2021 NSF Research Experiences for Undergraduates (REU) Secure and Privacy-Preserving Cyber-Physical Systems Software and Hardware Approaches May 24 —July 31, 2021

This Summer Research Experiences for Undergraduates (REU) site, funded by NSF Division of Computer and Network Systems, focuses on cybersecurity challenges in future cyber-physical systems (CPS) including smart and safe cities, self-driving cars, industrial internet of things (IIoT), and smart power grid.

Project Objectives

- Opportunities to conduct cybersecurity-related research and gain valuable experience in topics of national interest.
- Allow interns to self-assess their interest in cybersecurity and graduate studies.
- Learn advanced subjects such as blockchain for security CPS, hardware and software attacks on IIoT, security in deep learning
- See this site for details https://www.caee.tntech.edu/~mmahmoud/REU/REU.htm

Topic Areas

- Securing CPS using Revolutionary Blockchain Technology
- Secure Communication Schemes for Smart Power Grid
- Hardware Intrinsic Security Threats in IoTs
- Security Vulnerabilities in Deep Learning Architecture’s Deployment to edge devices in CPSs
- Anomaly Detection using Graph Streams to Protect Cyber Networks
- Formal Security Analysis for IIoT Systems
- Secure Industrial Control Systems (ICSs)

Activities

- Cybersecurity-related research and short courses
- Short course on Deep Learning Deployment in Hardware
- Preparation of research papers and posters
- Hands-on training with real equipment
- GRE and NSF GRFP preparation

Eligibility

- U.S. citizen or permanent resident
- Electrical engineering, computer/software engineering, computer science or any other related disciplines with a 3.0 or higher GPA
- Sophomore, junior or senior
- Must graduate after September 2021

Application Process

- Transcripts
- Application form
- Two recommendation letters
- Personal statement
- Resume
- See website for more details

All REU interns living on campus who are under 22 years of age must show proof of adequate immunization against Meningococcal Disease (Meningitis) on or after 16th birthday.

Application Deadline

Screening will begin on March 1, 2021

Applications Available Online

https://www.tntech.edu/engineering/research/cmrrreu

All qualified applicants are encouraged to apply, including minorities, women, veterans and individuals with disabilities.

Contact

Mohamed Mahmoud, Ph.D.  
mmahmoud@tntech.edu

Syed Rafay Hasan, Ph.D.  
shasan@tntech.edu

Center for Manufacturing Research

Box 5077 | Prescott Hall 233
Tennessee Tech
Cookeville, TN 38505

W: www.tntech.edu/cmrr
E: mfctr@tntech.edu
P: (931) 372-3362

Award Information

- $6,000 stipend for 10 weeks
- On-campus housing included
- Food allowance
- Round-trip travel expenses up to $600
- The total is approximately $9,000

Announcement of Awards

March 15, 2020

Tennessee Tech does not condone and will not tolerate discrimination against any individual on the basis of race, religion, color, creed, sex, age, national origin, genetic information, disability, veteran status, and any other basis protected by federal and state civil rights law. Tennessee Tech complies with Title IX and prohibits discrimination on the basis of sex in education programs and activities, admissions or employment. For inquiries regarding non-discrimination policies, contact equity@tntech.edu for Title IX; Title9@tntech.edu. The Tennessee Tech policy on nondiscrimination can be found at www.tntech.edu/ideaa. #CENGbox-PRINT-xx