by Design: Not Always." Invited presentation at the 360 Advocacy Institute Conference, Sponsored by Citizens for Rail Safety, February 2009
- Gill, J. and Gill, R. "Human Factors in Litigation." Invited presentation by the Washington State Trial Lawyer's Association, October 2006.
- Gill, R. "Electronic Billboards: Safety and Social Issues." Invited presentation to the Snohomish City Council Meeting, May 2005.
- Gill, R. "Human Factors in Accident Reconstruction." Invited address to the 20th Annual Special Problems in Traffic Crash Reconstruction at IPTM, Jacksonville, Florida, April, 2002.
- Gill, R. "Human Factors Expert Witness." American Board of Trial Advocates Meeting, Waikiki, Hawaii, November 2000.
- Gill, R. "Industrial Funding Support for K-12 Programs." Panel discussant for the Annual Meeting of Space Grant Directors, April 1997.
- Gill, R. "Human Factors in Forensic Investigations." Invited address at Society of Forensic Engineers and Scientists Meeting, August 1996.
- Barnes, T., Hodge, J., and Gill, R. "Design and Fabrication of an Integrated Cystic Fibrosis Treatment System." Presented at the 1996 Idaho Academy of Science Meeting.
- Gill, R. "Technology and Its Impact on Society." Invited address at the Fourteenth Annual International Exchange Conference, Lewis-Clark State College, October 1994.
- Gill, R., and Lewis, V. "Towards Improved College Teaching: A Preliminary Report." Presented at the American Society for Engineering Education Pacific Northwest Section Annual Regional Meeting, April 1992
- Elger, D., and Gill, "Modeling the Problem-Solving Process Used by an Expert." Presented at the American Society for Engineering Education Pacific Northwest Section Annual Regional Meeting, April 1992.
- Gill, R. "High School Summer Workshops: An Effective Recruitment Technique." Presented at the American Society for Engineering Education Pacific Northwest Section Annual Regional Meeting, April 1991.
- Elger, D., and Gill, R. "A Goal for Engineering Education: The Ideal Engineer." Presented at the American Society for Engineering

Education Pacific Northwest Section Annual Regional Meeting, April 1991.

Carson, B., and Gill, R. "The Human Factors Element in Engineering Design." Presented at the 1989 Idaho Academy of Science.

Simon, A., Imthurn, J., Polillo, S. and Gill, R. "The Role of Human Factors in Engineering Design: A Case Study of an Industrial Paper Winder." Presented at the 1987 Idaho Academy of Science.

Gill, R. "The Role of Human Factors in Operator Workstation Design." Invited Presentation at the 1986 PCAPPA.

Gill, R., and Mau, C. "The Feasibility of Using EEG to Measure Peripheral Light Loss." Presented at the Annual Western Psychological Association Meeting, 1986.

Gill, R., Ward, S. and Alberty, W. "The Comparison of Subjective and Objective Workload Measures for Humans Under Acceleration Stress." Presented at the 1984 National Aerospace and Electronics Conference, May 1984.

Gordon, S., & Gill, R. "A New Technique for Assessing Cognitive Processing Capabilities." Presented at the Annual Meeting of the Ohio Academy of Science, April 1984.

Richard, M., Rice, S. and Gill, R. "The Improvement of a Ballistics Test Range Control Panel Via Human Factors Engineering." Presented at the Annual Meeting of the Ohio Academy of Science, April 1984.

Peters, R., Gill, D., Pasquini, L. and Gill, R. "Human Factors Critique and Redesign of a Jet Engine Control Panel." Presented at the Annual Meeting of the Ohio Academy of Science, April 1984.

Gill, R. "Improved Quickened Displays." Presented at the Annual Meeting of the Ohio Academy of Science, April 1983.

Julien, J., Click, A., Sanders, S., Scandura, L. and Gill, R. "Human Factors Critique and Design of a Hydraulic Systems Test Stand." Presented at the Annual Meeting of the Ohio Academy of Science, April 1983.

Ingle, D., Dabney, G., Scherty, K. Beckett, T. and Gill, R. "A Human Factors Critique of an Industrial Sewer Cleaner." Presented at the Annual Meeting of the Ohio Academy of Science, April 1983.

Gill, R. "The Role of Human Factors at Three Mile Island." Invited presentation by the Southern Ohio Chapter of the Human Factors Society, October 1982.

Gill, R. "Human Factors in Education." Invited presentation by the Dayton Chapter of the I.E.E.E., October 1980.

Gill, R., Ross, T. and Alberty, W. "An Advanced Acceleration Simulation Device for the Flight Simulators." Presented at the Dayton-Cincinnati AIAA, Mini-Symposium, 1978.

PROFESSIONAL ACTIVITIES:

- Member of Human Factors and Ergonomics Society
- Member of American Society for Testing and Materials

GRANTS AND CONTRACTS:

- Testing and Evaluation of "Safe Steps Floor Treatment" on University of California Riverside campus, co-investigator, 2010
- Slip and Fall Prevention, Comwell, dba McDonald's, co-investigator, 2008
- Evaluation and Development of Warning Information for Portable Fire Shelters, Anchor Industries, co-investigator, 2006
- Safety Analysis of Electronic Billboards, City of Snohomish, principle investigator, 2005
- Evaluation of Warning Label Designs, American Fun Kart Association, principle investigator 2002
- Idaho Space Grant Consortium, NASA, \$260,000, assistant director, 2001
- Idaho Space Grant Consortium, NASA, \$260,000, assistant director, 2000
- Transforming Engineering Consulting into Engineering Case Studies, University of Idaho, \$35,000, sabbatical, 1999-2000
- Idaho Space Grant Consortium, NASA, \$256,500, director, 1999
- NASA Experimental Program to Stimulate Competitive Research, \$225,000, state-wide director, 1999
- Idaho Space Grant Consortium, NASA, \$256,000, director, 1998
- Idaho Space Grant Consortium, NASA, \$255,000, director, 1998
- Idaho Total Engineering Challenge, Lockheed Martin Aerospace Corporation, \$5,000, principal investigator, 1997
- Idaho Space Grant Consortium, NASA, \$255,000, director, 1997
- Idaho Space Grant Consortium, NASA, \$230,000, director, 1996
- Summer Institute for Engineering Educators on Curriculum Design and Implementation for Interactive Teaching/Learning, University of Idaho Office of Teaching Enhancement, \$2,500, co-principal investigator, 1995
- Idaho Space Grant Consortium, NASA, \$230,000, director, 1995
- Evaluation of an F-16 Intelligent Tutoring System, Northrop Corporation, \$37,600, co-principal investigator, 1994
- JETS Workshop, US Department of Energy, \$1,400, co-principal investigator, 1993
- Workstation and Hand Tool Design for Disk Drive Assembly, Hewlett Packard, \$5,000, co-principal investigator, 1993
- Analysis of a Disk Drive Arm Assembly Line Process, Hewlett Packard, \$2,000, co-principal investigator, 1992
- Multimedia for Enhanced Undergraduate Education, University of Idaho Office of Academic Affairs and IBM, \$81,000, co-principal investigator, 1991
- JETS Summer Workshop, US Department of Energy, \$9,000, co-investigator, 1991
- Analysis of a Paper Winder Safety Gate, Port Townsend Paper, \$2,500, co-principal investigator, 1991
- Keymouse Configuration and Design, Key Tronic Corporation, \$6,700, co-principal investigator, 1990

- Keymouse Usability, Key Tronic Corporation, \$18,900, co-principal investigator, 1990
- JETS Summer Workshop, US Department of Energy, \$9,000, principal investigator, 1990
- Mapping Knowledge in Declarative and Procedural Structures, Idaho State Board of Education, \$35,000, co-principal investigator, 1990
- JETS Summer Workshop, US Department of Energy, \$22,000, principal investigator, 1990
- A Program to Test and Evaluate Equipment for the Disabled, University of Idaho Research Office, \$7,000, co-principal investigator, 1989
- Research Experience for Undergraduates, National Science Foundation, \$4,000, co-principal investigator, 1989
- Stressor Interaction Assessment, Boeing Military Aircraft Corporation, \$21,600, co-principal investigator, 1989
- Design and Evaluation of a Vending Machine Retrofit System, The Vendo Company, \$20,400, principal investigator, 1988
- A Structural Technique for Evaluating Design Tools, National Science Foundation, \$60,000, co-author and consultant, 1988
- Formations and Use of Conceptual Structures in Problem Solving Domains, Air Force Office of Scientific Research, \$79,200, co-principal investigator, 1988
- Software Interface Design for Asynchronous Computer Conferencing, EG&G of Idaho, \$12,800, co-principal investigator, 1987
- Techniques for Augmenting the Communication of Spatial Information, Boeing Military Aircraft Company, \$15,000, co-principal investigator, 1987
- Evaluation of Warning Label Effectiveness, Arvin Industries, \$1,400, principal investigator, 1986
- A Structured Approach for Developing an Effective Teaching Methodology for Problem Solving: A Case Study, American Society for Engineering Education, \$1,500, principal investigator, 1986
- The Development of an Innovative Technique for Using Personal Computers to Aid in Teaching Deaf People to Speak, University of Idaho Seed Grant, \$3,300, principal investigator, 1986
- The Development of a Steady State EEG Measure of Acceleration Induced Peripheral Light Loss, United States Air Force Aerospace Medical Research Laboratory, Human Engineering Division, \$7,100, principal investigator, 1985
- The Feasibility of Using Electroencephalograms to Measure Acceleration Stress, United States Air Force Aerospace Medical Research Laboratory, Human Engineering Division, \$14,000, principal investigator, 1984
- The Effects of Acceleration Stress on Cognitive Workload, United States Air Force Aerospace Medical Research Laboratory, Biomechanics Division, \$35,000, principal investigator, 1984