論文審査の要旨
Summary of Dissertation Review

博士の専攻分野の名称 Degree	博　士　（　工学　）	氏名 Author	ZHOU TUQIANG（周　涂強）
学位授与の要件	学位規則第４条第①・２項該当		

論 文 題 目　Title of Dissertation

Quantifying the Influences of Human Factors on Safety Improvement
in Marine, Aviation and Road Systems

論文審査担当者　Dissertation Committee Member

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For a better representation of human factors for safe transport systems, the candidate's study focuses on marine, aviation and road systems for answering four research questions about the roles of human factors in these three systems, use of professionals' awareness to overcome the issues of data availability in the case of aviation, evaluation of human performance during transport operation in the case of marine, and use of Big Data to derive useful information for road traffic safety measures. The three transport systems have similarities and dissimilarities in terms of accident occurrence, while human factors (including human errors) are at the core of similarities. This study has examined, (1) marine accidents by focusing on risks at different stages during the whole operation process based on a set of analysis approaches (Fault Tree Analysis, Cognitive Reliability and Error Analysis Method, and Monte Carlo Simulation) in China, (2) unsafe aviation acts/attitudes by focusing on all types of errors at four levels (unsafe acts, preconditions for unsafe acts, unsafe supervisions, and organizational influences) based on Human Factors Analysis and Classification System (modified to local contexts) and Bayesian Belief Network in Mongolia, and (3) truck drivers' dangerous driving performance by using Digital Tachograph Data based on principal component analysis, cluster analysis and a multilevel model in Japan. This study has advanced safety research, mainly in terms of systematic analysis framework, representation of various human factors, evaluation methods of risk levels, and use of Big Data and survey data.

The thesis consists of seven chapters (1: introduction, 2: literature review, 3: methodology, 4: case study of marine system, 5: case study of aviation system, 6: case study of road system, and 7: conclusions). The candidate has published three SCI/SSCI journal papers on Safety Science [IF=3.923, Chapter 4], Sustainability [IF=2.592, Chapter 5], and Accident Analysis and Prevention [IF=3.524, Chapter 6]), and a book chapter (Elsevier: related to Chapter 5).

With the above evidence, all the committee members unanimously judged that the applicant is qualified to be awarded a doctor degree of engineering (i.e., Dr. Eng.).