Joonbum Lee

1100 Dexter Avenue North, Suite 400, Seattle, WA 98109
joonbum@mit.edu, 319-471-3898, http://joonbum.github.io

SUMMARY

An Industrial Engineering Ph.D. with a background in Human Factors and driving safety. Significant experience in processing and statistical analysis of time course behavioral data based upon visual, physiological, and performance measures in the driving research domain. Proven track record of publishing high quality innovative research in Human Factors and Computer Science literature. Strong ability to collaborate and work on interdisciplinary research projects as well as work independently. Experience in a fast paced research environment, managing multiple competing project demands, and mentoring junior staff and students.

EDUCATION

Ph.D. Industrial Engineering, University of Wisconsin-Madison, Madison, WI, 2011-2014
M.S. Industrial Engineering, University of Wisconsin-Madison, Madison, WI, 2009-2011
M.A. Psychology, Pusan National University, Busan, South Korea, 2005-2007
B.A. Psychology, Pusan National University, Busan, South Korea, 1999-2005

TECHNICAL SKILLS

- Hypothesis generation, development of experimental plans, and execution/monitoring of experiments
- Large-scale data reduction and statistical analyses
- Interpretation of complex results derived from on-road experiments, driving simulations, naturalistic driving studies, and survey data
- Excellent presentation and data visualization skills
- Computer skills: R (expert), Matlab (intermediate), Java (basic), and SQL (basic)

EXPERIENCE

Battelle
Research Scientist, November 2016 – Present

Massachusetts Institute of Technology, AgeLab
Postdoctoral Research Associate, March 2014 – October 2016

- Led project team that assessed effects of road type and traffic volume on drivers' glance behavior, using manually coded glance/traffic volume data and hidden Markov model
- Lead project team that utilized head-pose data to surrogate eye-tracking data for driver distraction research, using drivers' face video and learning algorithms
- Member of technical team for a large academic industry consortium that has developed a new theoretical perspective on driver attention measurement and is

creating software tools to assess the attentional demand of multi-modal driver vehicle interfaces
- Advised and assisted two master students which led to publishable results and two student paper awards, focusing on (1) predicting secondary task modality by using vehicle telemetry data and (2) predicting drivers' glance location by using head rotation data
- Successfully drafted multiple proposals (for the first two listed projects above) for research funding (A total amount: $279,000)

University of Wisconsin-Madison, Cognitive Systems Lab
Graduate Research Associate, July 2009 – February 2014
- Developed a tool to simulate drivers' behavior while interacting with driver-vehicle interfaces
- Collaborated with an interdisciplinary team to assess in-vehicle voice control systems

HONORS AND AWARDS
- 2007: Pusan National University Best Research Achievement Award
- 2012: 1st place for the Intel Outstanding Student Paper award at 4th International Conference on Automotive User Interface and Interactive Vehicular Applications

SERVICES
- Member of Human Factors and Ergonomics Society, New England Chapter of the Human Factors and Ergonomics Society, and Transportation Research Board
- Review committee of Driving Assessment, Human Factors and Ergonomics Society [Performance Technical Group, Cognitive Engineering and Decision Making, and Surface Transportation Group]
- Reviewer of Journals of Human Factors, Advances in Mechanical Engineering, ACM Computer-Human Interactions (CHI), Transportation Research Board, and Journal of Transportation Safety and Security

RECENT PUBLICATIONS

- **Lee, J**., Roberts, S. C., Reimer, B., and Mehler, B. (2017) Does order matter? Investigating the effect of sequence on in-vehicle glance duration with on-road driving data, *PLoS ONE 12*(2): e0171730. doi:10.1371/journal.pone.0171730
- **Lee, J**., Mehler, B., Reimer, B., Ebe, K., & Coughlin, J. F. (2016). Relationships Between Older Drivers' Cognitive Abilities as Assessed on the MoCA and Glance Patterns During Visual-Manual Radio Tuning While Driving. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, gbw131.
- Fridman, L., **Lee, J**., Reimer, B., & Victor, T. (2016). 'Owl' and 'Lizard': patterns of head pose and eye pose in driver gaze classification. *IET Computer Vision, 10*(4), 308-313.