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Engineering & Scientific Consulting

Audra Fraser, M.S.

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Professional Profile

Ms. Fraser is a human factors professional with expertise in evaluating human factors and human performance in transportation safety. At Exponent, Ms. Fraser has been conducting driver behavior research examining advanced driver assistance systems (ADAS) in passenger vehicles, including mental models, trust, feedback, and human-machine interface (HMI) design. Specifically, she has conducted research and analyses to investigate driver needs for delivery of system state information, strategies to improve drivers' understanding of driving automation systems, the relationship between drivers' mental models, trust, and driving automation systems, and the influence of emerging technologies and novel HMI designs on driver behavior and information needs. She has experience in all stages of research including experimental design, data collection, and analysis in driving simulator, test track, and on-road environments. In addition, Ms. Fraser has managed and provided technical contributions on ADAS projects with respect to literature reviews, gap analyses, questionnaire development, stakeholder outreach, training material development, focus group planning and execution, PRA documentation, and technical report writing.

Prior to joining Exponent, Ms. Fraser earned a Master's degree in Kinesiology from California State University Long Beach, with a specialty in Exercise Science. Her thesis focused on analyzing GPS data in professional soccer players with the goal of improving periodized training programs specific to soccer. While in graduate school, she was the Movement Science Laboratory Manager where she was involved with tracking and analyzing kinematics using motion capture systems, and also implemented strength and conditioning training programs for professional racecar drivers. Additional experience of Ms. Fraser's prior to graduate school includes being a physical therapy assistant and student athletic trainer.

Academic Credentials & Professional Honors

M.S., Kinesiology, California State University, Long Beach, 2017

B.S., Psychology, University of California, Davis, 2013

Academic Appointments

Graduate Assistant, Department of Kinesiology, California State University Long Beach, 2016-2017

Movement Science Laboratory Manager, Department of Kinesiology, California State University Long Beach, 2016-2017

Professional Affiliations

Human Factors and Ergonomics Society

Society for Automotive Engineers

ASTM International

Publications

(also as Krake A)

Manser M, Campbell J, Fincannon T, Krake A, Hoekstra-Atwood L, Crump C, and Wu L,. Role of system status information in the development of trust and mental models in automated driving systems. 27th International Technical Conference on the Enhanced Safety of Vehicles (ESV), Paper 23-0342-W. https://www-esv.nhtsa.dot.gov/27th%20ESV%20Abstract.html#25.

Salipur Z, Krake A, Brinkerhoff R, Young D. Accessibility of truck and van rental vehicles. Annual RESNA 2021 (Virtual) conference, in press.

Phillips K, Byrne K, Kolarik B, Krake A, Bui Y, Krauss D. Impacts of Social Distancing on Pedestrian Behavior and Risk Perception. HFES 2021 International Annual Meeting, in press.

Krake A, Jonas R, Hoyos C, Crump C, Lester B, Cades C, Harrington R. Effects of Training on Learning and Use of an Adaptive Cruise Control System. SAE Technical Paper 2020-01-1033, 2020.

Brinkerhoff R, Crump C, Jonas R, Krake A, Cloninger C, Cades D, Young D. Driver visual errors in automobile crashes at four-way intersections. Transportation Research Board 2020 Annual Meeting, Paper 20-01474, in press.

Jonas R, Crump C, Brinkerhoff R, Krake A, Watson H, Young D. Variability in Circumstances Underlying Pedal Errors: An Investigation Using the National Motor Vehicle Crash Causation Survey. SAE Technical Paper 2018-01-0493, 2018.

Moorman H, Niles A., Crump C, Krake A, et al. Lane-keeping behavior and cognitive load with use of lane departure warning. SAE Technical Paper 2017-01-1407, 2017, doi:10.4271/2017-01-1407.

Crump C, Krake A, Lester BD, Moorman HG, Cades DM, Young D. Driver behavior with passive and active vehicle safety systems. TRB Annual Meeting, 2017.

Presentations

Krake A, Jonas R, Hoyos C, Crump C, et al. Effects of Training on Learning and Use of an Adaptive Cruise Control System. Presentation at the SAE WCX Digital Summit, June 2020.

Jonas R, Crump C, Brinkerhoff R, Krake A, Watson H, Young D (2018, April). Variability in Circumstances Underlying Pedal Errors: An Investigation Using the National Motor Vehicle Crash Causation Survey. Presentation at the Society of Automotive Engineers World Congress Experience, Detroit, MI.

Crump C, Krake A, Lester BD, Moorman HG, Cades DM, Young D. Driver behavior with passive and active vehicle safety systems. Poster presented at the Transportation Research Board Annual Meeting, Washington, D. C., 2017.

Technical Blogs

Brinkerhoff, R. & Krake, A. Fitness Studio Risk Assessment: An Expert’s Guide. AFS Blog. Association of

Fitness Studios. April 3, 2019. https://member.afsfitness.com/content/fitness-studio-risk-assessment-expert%E2%80%99sguide

Krake, A. & Brinkerhoff, R. Injury Incident Response: Tips from an Expert. AFS Blog. Association of Fitness Studios. November 9, 2019. https://member.afsfitness.com/content/injury-incident-response-tips-expert

Brinkerhoff, R. & Krake, A. Virtual Fitness Classes: Safety Tips for Home Workouts. AFS Blog. Association of Fitness Studios. May 8, 2020. https://member.afsfitness.com/content/virtual-fitness-classes-safety-tips-homeworkouts

Krake, A. & Brinkerhoff, R. Impact of COVID-19 on Fitness Habits: A Survey. AFS Blog. Association of Fitness Studios. December 15, 2020. https://member.afsfitness.com/content/impact-covid-19-fitness-habits-survey