

CHIA-FEN CHI (Christine)
Curriculum Vitae

Correspondence

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Google Scholar: *https://scholar.google.com/citations?user=aHg6E24AAAAJ&hl=en*

Education

Ph.D. in Industrial Engineering, 1990.
State University of New York at Buffalo, USA.
M.S. in Industrial Engineering, 1987.
State University of New York at Buffalo, USA.
B.S. in Industrial Engineering, 1985.
Tunghai University,Taichung, Taiwan.

Research Interests

- Accident Analysis for Prevention and Safety Management
- Visual Performance and Human-Machine Interface
- Job Analysis and Accommodation for Aging and Disabled workers

Academic Positions

Since 2012	**Distinguished Professor,** National Taiwan University of Science & Technology
2022-2024	**Board member**, Consumer Protection Committee
Since 2019	**Board member,** Taiwan Transportation Safety Board
2016-2019	**Vice Chairman.** Aviation Safety Council
2016	**Visiting Professor,** Hong Kong University of Science & Technology
2013 -2016	**Director,** Center for teaching & learning
2011 –2013	**Dean of International Affairs,** International Office
2010 -2011	**Associate Dean.** Management School
2008 -2010	**Department chair.** Industrial Management
2006	**Visiting Professor,** Iowa State University
1998- 2012	**Professor.** National Taiwan University of Science & Technology
1990 –1998	**Associate Professor,** National Taiwan University of Science & Technology

Professional Service

Since 2015	Editor Board	Applied Ergonomics (SCI Journal)
Since 2009	Editor Board	International Journal of Industrial Ergonomics (SCI Journal)
Since 2016	Associate Editor	Journal of Labor, Occupational Safety and Health
2005-2008	Senior Editor	Journal of the Chinese Institute of Industrial Engineer (EI)
2003 –2005	President	for Ergonomics Society of Taiwan

Honor

2024 IEA Fellow
2018 Excellence in Research Award of NTUST
2016 Fellow, Ergonomic Society of Taiwan
2022 Research awards of National Taiwan University of Science & Technology
2020 Research awards of National Taiwan University of Science & Technology
2012 Research awards of National Taiwan University of Science & Technology
2008 Research awards of National Taiwan University of Science & Technology
2006 Excellence in Teaching Award of National Taiwan University of Science & Technology

Publication List

Journal Papers

Accident Analysis

1. Chia-Fen Chi, Vincent Tjendra, Steven Su (2026). Root cause analysis of airplane technical failures with Rasmussen's risk management framework (RRMF) based human-machine-environment-procedure (HMEP) taxonomy. Applied Ergonomics, 134, 104723. (SSCI).
2. Cho Yin Yiu, Wen-Chin Li, Kam K.H. Ng, Chia-Fen Chi, Jens Schiefele (2026). Enhancing aviation safety with artificial intelligence: A systematic literature review on recent advances, challenges and future perspectives. Advanced Engineering Informatics, 71, 104378. (SCI).
3. Chi, C. F., Lin Y.-C. (2022) The development of a safety management system (SMS) framework based on root cause analysis of disabling accidents. *International Journal of Industrial Ergonomics*, Volume 92, November 2022, 103351.
4. Chi, C.-F., Sigmund, D., Lin, Y.-C., Drury, C. G. (2022) The Development of a Scenario-Based Human-Machine-Environment-Procedure (HMEP) Classification Scheme for the Root Cause Analysis of Helicopter Accidents. Applied Ergonomics. 103 (2022) 103771
5. Chi, C.-F., Sigmund, D., Astardi, M. O. (2020) Classification Scheme for Root Cause and Failure Modes and Effects Analysis (FMEA) of Passenger Vehicle Recalls. *Reliability Engineering and System Safety.* (200), 106929
6. Chi, C. F., Chang, T. C. and Tsou, C. L. (2006) In-Depth Investigation of Escalator Riding Accidents in Heavy Capacity MRT Stations, Accident Analysis & Prevention, 38, 662-670.
7. Chi, C. F., Lin, C.-H., Yang, H. S. (2008) The causal analysis of requested alterations for pressure garments, Journal of Burn Care and Research. 29, 965-974.
8. Chi, C.-F., Lin, S.-Z., Dewi, R. S. (2014) Graphical fault tree analysis for fatal falls in the construction industry Accident Analysis and Prevention. 72. 359–369.
9. Chi, C. F., Chang, T. C. and Hung, K. H. (2004) Significant industry-source of injury-accident type for occupational fatalities in Taiwan, International Journal of Industrial Ergonomics, 34, 77-91.
10. Chi, C. F., and Chen, C. L. (2003)"Reanalyzing occupational fatality injuries in Taiwan with a model free approach", Safety Science, 41, 681-700.
11. Chi, C.-F., Lin, S.-Z. (2018) Classification Scheme and Prevention Measures for Caught-in Between Occupational Fatal Accidents. *Applied Ergonomics*. 68, 338-348.
12. Chi, C.-F., Lin, Y.-Y., & Ikhwan, M. (2012) Flow Diagram Analysis of Electrical Fatalities in the Construction Industry, Safety Science. 50, 1205-1214.
13. Chi, C. F., Chang, T. C. and Ting, H. I. (2005) Accident Patterns and Prevention Measures for Fatal Occupational Falls in the Construction Industry, Applied Ergonomics, 36, 391-400.
14. Chi, C. F., Yang, C.-C. and Chen, Z.-L. (2009) In-Depth Accident Analysis of Electrical Fatalities in the Construction Industry. International Journal of Industrial Ergonomics, (39) 635–644.

15. Chi, C. F., and Wu, M. L. (1997) Fatal occupational injuries in Taiwan –relationship between fatality rate and age, *Safety Science.* **27,** 1-17.
16. Chi, C.-F., Chen, P.-L.; Saleh, W.; Tsai, S.-H., Pai, C.-W. (2019) Helmet non-use by users of bikeshare programs, electric bicycles, racing bicycles, and personal bicycles: An observational study in Taipei, Taiwan. International Journal of Sustainable Transportation. 18(2) doi.org/10.1080/15568318.2018.1441470

Human Machine Interface

17. Chi, C.-F., Dewi, R. S., Surbakti, Y. Y., Hsieh, D.Y. (2017) The Perceived Quality of In-vehicle Auditory Signals: A Structural Equation Modeling Approach. Ergonomics. 60(11):1471-1484.
18. Chi, C.-F., Dewi, R. S., Huang, M. H.(2017) Psychophysical Evaluation of Auditory Signals in Passenger Vehicles. *Applied Ergonomics*. 45, 904-916.
19. Chi, C.-F., Dewi, R. S.,Samali, P., Hsieh, D.Y. (2019, Nov). Preference Ranking Test For Different Icon Design Formats For Smart Living Room and Bathroom Functions. Applied Ergonomics, 81, 102891
20. Chi, C.-F., Dewi, R. S. (2014)" Matching performance of vehicle icons in graphical and textual formats", Applied Ergonomics, 45, 904-916.
21. Hung, S.M. Shieh, K. K. Chi,C. F. (2002) Factors affecting the design of computer icons. International Journal of Industrial Ergonomics, 29, 211-218.
22. Chi, C. F., Cai, D. & You, M. (2003) Applying Image Descriptors to the Assessment of Legibility in Chinese Characters, *Ergonomics*, 46(8), 825-841.
23. Cai, D. , Chi, C. F., & You, M. (2000) The Legibility Threshold of Chinese Characters in Three Type Styles, International Journal of Industrial Ergonomics, 27, 9-17.
24. Cai, D. , Chi, C. F., & You, M. (2008) The assessment of English letter legibility with image descriptors. Perceptual & Motor Skills, 107, 618-628.
25. Chi, C. F., Lan, W. S. & Tsai, J. R. (2000) Deriving and analyzing performance strategy in a two-dimensional drawing task. *International Journal of Industrial Ergonomics*, 25, 393-404.
26. Chi, C. F., and Chung, K. L.,(1996) "Task analysis for computer- aided design at a keystroke level". *Applied Ergonomics,* 27, 255-265.

Aging and Disabled Workers

27. Chi, C.-F., Tseng, L.-K., Jang, Y. (2012) Prune a decision tree of selecting computer-related assistive devices for the disable user, *IEEE Transactions on Neural Systems & Rehabilitation Engineering* 20(4):564-573.
28. Chi, C. F., Dewi, R. S., Jang, Y., Liu, H.-L. (2018) Workplace accommodation for workers with intellectual or psychiatric disabilities, *International Journal of Industrial Ergonomics*, 68, 1-7.
29. Chi, C. F., Pan, J. S., Liu, T. H., Jang, Y. (2004) The Development Of A Hierarchical Coding Scheme And Database Of Job Accommodation For Disabled Workers, *International Journal of Industrial Ergonomics*, 33, 429-447.
30. Chi, C. F., Chen, C. L., Lin, T. Y. (2001) Risk for occupational injury of handicapped workers in Taiwan, *Perceptual & Motor Skills*, 93, 89-94.
31. Jang, Y., Chi, C. F., Tsauo, J.-Y. & Wang, J.-D. (2006) Prevalence and Risk Factors of Work-Related Musculoskeletal Disorders in Massage Practitoners. *Journal of Occupational Rehabilitation*. 16, 425-438.
32. Chi, C. F., , Chang, T.-C., Song, J.-C. (2007) Job compensable factors and factor weights derived using job analysis data, *Perceptual & Motor Skills*, 104, 1193-1204.
33. Chi, C. F., and Lin, Y. H. (2008) An Ergonomic Evaluation of a Call Center Performed by

Disabled Agents, *Perceptual & Motor Skills*, 107, 55-64

34. Chi, C. F., (1999) A study on job placement for handicapped workers using job analysis data. *International Journal of Industrial Ergonomics*, 24, 337-351.

35. Chi, C. F., & Lin, Y. T. (1998) Ratings of 830 jobs on 45 characteristics: factor & cluster analysis into Age-enhanced, Age-neutral & Age-counteracted & Age-impaired categories, *Perceptual & Motor Skills,* 87,803-816.

Mental Load and Visual Performance

36. Chi, C. F., Cheng, C.C., Shih, Y.-C.,Sun, I. S. & Chang, T. C.(2019) Learning rate and subjective mental workload in five truck driving tasks, Ergonomics, 62(3), 391-405, DOI: 10.1080/00140139.2018.1545054

37. Chi, C. F., & Lin, F.-T. (1998) A comparison of seven visual fatigue assessment techniques using three data-acquisition VDT tasks, Human Factors, 40, 577-590.

38. Chi, C. F., and Lin, F.-T. (1997) "A new method for describing search patterns and quantifying visual load using eye movement data", International Journal of Industrial Ergonomics, 19, 249-257.

39. Chi, C. F., and Lin, Y. H.& Lan, W.-S. (2003) Measurement of information processing load and visual load on a dynamic information processing task, *Behavior & Information Technology*, 22, 365-374.

40. Chi, C. F., and Lin, Y. H. (2009) Effects of using a screen filter on call center worker's visual fatigue measurement, Perceptual & Motor Skills, 108, 229-238.

39. Chi, C. F. (1994) Does windowing or magnification enhance inspection ? Journal of the Chinese Institute of Industrial Engineers, 11, 223-229 (EI)

40. Drury, C. G. and Chi, C.-F. (1995) A test of economic models of stopping policy in visual search. *IIE Transactions,* 27, 382-393.

41. Chi, C. F. and Drury, C. G (1998) Do people choose an optimal response criterion in an inspection task ? *IIE Transactions*, 30.3, 257-266.

42. Chi, C. F. and Drury, C. G (2001) Limits to human optimization in inspection performance. International Journal of Systems Science, 32, 689-701.

Hand Performance

43. Cheng, C.-C., Shih, Y.-C.,Tsai, Yue-Jin, Chi, C.-F. (2014) ;The Influence of Cooling Forearm/Hand and Gender on Estimation of Hand Grip Strength, *Ergonomics.* 2014 Jul 17:1-13.

44. Chi, C. F., Shih, Y.-C., Chen, W.-L. (2012) Effect of Cold Immersion on Grip Force, EMG, and Thermal Discomfort, *International Journal of Industrial Ergonomics,* 42, 113-121.

47. Chen, W.-L. Shih, Y.-C. and Chi, C. F. (2010) Hand/Finger Dexterity as a Function of Skin Temperature, EMG, and Ambient Condition, Human Factors, 52(3), 2010. 426-440.

45. Chi, C. F. and Drury, D. G.(1988), Cross Validation of Measures of Handle/Human Fit. *Applied Ergonomics*, 19.4, 309-314.

46. Chi, C. F. and Drury, C. G. (1988), A Further Note on Psychophysical Testing of Handles. *Applied Ergonomics*, 19.4, 315-318.

Book Chapters

1. Chi, C.-F. (2016) Chapter 26 Accident Causes and Prevention Measures for Fatal Occupational Falls in the Construction Industry in Fall Prevention and Protection: Principles, Guidelines, and Practices. Hsiao, H. (Ed) CRC Press ISBN 9781482217148
2. Djonaedi, E, Chi, C.-F., Dianawati, F. Yuri M., Zagloel, Y. M. (2012) The development of a database program for fatal electrocution and fatal fall accidents in construction industry,

International Journal of Technology, 1, 67-76. (EI)

3. Tsai, WC., Chi, CF., Huang, YH. (2023). Technology Service Design for the Older Adults with Dementia. In: Gao, Q., Zhou, J. (eds) Human Aspects of IT for the Aged Population. HCII 2023. Lecture Notes in Computer Science, vol 14043. Springer, Cham. https://doi.org/10.1007/978-3-031-34917-1_26

Two textbooks Published in Chinese

- "Job Analysis and Accommodation for Handicapped Workers" (2003) single author
- "Human Factors: Design Principle and Practical Application for Man-Machine-Environment" (2022) with four other authors.

PhD supervision

- Cheng, C.C., (2019) Learning Curve Analysis of Passenger Vehicle and Military Truck Driving
- Lin, S.-Z. (2018) Fault Tree Analysis for Caught-in-Between Occupational Fatal Accidents
- Dewi, R. S. (2016) Matching Test and Preference Test on In-vehicle Visual and Auditory Signs of Passenger Cars
- Lin, Y.-Y., (2008) The defect analysis and quality function deployment analysis of requested alteration for pressure garment
- Yang, C.-C. (2008) Contributing factors of work-related electrical fatalities
- Chang, T. C. (2004) Scenario analysis of occupational fatalities and fatal falls
- Chen, C. L. (2001) The Analysis of Demographic Factors for Fatal and Nonfatal Occupational Injuries in Taiwan
- Tseng, L.-K., (2012) A decision tree of selecting computer-related assistive devices for the disabled user
- Cai, D. (2001) The Application of Image Descriptors to the Assessment of the Legibility for Characters
- Lin, C.-H., (2012) Accident Patterns for Electrical Fatalities in the Construction Industry
- Lin, Y. H. (2004) The measurement of mental workload and human factors evaluations on two information processing tasks
- Lin, F.-T.(1996) A study of visual search patterns and visual fatigue using eye-movement method
- Chen, W.-L. (2010) Evaluating the hand performance in a cold environment

Invited Lectures

- Keynote speaker for Hong Kong Ergonomics Society "Icons for Automobiles" Hong Kong, 27 May 2016
- Guest speaker for Hong Kong Ergonomics Society "Fatal occupational injuries in construction industry" Hong Kong, 27 Mar 2015
- Guest speaker for 2011 12th International Conference on Quality in Research (QiR) "The Use of Archival Data: Finding Accident Patterns of Work-Related Fatalities" Indonesia, 4-7 July 2011
- Plenary speaker for 2010 International Industrial Engineering Conference: Research, Applications & Practice, to deliver "Accident Analysis and Human Error" in AUGUST, 2010
- Guest speaker for the 10th annual meeting of Society of Occupational Safety Health and Ergonomics to deliver "Accident analysis of work-related injuries in Taiwan" in Japan in Oct,

2005

- Guest speaker for Hong Kong Ergonomics Society to deliver “Ergonomic Studies on Disabled Workers” at The Hong Kong Polytechnic University in May, 2004

Projects (Principal Investigator)

- Development of hazard analysis and automatic detection system for unguarded opening (CTCI)
- Design of Safety Posters for High-Risk Tasks for Construction Industry (CTCI)
- Development of Safety Rule and SOP for High-Risk Tasks for Construction Industry
- Development of Self-Audit and Checklist for High-Risk Tasks Using Disabling Accidents (CTCI)
- Development of Accident Data Base Framework (CTCI)
- Handbook of Occupational Accident Investigation (CTCI)
- Occupational Safety and Health Checklist and Training Manual for Warehouse (Tokio Marine Group)
- Accident Patterns and Prevention Measures of Fire Compensation Cases (Tokio Marine Group)
- Human Factors Design Guideline and Evaluation for Vehicles supported by Hua-chuang Automobile Information Technical Center Co., Ltd
- Situational Analysis and Preventive Measures of Fatal Falls supported by Institute of Occupational Safety & Health
- Change in perception of occupational risk and working behavior following an occupational injury supported by Dept of Labor, Taipei City Government
- Human Factors Training Guide for Aviation Safety supported by Civil Aeronautics Administration
- The development of a checklist for the prevention of fatal falls in construction industry supported by Institute of Occupational Safety & Health (Taiwan)
- In-depth analysis of caught in between work-related fatalities supported by Bureau of Labor Insurance
- An Epidemiological Study of Occupational Injury in Taiwan supported by Bureau of Labor Insurance
- An ergonomics study of the workplace for disabled Workers supported by Institute of Occupational Safety & Health
- Occupational disease and injury of Aging Workers supported by Institute of Occupational Safety & Health
- Ergonomic Design Guidelines for High Speed Rail System in Taiwan supported by Preparation Office of High Speed Rail System, Bureau of Transportation & Communication
- Assistive Devices for Disabled Workers supported by Bureau of Labor Insurance
- The Creation of a Database System of Computer-Related Assistive Devices for Disabled Workers supported by Institute of Occupational Safety & Health of Taiwan.
- The Development of a Coding Scheme and Database of Job Accommodation For Disabled Workers supported by Employment and Vocational Training Administration of Taiwan
- The Guide To Job Accommodation For Disabled Workers supported by Employment and

Vocational Training Administration of Taiwan

- Job Placement For Handicapped Workers Using Job Analysis Data supported by Employment and Vocational Training Administration of Taiwan