Kuan-Ting Chen

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Education

University at Buffalo, the State University of New York, USA — Expected May, 2021

PhD Candidate, Industrial and Systems Engineering – Human Factors and Ergonomics

- Dissertation: Supporting driver's understanding of state of the automated driving system through continuous feedback
- Advisor: Dr. Huei-Yen (Winnie) Chen

National Taiwan University, Taipei, Taiwan — June 2012

Master of Science, Division of Transportation Engineering, Civil Engineering
Thesis: Development of the Timetable Performance Evaluation System for Rail Transportation.

National Taiwan University, Taipei, Taiwan — June 2010

Bachelor of Science, Civil Engineering

Research Experience

Center for Inclusive Design and Environmental Access, SUNY, Buffalo, New York, USA

PI: Dr. Victor Paquet

Graduate Research Assistant — Sept. 2020 – Present

Project: Next Generation of Shared Autonomous Vehicles (SAVs)

- Set up virtual focus group and interview for understanding SAV design needs for people using wheeled mobility devices.
- Set up contextual inquiry study to understand design challenges for people using wheeled mobility devices during boarding, riding, and disembarking.

Applied Cognitive Engineering Lab, SUNY Buffalo, New York, USA

Lab Director: Dr. Winnie Chen

Graduate Research Assistant — Aug. 2017 – Present

Project: A study of the effectiveness of sonification feedback for highly automated driving

- Conducting literature review on driver take-over control behavior and auditory feedback design.
- Developing in-vehicle sonification feedback displays to support driver take-over behavior.
- Designing driving simulator experiment to evaluate the sonification feedback.

TRB Student Paper Competition: Abstract selected for further analysis in SHRP 2 Safety Data Bonanza 2017–2018. Project: Using naturalistic driving data to examine the influences of driving styles on crash severity level

- Clustered individual driver into groups with associated driving styles based on time series data using RandomForest and PAM.
- Modeled the association between driving styles and crash severity level using Diagonal Inflated Bivariate Poisson Regression.

Cognitive System Lab, SUNY Buffalo, New York, USA

Lab Director: Dr. Sean Wu

Graduate Research Assistant Aug. 2015 – Jan. 2017

- Conducted experiment understanding driver take over control behavior responding to audio and vibration warning under autonomous vehicle context using OpenDS driving simulator.
- Collected data in drinking and driving experiment using STISIM simulator.
- Performed regression analysis of heart rate data from smartwatch application after people consuming alcohol.

Railway Technology Research Center, National Taiwan University

National Taiwan University Frontier and Innovative Research Program Aug.2010 – June2012

Project: Development of Timetable Stability and Efficiency Evaluation Model

PI: Dr. Yung-Cheng Lai

- Built an analytical model to assess railway service plan and its risk.
- Developed a Monte Carlo simulation framework to assess the uncertainty of railway service plan.
- Clustered railway accident data with k-means clustering algorithm.
- Applied the proposed analytical model and simulation model to real world service plans of a railway operation authority.

Journal Publication

1. **Chen, K.T.**, Chen, H.-Y.W. (Under review). Modeling the Impact of Driving Styles on Crash Severity Level Using SHRP 2 Naturalistic Driving Data. *Journal of Safety Research.*
2. **Chen, K.T.**, Chen, H.-Y.W. (2021). Manipulating music to communicate automation reliability in conditionally automated driving: A driving simulator study. *International Journal of Human-Computer Studies, 145*, 102518.
3. **Chen, K.T.**, Chen, H.-Y.W. (2019). Driving Style Clustering Using Naturalistic Driving Data. *Transportation Research Record*, 0361198119845360.
4. Lai, Y. C., **Chen, K. T.**, Yan, T. H., and Li, M. H. (2018). Simulation-Based Method of Capacity Utilization Evaluation to Account for Uncertainty in Recovery Time, *Transportation Research Record*, 2672(10), 202-214.
5. Lai, Y. C., **Chen, K. T.** (2017). Evaluating Service Risk in Railway Capacity Utilization Using Expected Recovery Time, *ASCE Journal of Transportation Engineering, Part A: Systems, 143*(6): 04017016.

Conference Proceedings

1. **Chen, K.T.**, Chen, H.-Y.W., Bisantz, A. (2021, Submitted). Exploring the Role of Visual Displays in Sonification Feedback to Support Driver Takeover in Highly Automated Driving. *Proceedings of the Human Factors and Ergonomics Society 65th Annual Meeting.*
2. **Chen, K.T.**, Sahin, E., Shen, S., Bisantz, A., and Chen, H.-Y.W. (2020, December). A Framework for Understanding Where Failures May Occur in Highly Automated Driving. *Proceedings of the Human Factors and Ergonomics Society 64th Annual Meeting.*

3. Lai, Y. C., **Chen, K. T.**, Wu, H. Y., Lin, W. R., Lee, C. K., Evaluation of Railway Service Efficiency and Stability in Capacity Utilization, Presentation at 10th Eastern Asia Society for Transportation Studies (EASTS), Taipei, Taiwan, September, 2013.

4. Lai, Y. C., Li, T. Y., Liu, M. C., and **Chen, K. T.**, Evaluation of Timetable Stability and Efficiency for Taiwan Railway Administration, *Proceedings of 2010 Conference and Annual Meeting of Chinese Institute of Transportation*, Taichung, Taiwan, 2010.

Posters and Presentations

1. "A Framework to Understand Where Failures May Occur in Highly Automated Driving." Presented at the HFES 64th International Annual Meeting, Oct. 2020, Virtual.

2. "Driving Style Clustering Using Naturalistic Driving Data." Presentation at Transportation Research Board 98th annual meeting, Jan. 2019, Washington D.C.

3. "Using Naturalistic Driving Data to Examine the Influences of Driving Styles on Crash Severity Level." Special poster session at Transportation Research Board 98th annual meeting, Jan. 2019, Washington D.C.

4. "A Study of the Effectiveness of Sonification Feedback for Highly Automated Driving." Presented at the 18th Inter-University Workshop, Nov. 2017, Buffalo, NY.

Non-Refereed Publications

1. Arnold, L.S., Benson, A., **Chen, K.T.**, Kelley-Baker, T. and Horrey, W. (2019). Detection Windows for Drugs in Oral Fluid: Cannabinoids, Stimulants, and Opioids. AAA Foundation for Traffic Safety.

2. Kim, W., Kelley-Baker, T. and **Chen, K.T.** (2019). Review of Current Practices for Setting Posted Speed Limits. AAA Foundation for Traffic Safety.

Teaching Experience

University at Buffalo, the State University of New York

Graduate Teaching Assistant – IE 436 Work Physiology — Jan. 2017 – May 2017

- Created quiz and exam questions.
- Graded quizzes and exams.

Graduate Teaching Assistant – IE 409 Lean Sig Sigma — Sep. 2016 – Dec. 2016

- Created quiz and exam questions.
- Graded quizzes and exams.

National Taiwan University

Graduate Teaching Assistant – Transportation System — Feb. 2011 – June 2011

- Assisted in preparing lecture material.
- Graded homework, project, quizzes, and exams.

Work Experience

AAA Foundation for Traffic Safety

Summer Intern — May 2018 – Aug. 2018

- Collected information of speed limit design process and analyzed survey from practitioners to prepare research brief for the impact of speed limit change on traffic safety.
- Fatality Analysis Reporting System (FARS) data wrangling with R for Hit-and-Run study.
- Conducted Systematic review regarding the detection time of drug usage with oral fluid.

TÜV Rheinland Taiwan Ltd.

Rail Engineer — July 2013 – June 2015

- Performed Railway Rolling Stock Safety Critical Function Verification and Validation in TTY Mass Rapid Transit Project.
- Developed Reliability and Maintainability Demonstration Plan for Taiwan High Speed Rail New Station Electrical and Mechanical Equipment.
- Performed railway turnout Independent Verification and Validation in TRA Taichung and Yuanlin Section Rail Line Elevated Project.
- Inspected railway tracks for Philippine National Railways and compiled inspection report.

Mandatory Military Service

Second Lieutenant, Platoon Leader, Army, Taiwan ROC. — Aug. 2012 – July 2013

Professional Services

Reviewer

- IEEE Transactions on Human-Machine Systems — 2020 – Present
- Human Factors — 2020 – Present
- Transportation Research Record — 2019 – Present
- ACM SIGCHI AutoUI — 2018 – Present

Affiliation

- Student Member, Human Factors and Ergonomics Society — 2017 – Present
- Student Member, Special Interest Group on Computer-Human Interaction — 2018 – Present

Volunteer

- Primary Associate Chair for Paper Review — 2020
  12th International ACM Conference on Automotive User Interfaces (Virtual).
- Social Media Co-chairs — 2020
  12th International ACM Conference on Automotive User Interfaces (Virtual).
- HFES Student Chapter at University at Buffalo - Vice President — Feb. 2019 – Sep. 2019
  University at Buffalo, Buffalo, NY.

- Workshop Fund-raising Chair — June 2017 – Oct. 2017
  Inter-University Workshop, Buffalo, NY.

- Student Volunteer — Mar. 2017
  AAUW Tech Savvy Program, Buffalo, NY.

Awards

Best Presentation Award

- AND00 hybrid session on performance of transportation users at the TRB 98th annual meeting. Jan. 2019

Student Paper Competition: SHRP 2 Safety Data Bonanza

- Abstracts selected for research and presentation at special poster session at the TRB 98th annual meeting. Study title: "Using Naturalistic Driving Data to Examine the Influences of Driving Styles on Crash Severity Level." Dec. 2017 – Jan. 2019

GSEU Professional Development Program – University at Buffalo

- Conference funding. July 2018

GSA student travel fund – University at Buffalo

- Conference funding . 2017, 2018, 2020