



# WELCOME

At the Office of Research Commercialization, we believe innovation is more than an idea — it's the pathway from discovery to real-world impact. Each year, we have the privilege of working alongside our researchers, entrepreneurs, and partners to transform groundbreaking science and creative scholarship into products, services, and solutions that improve lives.

In this Year in Review, we highlight how our team, as part of the innovation ecosystem, supports inventors at every stage of the commercialization journey: from identifying promising technologies, protecting intellectual property, driving commercialization, and helping to bring Texas Tech innovations to market. These stories highlight not only the achievements of 2025, but also the collaborative spirit and drive that define the Texas Tech University System.

Together, we are building a future where innovation thrives, ideas are protected, and research from West Texas makes a global impact.

*Jennifer Souter*  
Jennifer Souter, Senior Managing Director  
Research Commercialization

## OUR TEAM

**Jennifer Souter, Senior Managing Director**  
jesouter@ttu.edu  
Center for Nanophotonics  
Critical Infrastructure Security Institute

**David McClure, Managing Director (Licensing)**  
david.mcclure@ttu.edu  
Davis College of Agricultural Sciences & Natural Resources  
Huckabee College of Architecture  
Rawls College of Business Administration

**William H. Jones, Senior Licensing Associate**  
william.h.jones@ttu.edu  
TTUHSC School of Medicine  
Texas Tech Health El Paso

**Satheesh-Kumar Harikrishnan, Ph.D., Licensing Associate**  
satheesh-kumar.harikrishnan@ttu.edu  
Whitacre College of Engineering  
Angelo State University  
Midwestern State University

**Anushka Shinde, Licensing Associate**  
anushka.shinde@ttu.edu  
Arts & Sciences  
Health & Human Sciences  
Media & Communication  
Education  
Talkington College of Visual & Performing Arts

**Ganga Baskar, Ph.D., Licensing Associate**  
ganga.baskar@ttu.edu  
School of Veterinary Medicine  
TTUHSC School of Pharmacy

**Vicki Taguba, Business Manager**

**Cindy Thompson, Program Director**

**Kathryn Dankesreiter, Assistant Director of PR**

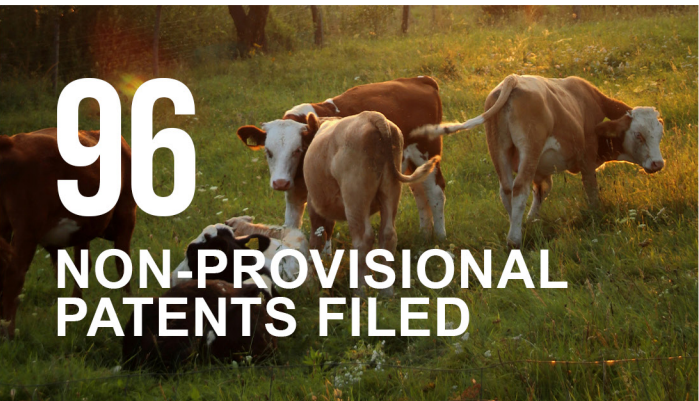
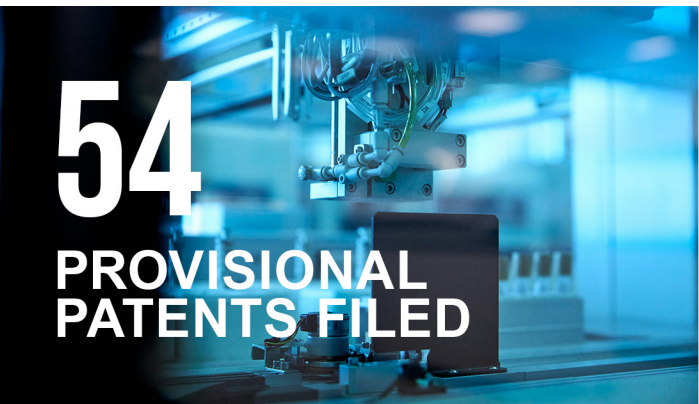
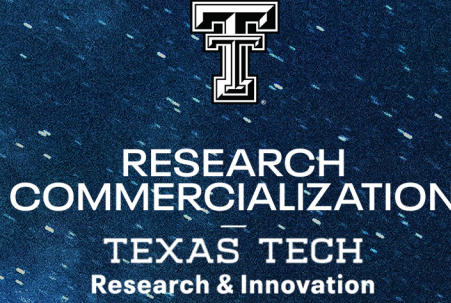
**Victoria Dueñes, Business Manager**



(806) 742-4105  
ORC@TTU.EDU



# 2025 IMPACT REPORT





# 8<sup>TH</sup> INVENTOR CELEBRATION

## THE CELEBRATION

The annual Inventor Celebration is hosted by the Office of Research Commercialization to celebrate the innovative contributions that advance the Texas Tech University System's impact on technology and research.

### EMERGING INVENTOR (TTU)

Dr. Paul Egan, Assistant Professor in the Edward E. Whitacre College of Engineering, Department of Mechanical Engineering

### EMERGING INVENTOR (TTUHSC)

Dr. Alan Pang, Assistant Professor of Burn, Wound, Critical Care, and Trauma Surgery in the School of Medicine

### MOST DISRUPTIVE TECHNOLOGY SYSTEM AND METHOD OF RADAR SYSTEM ENABLEMENT USING A TELECOMMUNICATION SYSTEM

Dr. Brenda Connor, Professor of Practice and Senior Technical Managing Director of the Critical Infrastructure Security Institute in the Edward E. Whitacre College of Engineering, Department of Electrical and Computer Engineering

## EMERGING INVENTORS OF THE YEAR

The 2025 Emerging Inventor of the Year Awards celebrate two outstanding innovators who embody Texas Tech's mission to transform research into real-world impact.

At Texas Tech University, Dr. Paul Egan, Assistant Professor of Mechanical Engineering and Director of the M3D Design Lab, leads pioneering research that merges engineering and medicine. His work in 3D printing for tissue engineering, personalized nutrition, and medical devices bridges creativity and care, empowering new solutions for patient well-being. "I am grateful for the opportunity to contribute to the Texas Tech innovation ecosystem, which is truly commendable in supporting inventors making a positive impact through research and entrepreneurship," shares Dr. Egan.

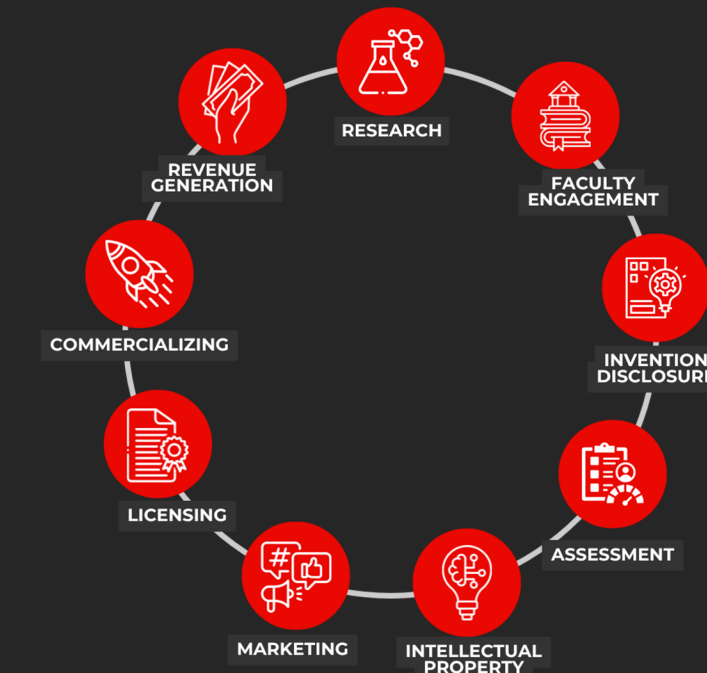
At the Texas Tech University Health Sciences Center, Dr. Alan Pang, burn, wound, trauma, and critical care surgeon, is advancing healthcare through AI-driven solutions that improve how clinicians predict patient outcomes. As co-founder of AIKO Healthcare Solutions, a Texas Tech Accelerator startup, he brings innovation from the operating room to the broader medical landscape. "This recognition represents all those in my corner who made it possible to create something worth recognizing," Dr. Pang reflects.

Together, Dr. Egan and Dr. Pang exemplify the cross-disciplinary innovation and entrepreneurial spirit driving the Texas Tech University System—where groundbreaking research becomes solutions that improve lives.



# FROM LAB TO MARKETPLACE

Research Commercialization serves the Texas Tech University System, helping to move research discoveries from the university laboratory to the marketplace. The stories below represent examples of tech transfer in action.



## MELODIASYNC HITS HIGH NOTES WITH TECH TRANSFER

Founded by Dr. Jessica Blume, Dr. Samudani Dhanasekara, and Dr. Chanaka Kahathuduwa, MelodiaSync uses EEG-driven binaural beat technology to deliver personalized sound therapy for stress relief, focus, and better sleep.



The team has thrived in Texas Tech Innovation Hub programs — from iLaunch to the Accelerator and One Health Incubator — while the Office of Research Commercialization helped protect their intellectual property, ensuring their groundbreaking technology is positioned for market success. With a recent clinical trial completed and new collaborations underway, MelodiaSync is poised to bring science-backed mental wellness to a global audience.



# NATIONAL ACADEMY OF INVENTORS

This year, the Texas Tech University System celebrated five outstanding inventors from across the Texas Tech University System who were inducted into the National Academy of Inventors (NAI). These prestigious honors recognize their groundbreaking research, dedication to innovation, and real-world impact across a range of disciplines from drug discovery and biomedical sciences to human health and chemistry.

## FELLOWS



### HIRANMOY DAS, PH.D.

Professor of Pharmaceutical Sciences at the Texas Tech University Health Sciences Center Jerry H. Hodge School of Pharmacy



### NAÏMA MOUSTAÏD-MOUSSA, PH.D.

Executive Director, Institute for One Health Innovation, Paul W. Horn Distinguished Professor, TTU Department of Nutritional Sciences, Professor, TTUHSC Department of Cell Biology & Biochemistry, Founding Director, Obesity Research Institute

## SENIOR MEMBERS

### WEI LI, PH.D.

Associate Professor of Chemical Engineering at Texas Tech University

### NADIA GERMAN, PH.D.

Associate Professor of Pharmaceutical Sciences at Texas Tech University Health Sciences Center

### ANNE GORDEN, PH.D.

Professor of Chemistry and Biochemistry at Texas Tech University



# 23 ISSUED U.S. PATENTS

### BOOSTING PIGLET WELFARE AND GROWTH THROUGH SWINE MATERNAL PHEROMONE SCENTS (2)

Department of Animal and Food Sciences

### LIACE: LEARNING INTERFACES FOR ANALYZING CHEMICAL MEASUREMENT DATA

Department of Computer Science

### SMART SYSTEMS FOR PREDICTING AND PREVENTING CATASTROPHIC AIRCRAFT FAILURES

Institute for Materials, Manufacturing and Sustainment

### THE HUMS PROJECT: DEVELOPING A SUSTAINABLE UTILITIES HOME

Department of Geosciences; Department of Sociology, Anthropology & Social Work; Department of Civil, Environmental, and Construction Engineering; Department of Mechanical Engineering

### USING COTTON CELLULOSE AS A REPLACEMENT FOR PLASTICS

Department of Plant and Soil Science; Department of Chemistry & Biochemistry

### OVERCOMING GENE DELIVERY LIMITATIONS IN DYSFERLINOPATHY

Department of Cell Physiology and Molecular Biophysics

### OPTICAL GAIN MATERIALS FOR HIGH ENERGY LASERS TO LIMIT RETINAL DAMAGE

Department of Electrical & Computer Engineering

### THERAPEUTICS FOR TREATMENT OF TRIPLE-NEGATIVE BREAST CANCER

Department of Pharmaceutical Sciences

### TARGETING NEUROLYSIN TO ENHANCE ENDOGENOUS PROTECTION AFTER STROKE

Department of Pharmaceutical Sciences

### PRESERVATIVE-FREE, SHELF-STABLE SNACKS WITH ENHANCED MOISTURE AND TEXTURE

Department of Animal and Food Sciences

### MOBILE DEVICE CHARGER THAT PREVENTS POWER-BASED DATA THEFT

Department of Electrical & Computer Engineering; Department of Computer Science

### DUAL-MODE CONTROL FOR GRID AND ISLAND MODE SWITCHING IN SOLAR MICROGRIDS

Department of Mechanical Engineering

### ENGINEERED MICROFIBERS WITH CONTROLLED ADHESION FOR ROBOTICS AND SEMICONDUCTOR APPLICATIONS

Department of Mechanical Engineering

### PASSIVE SNOWFLAKE TAG TECHNOLOGY FOR ENHANCED GOLF BALL DETECTION

Department of Electrical Engineering

### AERODYNAMIC BLADELESS ENERGY SYSTEM FOR SUSTAINABLE POWER GENERATION

Department of Mechanical Engineering

### OPTIMIZED HUFF-N-PUFF GAS INJECTION METHOD FOR ENHANCED SHALE OIL RECOVERY

Department of Petroleum Engineering

### HIGH-YIELD PEPTIDE SYNTHESIS VIA GROUP-ASSISTED PURIFICATION (GAP) CHEMISTRY

Department of Chemistry & Biochemistry

### DRUG TARGETS OF DELAYED AGING AND HUMAN BRAIN DISEASES

Department of Internal Medicine

### HIGH-FREQUENCY AC SUPERCAPACITORS USING EDGE-ORIENTED GRAPHENE ELECTRODES

Department of Electrical Engineering

### MODIFIED TETRACYCLINE FOR TREATMENT OF ALCOHOL USE DISORDER, PAIN AND INFLAMMATORY DISEASE

Departments of Pharmacology & Neuroscience and Ophthalmology

### ADVANCED MICRO/NANO STRUCTURES FOR PRECISION ADHESION CONTROL

Department of Mechanical Engineering

### KANAMYCIN DERIVATIVES AS CONNEXIN HEMICHANNEL INHIBITORS

Departments of Cell Physiology and Molecular Biophysics