

## SUMMER 2023 RESEARCH EXPERIENCE FOR UNDERGRADUATES (REU)

### Organizational Background:

The Office of the Assistant Secretary of Transportation for Research and Technology (OST-R) within the US Department of Transportation (USDOT) awarded, in the Spring of 2023, a grant under the Infrastructure Investment and Jobs Act (IIJA) Bill to fund the University Transportation Center for Railway Safety (UTCRS). The [Center for Railway Safety](#), which is headquartered at the University of Texas Rio Grande Valley (UTRGV), operates as a consortium with the [Texas A&M Transportation Institute \(TTI\)](#), the [University of Nebraska Transportation Center \(NTC\)](#), [University of South Carolina \(UofSC\)](#), the [University of California Riverside \(UCR\)](#), and [South Texas College \(STC\)](#).

The UTCRS aims to reduce the number of accidents and equipment failures experienced in rail transportation systems. This will result directly in reduced fatalities and injuries in addition to reduced economic losses to stakeholders. New technology and associated workforce development will lead to improved safety assessments, safety counter measures, decision-making tools, and greater long-term safety gains. With these goals in mind, the UTCRS offers the following summer research experience opportunity:

### Research Experience Details:

The UTCRS will provide undergraduate engineering students the opportunity to participate in a research-intensive ten-week program. Selected applicants for this program will work closely with faculty members, graduate students, and undergraduate mentors on current research projects, prepare professional presentations to their peers during program meetings, make a formal poster presentation of their research experience at the end of the program, and submit a written, final report describing the results of their research.

### Duration: Ten Weeks

June 1, 2023 – August 11, 2023

### Financial Support:

The UTCRS will provide the selected summer research interns with a \$6,000 stipend (\$600/week) to cover travel, room and board, and living expenses.

### To apply:

If you are interested in participating in this educationally rewarding opportunity, you must submit a complete application packet to [railwaysafety@utrgv.edu](mailto:railwaysafety@utrgv.edu). The packet should consist of one PDF file that contains the following, in the order as they appear below:

1. A completed and signed application form,
2. Your current resumé,

3. One letter of recommendation from one of your professional/academic references; this reference should be from an individual that can attest to your academic abilities (i.e. faculty member, research advisor, mentor, etc.), and
4. Your transcripts (you can use your unofficial transcripts for submitting your PDF application file).

**Application Deadline: Friday April 21, 2023, by midnight.**

**Aspiring applicants should submit their application as soon as possible. Number of participants selected will be based on competitiveness of student applications received and availability of funding.**

## Questions or Concerns:

If you have any questions regarding the 2023 REU program or application submission, send an email to [railwaysafety@utrgv.edu](mailto:railwaysafety@utrgv.edu).

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**University Transportation Center for Railway Safety (UTCRS)**

**Applicant Information**

Last Name:	_____
First Name:	_____
Home Address:	_____
City/Zip:	_____
Email Address:	_____
Phone No:	_____
Alternate No:	_____
Citizenship:	<input type="checkbox"/> U.S. Citizen or Permanent Resident <b>By checking this box you certify that you are a U.S. Citizen or Permanent Resident</b>

**Academic Information**

Student ID Number:	_____
Grade Point Average	_____
Academic Major (1)	_____
Major (2) or Minor	_____
Anticipated Graduation Date:	_____

**Statement of Purpose and Career Goals:**

Why are you interested in a summer research experience within the UTCRS consortium?

What specific skill-set do you hope to gain through this summer research experience?

Describe your long-term career goals and how this experience will help you achieve these goals?

Upon completion of your undergraduate studies, do you plan to apply to graduate school, enter a profession, or other? Give specific details.

**Where did you learn about this UTCRS Research Experience for Undergraduates opportunity?**

- ☐ UTCRS Website
- ☐ Professor
- ☐ Fellow student
- ☐ Poster Board Presentation/Brochure
- ☐ Other (Specify): \_\_\_\_\_

**Professional References**

Name	Phone Number	E-mail	Relationship
1.			
2.			
3.			

**Research Interest**

Participants in the REU program will collaborate with faculty, students, and staff of the consortium universities on ongoing research in the field of railway safety and, more importantly, will gain a better understanding of the role STEM plays in modern society. This collaboration is established to foster an intellectual climate and physical environment capable of supporting the increasing need to improve safety and reduce risk on the multi-modal transportation system.

- Railway Track Structure Research
- Materials Engineering and Testing
- Transportation System Operations
- Rail Infrastructure Condition Monitoring
- Onboard Wireless Sensor Technologies
- Railway Safety Research
- Predictive Maintenance Algorithms
- Artificial Intelligence and Machine Learning Based Modeling
- Movement of Hazardous Materials
- Evaluation of Innovative Technologies
- Railway Grade Crossing Research

From the topics listed in bullets, list the top four research areas of interest to you, in the order of preference (with 1 being your first choice). Should you be awarded a summer research internship, every effort will be made to place you in one of your preferred research areas.

- (1)
- (2)
- (3)
- (4)

### Research Institution

The UTCRS consortium is comprised of five universities and one community college.  
Should you be awarded a summer research internship, would you be willing to travel to:

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| Texas A&M University (TAMU), College Station, Texas             | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| University of Nebraska-Lincoln (UNL), Lincoln, Nebraska         | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| University of South Carolina (UofSC), Columbia, South Carolina  | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| University of California-Riverside (UCR), Riverside, California | <input type="checkbox"/> YES | <input type="checkbox"/> NO |

### Disclaimer and Signature

I certify that all the information I provided in this application is accurate and complete to the best of my knowledge. If this application leads to an internship assignment, I understand that false or misleading information in my application may result in the forfeiture of this Research Experience for Undergraduates (REU).

Signature:

Date: