



**The Department Congratulates the Winner of the
2022 Donald Beall Student Award for Engineering Accomplishment
Ms. Kimberly D. Martinez**



Kimberly D. Martinez completed her undergraduate degree in Cognitive Science, with a concentration in human-computer interaction and artificial intelligence, at the University of California, Santa Cruz. As an undergrad in that program, she developed a passionately driven curiosity to learn more about how humans make decisions and problem solve under pressure. Upon graduation, she knew she wanted to continue her education and pursue an in-depth hands-on learning experience and develop the skills needed to become a Human Factors Engineer. She joined San Jose State University's (SJSU) M.S. HF/E program in the Spring of 2021 aiming to find the challenging opportunities needed to help her develop in both industry and research environments to become the professional she persistently aims to be. Before classes had started that spring, she reached out to Dr. Gaojian Huang, as their research interests aligned, and joined his Behavior, Accessibility, and Technology (BAT) Research Lab, and has now become the lab's manager.

Kimberly spent her first year in grad school developing a deeper understanding of how tactile displays can utilize a variety of in-vehicle locations to convey more meaningful feedback information to drivers under time critical situations which help the driver become aware of their surroundings to avoid a traffic accident.

Her current area of interest is in understanding and improving the design of human-machine interactions during semi-autonomous driving. Specifically, she's researching the effects of a multimodal display that utilizes meaningful visual and vibrotactile warning signals during semi-autonomous driving to alert drivers of both vehicle maneuvering commands as well as dynamic spatial information of vehicles and pedestrians in their surrounding environment. She has developed a prototype of a vibrotactile seat and seat belt to study how structured vibrotactile patterns can



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be presented, and their effectiveness during semi-autonomous driving. The goal of this device is to intuitively and reliably transmit the complex information that a driver needs during a time-critical event, such as the location or the status of surrounding vehicles, as well as to convey certain vehicle maneuvering commands. The vibrotactile pattern prompts could possibly enhance and support the situational awareness of the driver at moments when the driver is required to take over control of the vehicle.

Since joining SJSU, Kimberly has received three prestigious awards:

- 2022 STAR Fellowship Award
- 2022-23 Research and Innovation Student RSCA Fellowship.
- 2022 Donald Beall-Rockwell Award for Engineering Accomplishment.

Kimberly has also presented at two poster presentations: the 2022 AUTOUi Conference in Seoul, South Korea and the 2022 Human Factors and Ergonomics Society (HFES) Annual Meeting in Atlanta, Georgia. In addition, she has published a journal paper, three conference proceedings, and a technical report.

Kimberly enjoys volunteering at the conferences she attends. She also volunteers as a Webmaster for the LinkedIn Social media group in the HFES Surface Transportation Technical Group. In her free time, you can find her reading a human factors book, watching sci-fi (probably Star Trek), or out on a hike.



Kimberly's poster presentation at HFES, Atlanta, GA (2022)