



NEXT-GEN CYBER TITANS

CYBERFELLOWS.UTULSA.EDU

A scholarship initiative brought to you by



TODAY'S CYBERSECURITY CHALLENGES REQUIRE BIG IDEAS AND BOLD SOLUTIONS.

Join us in exploring the opportunities that exist at the intersections of science and entrepreneurship.

The University of Tulsa (TU) seeks talented students interested in pursuing world-class PhD research in cyber research while supported by a full-tuition scholarship and competitive living stipend. TU is a private university located in Tulsa, Oklahoma, a beautiful, bustling metro of 1 million nicknamed "Green Country" for its rolling hills and treed landscapes. TU has been a leader in cyber security research and education for over two decades, as reflected by its recent ranking in the **top 25 nationally among cybersecurity programs** by U.S. News & World Report.

TU's College of Engineering & Natural Sciences houses a unique initiative - the **TU-Team8 Cyber Fellows** - that enables PhD students to pursue research with high commercialization potential involving cyber security, data analytics, artificial intelligence, machine learning, and human/social behavior, all of which can be part of multiple engineering and science disciplines. Sponsored by the Tulsa Innovation Labs, the Cyber Fellows work with their faculty research advisors in partnership with Team8, a company-building venture group. While Cyber Fellows currently are pursuing PhDs in computer science, computer engineering, and mechanical engineering, a new PhD in Cyber Studies expands research pursuits to interdisciplinary studies, such as finance, law, and economics.

Graduate Research Assistantships are awarded to Cyber Fellows. These assistantships provide an **annual stipend of \$30K** with full tuition remission, health insurance, and opportunities for summer internships. If awarded as a TU-Team8 Cyber Fellow, the assistantships are renewable each year given progress toward the degree. A wide range of research projects is available. Faculty participating in the Cyber Fellow initiative have received substantial funding for their research from the National Science Foundation, Department of Defense, Department of Energy, and Department of Homeland Security.

Please visit our website [CYBERFELLOWS.UTULSA.EDU](https://cyberfellows.utulsa.edu) and consider joining one of our information sessions to learn more about who we are, what we do, and how you can fit in! Application review begins on **February 1, 2022** and continues until all positions are filled. Don't miss your chance to join our team! If you check the box that you are interested in the TU-Team8 Cyber Fellows within the graduate school application at <https://graduate.utulsa.edu/admission/applying/> and complete your application for review, **we will pay your application fee.**



SCAN TO VISIT THE
CYBER FELLOWS
WEBSITE

FOR MORE INFO CONTACT

Dr. Rose Gamble, Senior Associate Dean, College of Engineering & Natural Sciences
gamble@utulsa.edu | 918-631-2988 | University of Tulsa

PROGRAM OFFERINGS

Applying ML to Cybersecurity: This project uses NLP and ML techniques on open-source intelligence to guide predictive analysis of compound exposures in contextualized settings to support the identification of threats using attack graphs and other relevant structures. Mentor: Dr. John Hale - john-hale@utulsa.edu

Kernel-Level Security Policy Management: This project seeks to define an open standard for enterprise-level security policy management with kernel-level enforcement to support policies and models while relieving administrators of error-prone manual security policy management processes. Mentor: Dr. John Hale - john-hale@utulsa.edu

Assessing and Improving Organizational Cybersecurity Hygiene and Culture in the Perimeterless World: This project focuses on developing evidence-based security hygiene and culture assessment by evaluating data sources and developing metrics to capture existing organizational security hygiene and security culture. Mentors: Dr. Sal Aurigemma - sal-aurigemma@utulsa.edu, Dr. Tyler Moore - tyler-moore@utulsa.edu, Dr. Bradley Brummel - bradley-brummel@utulsa.edu

VR Training Simulation Framework: This project aims to create a viable framework for delivering different types of VR training simulations to educators to develop simulations that have multiple correct answers, ordered and unordered series of steps, and valued accuracy of each procedure. Mentors: Ms. Akram Taghavi-Burris - akram-burris@utulsa.edu, and Dr. John Hale - john-hale@utulsa.edu

Leveraging Attack Graph State Estimation for Cyber Defense: This project will focus on developing attack graphs showing how a system can be compromised to build and deploy cyber defense tools that continuously monitor the system and adapt to changing conditions. Mentor: Dr. Peter Hawrylak - peter-hawrylak@utulsa.edu

Trusted AI Through Personalized Explanations - PERX & EXPLORE: Building on prior research on trusted human-AI collaboration and transparent decision-making, this project develops two complementary frameworks in the increasingly critical area of Explainable Artificial Intelligence (XAI): Personalized Explanation Systems (Perx) and Explaining Options & Recommendations (EXPLORE). Medical device application provides the data source needed to prototype the framework. Mentors: Dr. Sandip Sen - sandip@utulsa.edu and Dr. Will Lepage - will-lepage@utulsa.edu

An Interpretable and Trustworthy AI Framework for Smart Grid Cyberattack Detection and Recovery: This project proposes a novel, interpretable, and trustworthy machine learning framework that detects fault and cyberattack incidents associated with the electric power grid and its recovery from critical system incidents in real-time. Mentor: Dr. Mahdi Khodyar - mahdi-khodayar@utulsa.edu

Detecting Natural Gas Emissions to the Atmosphere: This project seeks to build a platform to help detect and locate natural gas emissions as a distributed network of embedded systems where each node uses multiple sensors (gas, temperature, pressure, wind speed, geolocation) and has wireless capabilities for communication. Mentors: Dr. Peter Hawrylak - peter-hawrylak@utulsa.edu, Dr. Mauricio Papa - mauricio-papa@utulsa.edu, and Dr. Eduardo Pereyra - eduardo-pereyra@utulsa.edu

BECOME A NEXT-GEN CYBER TITAN

Be a TU-Team8 Cyber Fellow

Begin the application process today to join a cohort of passionate and purpose-driven individuals who will shape the future of these emerging fields.

The University of Tulsa seeks to recruit and retain talented students, faculty and staff from diverse backgrounds. The University of Tulsa is an affirmative action/equal opportunity employer and encourages qualified candidates across all group demographics to apply. The University does not discriminate on the basis of personal status or group characteristic including, but not limited to race, color, religion, national or ethnic origin, age, sex, disability, veteran status, sexual orientation, gender identity or expression, genetic information, ancestry, or marital status. The University of Tulsa is an Equal Opportunity Employer including Disability/ Veteran.