SAFER-SIM Accomplishments
September 30, 2021 – March 31, 2022

1. Accomplishments
1.1 Research Accomplishments
1.1.1 Peer-reviewed journal publications
Published

1. M. Nour and M. Zaki. Towards formalization and monitoring of microscopic traffic parameters using temporal logic, Accepted Journal of Transportation Research Record. Accepted


Submitted

1. Carney, C., Gaspar, J. & Horrey, W. (under review), Longer-Term Exposure vs. Training: Their Effect on Drivers' Mental Models of ADAS Technology, Transportation Research
Part F.
2. Song, Y., Chitturi, M.V. and Noyce, D.A. A Methodology for Traffic Crash Sequence
Analysis: Impact of Event Encoding and Dissimilarity Measures. Accident Analysis &
Prevention (Under Review)

1.1.2 Book chapters
Nothing to report

1.1.3 Edited books
Nothing to report

1.1.4 Conference papers, posters, and symposia
Presented
1. “Using Virtual Simulator to Evaluate the Automated Emergency Braking System for
Avoiding Pedestrian Crash at Intersections under the Occluded Conditions (2022).” The
101th Annual Meeting of the Transportation Research Board, Washington D.C., U.S.
at Non-Signalized Intersection in a Mixed Traffic Environment: A Co-Simulation Based
Multi-Driver Driving Simulator Study.” The 101th Annual Meeting of the Transportation
Research Board, Washington D.C., U.S.
3. O’Neal, E.E., Peek-Asa, C., Wendt, L., Hamann, C., Reyes, M., & Yang, J. (March,
2022). Factors associated with teens’ crash culpability. Oral presentation submitted for
presentation at the 2021 annual meeting of the Society for Violence and Injury Research,
Washington D.C.
parent-teen conversations about potential roadway hazards. Oral presentation submitted
for presentation at the 2021 annual meeting of the Society for Violence and Injury
Research, Washington D.C.
Direct medical costs of teen-involved vehicle crashes by culpability in a rural state. Oral
presentation submitted for presentation at the 2021 annual meeting of the Society for
Violence and Injury Research, Washington D.C.
6. Yiqun Xie, Erhu He, Xiaowei Jia, Han Bao, Xun Zhou, Rahul Ghosh and Praveen
Ravirathinam. A Statistically-Guided Deep Network Transformation and Moderation
Framework for Data with Heterogeneity. In Proc. IEEE International Conference on Data
Mining (ICDM'21), Auckland, New Zealand, Nov. 7-10, 2021
7. Xin Zhang, Yanhua Li, Xun Zhou, Oren Mangoubi, Ziming Zhang, Vincent Filardi, and
Jun Luo, DAC-ML: Domain Adaptable Continuous Meta-Learning for Urban Dynamics
Prediction. In Proc. IEEE International Conference on Data Mining (ICDM'21),
Auckland, New Zealand, Nov. 7-10, 2021
8. Yingxue Zhang, Yanhua Li, Xun Zhou, Zhenming Liu, and Jun Luo. C3-GAN: Complex-
Condition-Controlled Urban Traffic Estimation through Generative Adversarial Networks


Accepted/Not yet presented


Submitted

Nothing to report

1.1.5 Paper/poster awards

1.1.6 External grants related to SAFER-SIM

Awarded
1. Zhaomiao Guo from UCF was awarded a grant from NSF - Optimizing Information Value in Heterogeneous Multi-agent Transportation Systems (OPTIMA), National Science Foundation, 2022, $351k. 
This project addresses the use of advanced sensing, communications, and computing technologies in studying value of information in transportation systems made up of heterogeneous traffic (cars, autonomous and connected vehicles, buses, bicycles, etc.) The wealth of data available on these systems enables new approaches to information provisioning that have the potential to improve transportation system efficiency, reliability, and resilience. Data from this SAFER-SIM project helped write the proposal for this grant.

Submitted
1. Pradhan - Consumer education for advanced vehicle technologies: Tailored training based on drivers' self-perceptions and knowledge
2. Shannon Roberts submitted a proposal that uses knowledge gained from this Safer-Sim project: DRIVE - Decreasing cybersecurity Risk In Vehicles for law Enforcement, National Science Foundation, $500,000, 06/01/2022-05/31/2025, PI
The goal of the proposal is to iteratively establish and evaluate an evidence-based education program that examines LEOs’ knowledge of vehicle cybersecurity risk and trains them to be more resilient. This proposal builds off the current SaferSim work because it’s focused on the design of training programs to improve driver behavior, which requires an understanding and appreciation of drivers’ mental models.
3. Shannon Roberts submitted a proposal that uses knowledge gained from this Safer-Sim project: Picking Human Machine Interfaces for Material Handlers, Raymond Corporation University Research Program, $265,000, 06/01/2022-05/31/2023, PI.
The proposed research aims to establish human-machine interfaces design principles that aid material handlers in the picking process. This proposal extends this current SaferSim work by applying design principles (e.g., as they related to mental models) to areas outside of driving.
4. Shannon Roberts submitted a proposal that uses knowledge gained from the Safer-Sim project: Training the Untrainable: Identifying, Categorizing, and Evaluating Approaches to Training for Driving Automation Systems, AAA Foundation for Traffic Safety, $225,000, 04/01/2022-09/30/2023, PI.
   The objective of this proposal is to: (1) review and synthesize literature to identify training approaches for DASs, (2) gather insight from vehicle automation experts and non-experts on training for DASs, (3) generate guidelines to categorize training approaches, and (4) conduct a driving simulator study to evaluate the most promising training approaches. This proposal is very similar to this current SaferSim work, but is instead focused on training for driving automation systems, which will hopefully yield appropriate mental models.

5. Shannon Roberts submitted a proposal that uses knowledge gained from the Safer-Sim project: Reimagining trucking: Forging an equitable and driver-centered system in a highly automated world, National Science Foundation, $2,000,000, 09/01/2022-08/31/2026, PI.
   The objective of the proposed research is to understand more fully the challenges and take advantage of opportunities to reimagine this partnership and the future of truck driving. This proposal uses knowledge from this current SaferSim work as it related to optimal design of an HMI for driving automation systems, but for a different set of drivers (truckers) who have different mental models of the systems they use.

1.2 Leadership Development Accomplishments

1.2.1 Invited presentations
1. Abdel-Aty, M. 2021 Florida Automated Driving (FAV) Summit, November 2021
5. Shannon Roberts gave a presentation called “Future of the Commonwealth’s Curb” for the Baystate Roads Stump the Instructor Session (Online) on November 3, 2021.

1.2.2 Invited papers
   Nothing to report

1.2.3 Invited workshops
1. Pradhan - Expert panelist on NHTSA/UNC Workshop on novice drivers and vehicle automation.

1.2.4 Grant review panels
1. Zhaomiao Guo served on an NSF Civil Infrastructure Systems review panel
2. Shannon Roberts served on an NSF proposal review panel.
3. Shannon Roberts served on an NIH proposal review panel for HCMF (Human Complex Mental Function).
4. Shannon Roberts continues to serve on a BTSCRP panel for BTS-01: Guidance for Employer-Based Behavioral Traffic Safety Programs for Drivers in the Workplace. For the panel, she provided guidance for the contractor in terms of how drivers will respond to traffic safety programs.

1.2.5 Advisory committees
1. Dr. Mohamed Abdel-Aty: Member Board of Directors (2020-2022) International Road Federation, Washington DC.
2. Dr. Mohamed Abdel-Aty: Board of Directors, National Safety Council (2021-2023)
3. Dr. Mohamed Abdel-Aty: ITF Roundtable on Artificial Intelligence in Road Traffic Crash Prevention, OECD, 2021
4. Dr. Samiul Hasan: Transportation Safety Committee of ASCE’s Transportation & Development Institute (T&DI)
5. Dr. Samiul Hasan: Artificial Intelligence (AI) Committee of ASCE’s Transportation & Development Institute (T&DI)
6. Shannon Roberts is on the Center for Research on Families Steering Committee.
7. Shannon Roberts is on the Internal Advisory Board for the Institute of Diversity Sciences.
8. Dr. Mohamed Abdel-Aty: Member, World Conference on Transport Research Society – WCTRS (2004 – ongoing)
11. Dr. Mohamed Abdel-Aty: Member, Editorial Board, Analytic Methods in Accident Research (AMAR) (2019- ongoing)
12. Dr. Mohamed Abdel-Aty: Member, Editorial Board, Transportation Research Part C (2019- ongoing)
13. Dr. Yina Wu: Member, TRB Committee on Surface Transportation Weather (AH010) (2020 – ongoing)
14. UI Injury Prevention Research Center Executive Committee (Reyes)
15. UI Great Plains Center for Agricultural Health Internal Advisory Committee (Reyes)
16. Engineering Staff Advisory Council (Reyes)
17. Transportation Research Board of the National Academies: Standing Committee on Vehicle User Education, Training, and Licensing; and Young Driver Subcommittee, Member (Reyes)
18. Shannon Roberts is on the Center for Research on Families Steering Committee.
19. Shannon Roberts is on the Internal Advisory Board for the Institute of Diversity Sciences
20. TRR Editorial Board Task Force (Christofa)
23. Benjamín Colucci-Ríos, Member TRB Committee AHB55 Work Zone Traffic Control.
24. Benjamin Colucci-Ríos, Member Best Paper Award TRB Committee AHB55 Work Zone Traffic Control.
25. Benjamín Colucci-Ríos, Member of the Advisory Committee of the Puerto Rico - State Transportation Innovation Council (STIC).
26. Benjamín Colucci-Ríos, Member of the Advisory Committee of the US Virgin Islands - State Transportation Innovation Council (STIC).
29. Benjamín Colucci-Ríos, Member, TRB Standing Committee ACH50 Road User Measurement and Evaluation, 2020 - Present.
30. Benjamín Colucci-Ríos, Member, TRB Standing Committee ACP55 Traffic Control Devices, 2020 - Present.
31. Benjamín Colucci-Ríos, Co-Chair of the Traffic Enforcement Committee, International Road Federation (IRF). 2013 - Present
32. Benjamín Colucci-Ríos, Co-Chair Vision Zero Conference in Latin America Steering Committee, International Road Federation (IRF). 2021
33. Benjamín Colucci-Ríos, Member, Transportation Forensics and Risk Management (T-FARM), Institute of Transportation Engineers (ITE), 2018 – Present.
34. Benjamín Colucci-Ríos, Member, Transportation Education Council, Institute of Transportation Engineers (ITE), 2017 – Present.
35. Benjamín Colucci-Ríos, Member, Transportation Safety Council, Institute of Transportation Engineers (ITE), 2019 – Present.
36. Benjamín Colucci-Ríos, Member of the Executive Committee of the National Institute for Congestion Reduction (NICR), University Transportation Center (UTC). November 2019 - Present.
41. Benjamín Colucci-Ríos, Strategic Highway Safety Plan (SHSP) - Puerto Rico, stakeholder representing Puerto Rico LTAP - T2; Traffic Incident Management (TIM) workgroup, 2013 - Present.
42. Benjamín Colucci-Ríos, President of Transportation and Mobility Commision College of Engineers and Surveyors of Puerto Rico (CIAPR), August 2020 - Present.
43. Benjamín Colucci-Ríos, President of Highway and Transportation Task Force, American
1.2.6 Journal editing

1. Shannon Roberts joined the editorial board of Ergonomics.
2. Dr. Mohamed Abdel-Aty: Editor-in-Chief (July 2013 – 2021), Accident Analysis and Prevention, Elsevier.
3. Dr. Mohamed Abdel-Aty: Associate Editor, Transportation Research Interdisciplinary Perspectives (TRIP).
6. Dr. Mohamed Abdel-Aty: Member, Editorial Board, Analytic Methods in Accident Research (AMAR), 2019-present.
7. Dr. Mohamed Abdel-Aty: Member, Editorial Board, Transportation Research Part C, 2019-present
8. Dr. Mohamed Abdel-Aty: Associate Editor, Journal of Transportation Engineering, Part
A: Systems, 2021-present
10. Lishengsa Yue, handling editor (April 2021 – ongoing), Journal of Transportation Research Record
11. Samiul Hasan, Associate Editor, Journal of Big Data Analytics in Transportation
12. Samiul Hasan, Associate Editor, IEEE ITS conference
14. ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Associate Editor (Rector)
15. ACM Transactions on Accessible Computing (TACCESS), Reviewer (Rector)
16. ACM Transactions on Accessible Computing (TACCESS), Reviewer (Rector)
17. ACM CHI 22 Conference on Human Factors in Computing Systems, Reviewer (Kearney, Malik)
18. IEEE Internet of Things Journal (Kearney)
19. Transportation Research Record Handling Editor (Christofa)
20. Editorial Advisory Board of Transportation Research Part C: Emerging Technologies (Christofa)
24. Didier Valdés-Díaz, Editorial Board Member of International Journal of Natural Disasters, Accidents and Civil Infrastructure (RIDNAIC), Scipedia, August 2020 - Present.
27. Benjamín Colucci-Ríos, Co-editor “La Columna” Journal of the Institute of Civil Engineers (IIC), College of Engineers and Surveyors of Puerto Rico, 2020 - Present
28. Benjamín Colucci-Ríos, Assistant to the Editor of Dimension Journal, College of Engineers and Surveyors of Puerto Rico (CIAPR), September 2019 - Present.
31. Benjamín Colucci-Ríos, Member, TRB Standing Committee on Road User Measurement and Evaluation (ACH50); 2020-2022.
33. Alberto M. Figueroa-Medina, 101th Transportation Research Board (TRB) Annual
Meeting, January 2022, Washington, DC.

38. David A. Noyce: Journal of Transportation Engineering (ASCE). Associate Editor.

1.2.7 Leadership positions in professional organizations
1. 2022 ACM SIGACCESS Conference on Computers and Accessibility, Organizing Committee (Rector)
2. Editorial Board, Driving Simulation Conference 2022 (Kearney)
4. 2022 ACM CHI Conference on Human Factors in Computing Systems, Program Committee (Rector)
5. 2022 ACM SIGACCESS Conference on Computers and Accessibility, Organizing Committee (Rector)
6. TRB ACP25 Traffic Signal Systems Committee Member and Paper Review Coordinator (Christofа)
7. TRB AME70 Transportation and Public Health Committee Member and Secretary (Christofа)
9. Benjamin Colucci-Ríos, Member, Board of Directors of the Pan-American Academy of Engineering (PAE), 2018 - Present.
10. Benjamin Colucci-Ríos, Member, Board of Trustees of the Society of Engineers of Puerto Rico (SIPR), 2019 - Present.
14. Benjamin Colucci-Ríos, Member, International Network of Abertis Chairs
15. Benjamin Colucci-Ríos, Director of Abertis Chair in Puerto Rico.
16. Benjamin Colucci-Ríos, UPRM Program Manager of Dwight David Eisenhower Transportation Fellowship Program (DDETFP) for Hispanic Serving Institutions, 2010 - Present.
18. Benjamin Colucci-Ríos, Member of the Board of Directors of the Institute of Civil Engineers, College of Engineers and Surveyors of Puerto Rico (CIAPR-IIC), 2019-
Present.
20. Benjamin Colucci-Ríos, Every Day Count (EDC) Program Technical Oversight Director of Puerto Rico PRHTA and U.S. Virgin Islands DPW.
22. Benjamín Colucci-Ríos, Co-editor “La Columna” Journal of the Institute of Civil Engineers (IIC), College of Engineers and Surveyors of Puerto Rico. 2020 - Present
23. Benjamín Colucci-Ríos, President, Mobility and Transportation Commission, College of Engineers and Surveyors of Puerto Rico (CIAPR), 2020-Present.

1.2.8 SAFER-SIM Webinars

<table>
<thead>
<tr>
<th>Webinar</th>
<th>Date</th>
<th>Registrants</th>
<th>Archived Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect of Large Vehicles on Left Turn Gap Acceptance at Signalized Intersections</td>
<td>10/19/2021</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Using Simulation to Study Communication between Autonomous Vehicles and Vulnerable Road Users</td>
<td>11/16/2021</td>
<td>18</td>
<td>63</td>
</tr>
<tr>
<td>Impact of Road Information Assistive Systems on Pedestrian Crossing Safety</td>
<td>11/23/2021</td>
<td>39</td>
<td>59</td>
</tr>
<tr>
<td>Defining Safety-Critical Scenarios for Simulation-Based Automated Vehicle Evaluation</td>
<td>11/30/2021</td>
<td>23</td>
<td>64</td>
</tr>
<tr>
<td>Multitask Learning and Prediction of Baseline Driving Performance Measures</td>
<td>12/7/2021</td>
<td>9</td>
<td>32</td>
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<tr>
<td>Investigation of Driving Behavior at Alternative Intersection Designs and Safety Improvement</td>
<td>12/21/2021</td>
<td>25</td>
<td>47</td>
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<tr>
<td>Investigation of Merge Strategies at Ramp Area in Connected Vehicle Environment based on Multi-Driver Simulator System</td>
<td>2/8/2022</td>
<td>18</td>
<td>32</td>
</tr>
<tr>
<td>Understanding Bicyclists’ Behaviors Through Learning from Big Trip Data</td>
<td>2/22/2022</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Evaluating the Effects of Cooperative Perception on Avoiding Pedestrian Crashes for Connected and Automated Vehicles</td>
<td>3/1/2022</td>
<td>33</td>
<td>26</td>
</tr>
</tbody>
</table>
1.2.9 Professional awards

1. Dr. Mohammed Abdel-Aty: American Road and Transportation Builders Association (ARTBA)’s Research and Education Division’s (RED) S.S. Steinberg Award, 2022.
2. Jorge Ugan received CUTC Student of the Year Award
3. Apoorva Hungund - AAAM H. Clay Gabler Scholar's Program Award
4. Jorge Ugan received the SaferSim Excellence Award for UCF Graduate Students.
5. Leila Cesic received the SaferSim Excellence Award for UM Undergraduate Students.
6. Shashank Mehrotra received the SaferSim Excellence Award for UM Graduate Students.
7. Lakshmi Subramanian received the SaferSim Excellence Award for UI Graduate Students.
8. Jah’inaya Parker received the UMass award for Rising Researcher. The award is given to exceptional undergraduate students who excel in research, scholarship, and creative activity.
9. Center for Research on Families Family Research Scholar [UMass] (Christofa): The impact of bicycle treatments on adolescents’ choice to bike in socioeconomically diverse communities
10. 2022 College of Engineering Outstanding Senior Faculty Award [UMass] (Knodler)

1.3 Education and Workforce Development Accomplishments

1.3.1 Peer-reviewed journal publications w/ student authors


1.3.2 Book chapters w/ student authors
Nothing to report

1.3.3 Conference posters and papers w/ student authors
1.3.4 Paper/poster awards w/ student authors

1.3.5 Graduate students working on and supported by SAFER-SIM related projects

<table>
<thead>
<tr>
<th>Site</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Iowa</td>
<td>6</td>
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<tr>
<td>University of Wisconsin Madison</td>
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<tr>
<td>University of Massachusetts Amherst</td>
<td>7</td>
</tr>
<tr>
<td>University of Central Florida</td>
<td>6</td>
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<tr>
<td>University of Puerto Rico Mayaguez</td>
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1.3.6 Undergraduate students working on and supported by SAFER-SIM related projects

<table>
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<tr>
<th>Site</th>
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<td>University of Iowa</td>
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<td>University of Wisconsin Madison</td>
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<tr>
<td>University of Massachusetts Amherst</td>
<td>6</td>
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<tr>
<td>University of Central Florida</td>
<td>1</td>
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<tr>
<td>University of Puerto Rico Mayaguez</td>
<td>2</td>
</tr>
</tbody>
</table>

1.3.7 Student attendance and presentations at the SAFER-SIM symposium
7 students
4 presentations

1.3.8 Transportation-related M.A. and PhD theses
1. Shashank Mehrotra successfully defended his PhD on October 26, 2021 (UM)

1.3.9 Curriculum modules developed
1. Curriculum module on policy gradient methods has been added in CGN 5617 Infrastructure System Optimization Course at UCF.
2. CS 4500:0001 Research Methods in Human-Computer Interaction at UI

1.3.10 Student internships related to SAFER-SIM
Nothing to report
1.3.11 Presentations to student groups or classes
1. Presenter: Samiul Hasan. ITE UCF Student Chapter. Title: Data Science for Smart Cities
2. Foundation of the Learning Sciences, Fall 2021, Guest Lecture: Elizabeth O’Neal
3. Research Methods in Human-Computer Interaction, Fall 2021, Guest Lecture: Elizabeth O’Neal
4. Advanced Psychology for Pre-Medical Track, Spring 2022, Guest Lecture: Elizabeth O’Neal
5. CPH:4220:0001 Global Road Safety, Lab demonstrations (24) (February 17, 2022) (Oneal)

1.3.12 # Schools visited and # students present
1. Oelwein Middle School on 12/6 & 12/7 – 120 students
2. Oelwein High School on 12/9/ & 12/10 – 120 students
3. Bettendorf Middle School 8th Grade Science Visit on 2/8/2022 – 95 students

1.3.13 # Career fairs visited and # of attendees
1. Johnson County STEAM Institute on 11/23/2021 – 300 students

1.3.14 Summer institutes and programs and # of students participating
Nothing to report

1.4 Technology Transfer
1.4.1 SAFER-SIM webinars
12 webinars

1.4.2 Registrations for webinars
309 registrations

1.4.3 Views of archived webinar content
512 views

1.4.4 Press releases for SAFER-SIM related research
1. Innovative Headlights, Studied by CSRC, Could Help Save Pedestrians, Bicyclists – Toyota Newsroom
1.4.5 Media requests

<table>
<thead>
<tr>
<th>Title</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. UI simulator helps cut winter traffic deaths, develop new tech</td>
<td>CBS 2 Iowa</td>
</tr>
<tr>
<td>2. The Latest Research on Drugged Driving with Dr. Timothy Brown</td>
<td>Global Road Safety Podcast</td>
</tr>
<tr>
<td>3. UI researchers find link between cannabis and driving impairment</td>
<td>The Daily Iowan</td>
</tr>
<tr>
<td>4. Washington County Participants Sought for Automated Bus Trials</td>
<td>KCII Radio</td>
</tr>
<tr>
<td>5. ‘Arbitrary’ cutoffs of THC levels make it difficult to measure impaired driving</td>
<td>NBC News</td>
</tr>
<tr>
<td>6. The road ahead: Driving tests go virtual</td>
<td>The Star</td>
</tr>
<tr>
<td>7. University of Central Florida’s Dr. Mohamed Abdel-Aty Honored With Prestigious National Research Award</td>
<td>ARTBA</td>
</tr>
<tr>
<td>8. College of Engineering Selects Michael Knodler and Yubing Sun as 2022 Outstanding Faculty Members</td>
<td>UMass College of Engineering</td>
</tr>
</tbody>
</table>

1.4.6 Tours of facilities

1. Approximately 50 students visited the driving simulator laboratory as part of the Introduction to Transportation Engineering course (UW-Madison, CEE 370) on February 3, 2022.
2. A tour of the driving simulator for a DOT Supervisor was conducted on January 19, 2022 to discuss the potential use of the driving simulator to study the impact of ignition interlock devices on safety when the vehicle is operational.
3. A tour of the driving simulator for 2 executives from Lab Midwest was conducted on December 6, 2021 to discuss the integration of educational technologies.
4. A tour of the driving simulator for approximately 10 high school students was conducted on December 2021. The purpose of the event was to encourage girls to pursue engineering as a career.
5. Approximately 10 students visited the driving simulator laboratory as part of the Traffic Control course (UW-Madison, CEE 574) on December, 2021.
6. Two professors from Brazil visited the driving simulator on November 17, 2021 as part of their tour during a visit to campus.
7. University of Iowa President Barbara Wilson
8. Raytheon
9. Iowa State Representative Dustin Hite
10. Legislators in the Lab including Iowa State Senators and Representatives and UI staff
11. Iowa DOT
12. Central Iowa Transportation Advisory Group
13. Marion Home School Assistance Program
14. Local Boy Scout Troup
15. Iowa Association of County Conservation Board Employees
16. US Representative Marionette Miller-Meeks staff
17. Project Lead the Way
18. UI Human Factors and Ergonomics Society (HFES) Student Chapter
19. Transportation Research Center, Inc.
20. Iowa City Community School District Teachers Professional Development

1.4.7 Website traffic

<table>
<thead>
<tr>
<th>Metric</th>
<th>This Period</th>
<th>Lifetime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Users</td>
<td>2,771</td>
<td>25,158</td>
</tr>
<tr>
<td>New Users</td>
<td>2,723</td>
<td>24,598</td>
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<tr>
<td>Sessions</td>
<td>4,155</td>
<td>46,892</td>
</tr>
<tr>
<td>Page Views</td>
<td>7,961</td>
<td>98,429</td>
</tr>
</tbody>
</table>

1.4.8 Patents filed
Nothing to report

1.4.9 DOT requests for presentations or proposals related to SAFER-SIM
Nothing to report

1.4.10 Practitioner attendance at events
1. 41 practitioners at SAFER-SIM webinars
2. 2 practitioners at SAFER-SIM symposium

1.4.11 Number of improved or new simulation technologies, software, methods, or processes
1. Through this project, UM developed two interfaces that better informs drivers of the functionality of automated vehicle technology. In comparison to a bare bones interface, the two improved interfaces yielded optimal performance (i.e., drivers took back control of the vehicle quickly and efficiently).

1.5 Collaboration
1.5.1 Attendance at the SAFER-SIMposium
43 attendees

1.5.2 Interdisciplinary research projects within and across sites
1. Using Simulation to Assess and Reduce Conflicts between Drivers and Bicyclists (Computer Science/Psychological & Brain Sciences)
2. Multi-modal Distributed Simulation Combining Cars, Bicyclists, and Pedestrians (Computer Science/Psychological & Brain Sciences)
3. Using Simulation to Study Communication between Autonomous Vehicles and Vulnerable Road Users (Computer Science/Psychological & Brain Sciences)
4. Understanding Bicyclists’ Behaviors Through Learning from Big Trip Data (Business/Public Health/Urban & Regional Planning)
6. Attention and Adaption of Teen Drivers to Driving Automated Systems – (UMass College of Engineering/College of Natural Sciences)

1.5.3 Collaborative research projects across SAFER-SIM or other UTC sites
1. Multi-modal Distributed Simulation Combining Cars, Bicyclists, and Pedestrians (UI/UW/UM)
2. Using Simulation to Assess and Reduce Conflicts between Drivers and Bicyclists (UI/UM/UCF)
3. Enhancing School Zone and School Bus Safety (UCF/UPR)
4. Evaluation of Safety Enhancements in School Zones with Familiar and Unfamiliar Drivers (UPR/UM)
5. The Impact of Driver’s Mental Models of Advanced Vehicle Technologies on Safety and Performance (UI/UM)
6. Analyzing the Performance of Remote-Drivers on Transit Shuttle Short Routes (UW/UPR)
7. Interfacing Synchrono and NADS for Virtual Simulation of Conventional & Connected and Autonomous Vehicles (UW/UI)
8. AAAFTS/SaferSim Cooperative Research Program (UI/UM/UW/UCF)

1.5.4 Collaborations with industry partners and government agencies

<table>
<thead>
<tr>
<th>Organization Name</th>
<th>Location</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aisin Technical Center of America</td>
<td>Northville, MI</td>
<td>Financial support</td>
</tr>
<tr>
<td>2. AAA Foundation for Traffic Safety</td>
<td>Washington D.C.</td>
<td>Financial support, Collaborative research</td>
</tr>
<tr>
<td>3. InSight Learning Technologies</td>
<td>Pacific Palisades, CA</td>
<td>Personnel exchange</td>
</tr>
<tr>
<td>4. Mandli Communications Inc.</td>
<td>Madison, WI</td>
<td>In-kind support, Facilities Collaborative Research</td>
</tr>
<tr>
<td>5. Continental Mapping Consultants Inc</td>
<td>Madison, WI</td>
<td>In-kind support, Facilities Collaborative Research</td>
</tr>
<tr>
<td>6. Council of University Transportation Centers</td>
<td>Washington D.C</td>
<td>Financial support</td>
</tr>
<tr>
<td>7. Hyundai America Technical Center Inc.</td>
<td>Superior Township, MI</td>
<td>Financial support</td>
</tr>
<tr>
<td>8. City of Orlando</td>
<td>Orlando, FL</td>
<td>Collaborative Research</td>
</tr>
<tr>
<td>9. Recreative Association of</td>
<td>Mayaguez, PR</td>
<td>Facilities</td>
</tr>
<tr>
<td>10. Sport Buenaventura</td>
<td>Mayaguez, PR</td>
<td>Facilities Personnel Exchange</td>
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<tr>
<td>11. Mayaguez Bureau of Highway Patrol</td>
<td>Mayaguez, PR</td>
<td>Facilities</td>
</tr>
<tr>
<td>12. Club de Oficinistas de Mayagüez</td>
<td>Mayaguez, PR</td>
<td>Facilities</td>
</tr>
<tr>
<td>13. Puerto Rico LTAP Center, University of Puerto Rico at Mayaguez</td>
<td>Mayaguez, PR</td>
<td>Facilities</td>
</tr>
<tr>
<td>14. VHB</td>
<td>Washington D.C.</td>
<td>In-kind support</td>
</tr>
<tr>
<td>15. Lee Engineering</td>
<td>Phoenix, AZ</td>
<td>In-kind support</td>
</tr>
<tr>
<td>16. UW-Madison Global Health Institute</td>
<td>Madison, WI</td>
<td>Collaborative Research</td>
</tr>
<tr>
<td>17. City of Racine</td>
<td>Racine, WI</td>
<td>Financial support</td>
</tr>
<tr>
<td>18. Gateway Technical College</td>
<td>Racine, WI</td>
<td>In-kind support</td>
</tr>
</tbody>
</table>

1.5.5 Collaborative peer-reviewed journal publications
Nothing to report

1.5.6 Collaborative book chapters
Nothing to report

1.5.7 Student exchanges with other SAFER-SIM sites
Nothing to report

1.5.8 Students pursuing advanced degrees at other SAFER-SIM sites
Nothing to report

1.5.9 Programs involving community colleges
1. University of Wisconsin Shuttle Project involving Gateway Technical College

1.5.10 Graduates hired at SAFER-SIM, other UTC sites, or external organizations
Nothing to report

1.6 Diversity
1.6.1 SAFER-SIM projects involving underrepresented/minority (U/M) students
22 projects involving 23 students
1.6.2 # U/M events attended
1. Shannon Roberts attended the Annual Meeting for the National Society of Black Engineers, as the faculty advisor for the UMass Chapter, from March 23-27, 2022. The meeting comprises the largest gathering of Black engineers, with >5000 attendees. Twenty students from UMass attended the Annual Meeting.

1.6.3 # U/M students at attended events
5000 students

1.6.4 Graduating U/M student placement
1. Aikaterini Deliali, Postdoctoral Research Associate at the National Technical University of Athens

1.7 Outcomes
1.7.1 Number of improved or new technologies, software, methods, or processes adopted
1. Through this project, UM developed two interfaces that better informs drivers of the functionality of automated vehicle technology. In comparison to a bare bones interface, the two improved interfaces yielded optimal performance (i.e., drivers took back control of the vehicle quickly and efficiently).

1.7.2 Stakeholders who adopt, implement or deploy SAFER-SIM research findings or technologies through policy, practice, regulation, rulemaking or legislation
Nothing to report

1.7.3 Number of projects that reach adoption, implementation or deployment
Nothing to report

1.8 Impacts
1.8.1 Expected reductions in crashes from implemented policy, practice, regulation, rulemaking, or legislation
1. We expected the research outcome from this SAFER-SIM project to have a clear idea of traffic safety factors of the highway before starting a major project.
2. If the advanced dashboard interface from this project were implemented on a larger scale, more drivers would be aware of automated vehicle functionality and would more closely monitor the technology when it is activated. This would in turn lead to fewer instances of unexpected vehicle behavior (e.g., the vehicle doesn’t stop for a pedestrian at an
intersection) and fewer crashes.

1.8.2 Expected reduction in congestion and traffic conflicts from implemented policy, practice, regulation, rulemaking or legislation

1. We expected the research outcome from this SAFER-SIM project to improve the transportation infrastructure and stakeholders to be informed about possible scenarios for reducing traffic congestion.