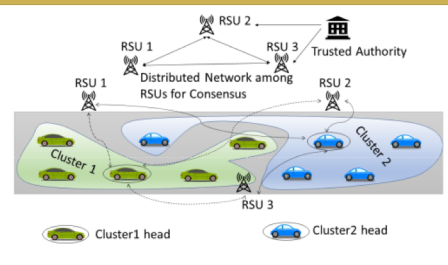




# National Science Foundation Grant Support for NSF REU SITE on Research and Training Experience for Undergraduates in the area of in the areas of Cybersecurity, Data analytics and Blockchain for securing Big Data and Cyber-physical Systems Missouri University of Science and Technology Department of Computer Science

## PURPOSE

The purpose of this NSF REU SITE program is to train a total of 10 undergraduate students, beginning summer of 2023, in the areas in the areas of Cybersecurity, Data analytics and Blockchain for securing Big Data and Cyber-physical Systems



## SELECTION CRITERIA

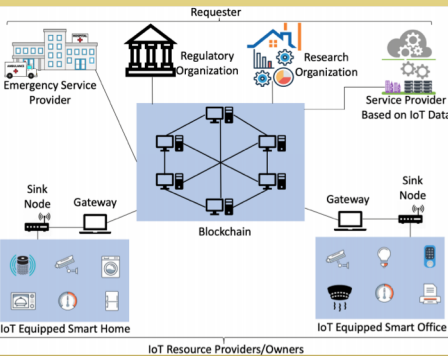
Good academic aptitude supported by GPA scores of 3+, and/or relevant experience. All students must be U.S. citizens or US permanent residents.

*Note: Students may join NSF REU program at any level of their B.S. degree. Seniors are not eligible if their degree will be completed by Summer of 2023.*

## RESEARCH

NSF REU students will conduct research in the Department of Computer Science under the guidance of faculty members supported by the PhD students. REU students will also have access to the laboratories and resources at Missouri S & T. Each student's research project will be determined based on the individual student and his/her background. Possible research project areas include:

- Security and Trustworthiness in Data Driven CPS and IoT (under Dr. Sajal Das)
- IoT Access Control Using Permissioned Blockchain (under Dr. Sanjay Madria)
- Secure and Trustworthy Decision Making in CPS (under Dr. Sajal Das)
- Security, Privacy and Resource Trade-offs in CPS (under Dr. Sanjay Madria)
- Crowd-Audit Platforms to Quantify Biases in ML-based Systems (under Dr. Sid Nadendra)



## APPLICATION PROCEDURE

1. Apply using the form available at [cs.mst.edu](http://cs.mst.edu)
2. <https://cs.mst.edu/media/academic/cs/documents/undergraduate/Final%20NSF%20REU-2023.pdf>
3. Submit a copy of the application material to the Program Director listed below as PDF.
4. Submit transcripts as PDF.
5. Submit a resume as PDF.

## CONTACT

Prof. Sanjay Madria  
NSF REU SITE Program Director  
Missouri University of Science and Technology

Department of Computer Science  
Rolla, MO 65409

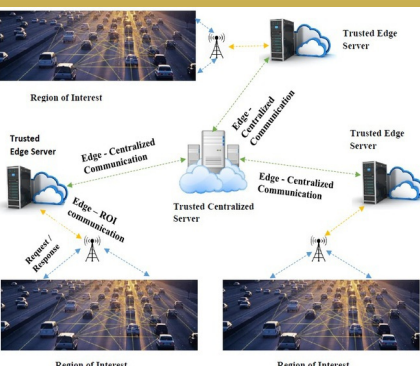
Phone: (573) 341-4856, FAX: (573) 341-4501

E-mail: [madrias@mst.edu](mailto:madrias@mst.edu)

## STIPEND & BENEFITS

Stipend of up to \$600 per week (for 10 weeks). An additional amount to cover all travel to Rolla, and room and food expenses for dorms will be paid.

Each year the best student judged based on the project will be awarded a TA/RA position if admitted as a PhD Student.



## DEADLINES

Submit Application: 15<sup>th</sup> March, 2023  
Informal Acceptance: 25<sup>th</sup> March, 2023  
Final Acceptance from Students: 30<sup>th</sup> March, 2023.

# **Research and Training Experience for Undergraduates in the areas of Cybersecurity, Data analytics and Blockchain for Securing Big Data and Cyber-physical Systems**

## **A Missouri University of Science and Technology's Program Supported by a grant from the National Science Foundation**

**Objective:** The primary objective of this NSF REU site is to train ten undergraduate students with excellent academic abilities with research potential in the area of cyber security, data analytics and blockchain with different applications in cloud and cyber-physical system. Preference will be given to the brilliant students with GPA at or above 3.20 from minority institutions (e.g. HBCUs), or institutions that do not offer MS degree programs in CS/ECE or related areas.

**Highlights:** (1) Well-qualified and experienced investigators in mentoring and training of REU students with research experience in the proposed areas of study; (2) students will be guided progressively from the statement of objectives to formulations of problems, literature surveys, research proposals, and design and implementation of CPS and Blockchain frameworks focused on cyber security, analytics and machine learning; (3) students will be provided a better feel for real-world applications by careful selection and design of projects; (4) placing emphasis on both the individual problem solving and designing skills as well as collaborative learning activities to learn the concepts and procedures involved in real problem solving as a team; (5) regular seminars by the faculty, PhD students, and external visitors from academia and industry to introduce new emerging ideas in cybersecurity and CPS; (6) organizing seminars on computer ethics, writing skills, engineering standards, interpersonal skills, conflict resolution, graduate opportunities in academia and research laboratories. (7) Funded PhD opportunities as well as careers in science and engineering; (8) access to well-equipped laboratories and resources available at Missouri S & T.

**Location: Department of Computer Science, Missouri University of Science and Technology, Rolla, MO 65401**

**Time Duration: 10 weeks (22<sup>nd</sup> May, 2023 to 28<sup>th</sup> July, 2023)**

**Stipend and Cost: The project will cover the reasonable travel, boarding, and food cost and will pay stipend of \$600 per week)**

**Project Director: Dr. Sanjay Madria, Curators' Distinguished Professor, Department of Computer Science, Missouri University of Science and Technology, MO 65401**

**[madrias@umsystem.edu](mailto:madrias@umsystem.edu) (write in the subject – NSF REU)**

**Only one PDF file including all the documents should be enclosed**

**Mailing Address for the applications: Dr. Sanjay Madria, Department of  
Computer Science, Missouri University of Science and Technology, Rolla,  
MO 65401**

**Total Number of Positions - 10**

**Deadline to submit: 15<sup>th</sup> March, 2023**

**Deadline to Mail Acceptance Decision: 25<sup>th</sup> March, 2023**

**Final Acceptance Notice Due from Students: 30<sup>th</sup> March, 2023**

**Note that once you accept to be part of the program, you are required to  
complete 10 weeks of the program.**

**Note: Each year the best student judged based on the project outcome will  
be awarded a TA/RA position if admitted in the Department of Computer  
Science as a PhD Student.**

Application Form

Name: (First, Middle, Last)	
Email Address for contact:	
Telephone number: (Please provide area code)	
Current Mailing address: (Street, City, State, ZIP)	
University/College:	
Major:	
Minor:	
Past Research Experience (if any, please describe projects)	
Current GPA (on a 4.0 scale): (Attach copies of Transcripts)	
Current Class Standing: (Seniors are not eligible if degree will be completed by Summer 2017)	
Race (Missouri S & T is an affirmative action/equal opportunity employer)	
Gender:	
Are you a United States citizen or Permanent Resident?	
Briefly describe your background and interests	
Brief Description of Knowledge of Programming, Cybersecurity, Machine Learning (if any, it is not required):	