UCONN
THE GRADUATE SCHOOL

2025

POSTDOC RESEARCH DAY

December 11, 2025 | Student Union Theatre | 1:00 PM - 5:30PM

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WELCOME AND ACKNOWLEDGMENT

Welcome to the University of Connecticut's Postdoc Research Day! We are so delighted that you are with us today to hear more about the compelling and impactful research taking place at UConn.

Today will feature the work of 27 postdoctoral scholars from a variety of disciplines. We will open the day with a welcome from our Vice Provost for Graduate Education and Dean of The Graduate School, Leslie M. Shor, followed by exciting 3-minute research talks from 19 of our postdocs. After they have shared their work with us, we will move into a panel discussion on different career paths for PhDs, and then travel upstairs to network and to hear from our poster presenters.

This event was made possible by the hard work and contributions of several individuals and units across UConn, including the following:

UConn's Postdoc Working Group:

Kim Curry, Director of Graduate Student and Postdoctoral Support, The Graduate School
Kay Gruder, Associate Director, Graduate Student & Postdoc Career Programs and Services, Center for Career Readiness and Life Skills
Chris Heinen, Professor, Dept of Medicine, and Director of Postdoctoral Affairs, UConn Health
Michael Nyarko, Graduate Assistant, The Graduate School
Rachel Prunier, Director for Teaching and Learning in the Life and Physical Sciences, Lecturer in Ecology and Evolutionary Biology
Melanie Sinche, Director of Graduate Student and Postdoctoral Success, The Graduate School

Center for Career Readiness and Life Skills:

Damiao Zoe Xu, Graduate Assistant

The Graduate School:

Karen Bresciano, Assistant Dean, Graduate Student and Postdoctoral Affairs
Jack Corcoran, Administrative Program Support
Kim Lehmann, Graduate Assistant
Martha Marroni, Administrative Assistant
Megan Petsa, Director of Graduate Student Administration
Leslie Shor, Vice Provost for Graduate Education and Dean of The Graduate School

Judges for the 3-minute Research Talk Competition:

Michelle Cote, Interim Director of the Werth Institute, University of Connecticut
Kent Holsinger, Board of Trustees Distinguished Professor Emeritus, and Vice Provost for Graduate Education and Dean of The Graduate School Emeritus, University of Connecticut
Matthew Mroz, Manager, Research Development Services, University of Connecticut
Emily Shearier, Research Operations Manager, Hartford HealthCare

Employer Partners:

Corey Acker, CEO, Potentiometric Probes
Larry Dubois, Founder and CEO, Nanoionix, LLC
Emily Shearier, Research Operations Manager, Hartford HealthCare
Dana Totir, Founder and COO, Nanoionix, LLC

Thank you for coming, and for your continued support of the dynamic research that is happening at the University of Connecticut!

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PARTICIPATING DEPARTMENTS

The event will feature Postdoctoral Researchers from the following departments and units:

- **Allied Health**
- **Animal Science**
- **Biomedical Engineering**
- **Center for Clean Energy Engineering (C2E2)**
- **Ecology & Evolutionary Biology**
- **Educational Psychology**
- **Electrical & Computer Engineering**
- **Environmental Engineering**
- **Eversource Energy Center**
- **Gladstein Family Human Rights Institute**
- **Institute of Materials Science (IMS)**
- **Internal Insights & Innovation (i3)**
- **Kinesiology**
- **Linguistics**
- **Mechanical, Aerospace and Manufacturing Engineering**
- **Molecular and Cell Biology**
- **Natural Resources and the Environment**
- **Pathobiology and Veterinary Science**
- **Pharmacology & Toxicology**
- **Physics**
- **Rudd Center for Food Policy and Health**

AGENDA

POSTDOC RESEARCH DAY

12:00 PM
Registration Opens Outside of the Theater

1:00 PM
Opening Remarks

1:05 PM
Welcome by Leslie M. Shor

1:10 PM
Postdoc Presentations: #1-#10

2:10 PM
Coffee Break (Outside the Theater)

2:20 PM
Postdoc Presentations: #11-#19

3:20 PM
Career Panel

4:20 PM
Networking and Poster Session (Room 304)

5:00 PM
Award Ceremony

5:15 PM
Event Ends

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WELCOME BY THE DEAN

Leslie M. Shor, PhD

Leslie M. Shor is Vice Provost for Graduate Education and Dean of The Graduate School at the University of Connecticut, where she is also a Professor of Chemical and Biomolecular Engineering. She earned her B.A. with High Honors from the University of Virginia and a Ph.D. in Chemical and Biochemical Engineering from Rutgers University. Dr. Shor's research explores microbial communities in engineered microhabitats to better understand how microbes shape soil, water, and plant systems. Her interdisciplinary work in microfluidics and environmental biotechnology has been recognized by the DuPont Young Professor Award and supported by organizations such as the Bill & Melinda Gates Foundation.

As an academic leader, she is dedicated to advancing graduate education, fostering inclusive research environments, and preparing future scientists and engineers to address global challenges in sustainability, food security, and environmental health.

RESEARCH TALKS AND POSTER NUMBERS

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RESEARCH TALKS
(INCLUDES POSTER PRESENTATION)

NAME: CAMILA ARROYO SALVO
AFFILIATION: ANIMAL SCIENCE

TITLE

SER Treatment as a Cross-Species Strategy to Enhance Assisted Reproduction ***(POSTER #1)***

ABSTRACT

The SER (Sperm Energy Restriction and Recovery) treatment involves sperm transient energy deprivation followed by recovery through reintroduction of energy sources. First described in mice, SER improved sperm fertilizing ability, embryo development, and embryo transfer success. Here, we evaluated SER effects in stallion and bull sperm, two species of agricultural interest. In stallions, motility stopped without energy sources and resumed after recovery. Transient starvation reduced mitochondrial membrane potential (??m) and increased intracellular calcium (Ca^{2}?i) and acrosome-reacted sperm, which were restored by SER. Conversely, bull sperm maintained motility and showed no significant changes in ??m, Ca^{2}?i, or acrosome reaction. In both species, recovered sperm exhibited hyperactivation features, essential for fertilization. Importantly, SER-treated equine sperm produced higher 7-day blastocyst rates after intracytoplasmic sperm injection (ICSI). Together with previous findings in bovine ICSI, these results reveal sperm species-specific metabolic differences and highlight SER as a promising strategy to improve assisted reproduction outcomes.

NAME: SUBRATA BISWAS
AFFILIATION: MOLECULAR AND CELL BIOLOGY

TITLE

Alzheimer's Disease Drug Candidate J147 Alters Lipid Membrane Fluidity ***(POSTER #4)***

ABSTRACT

J147 is a curcumin derivative drug candidate for aging and aging-related neurodegenerative diseases, including Alzheimer's disease. Given the critical role of plasma membrane fluidity in cellular function, particularly in aging and Alzheimer's disease, this study investigates the impact of J147 on membrane fluidity. In differential scanning calorimetry, we found that J147 significantly decreases the melting temperature of DMPC giant unilamellar vesicles (GUVs). Fluorescence measurements with Laurdan and Prodan probes indicated that J147 shifts lipid membranes toward a more disordered state. Microscopic evaluation of GUVs revealed that J147 promotes the transition from solid-ordered to liquid-disordered phases, further supporting enhanced membrane fluidity. Additionally, fluorescence recovery after photobleaching experiments demonstrated that J147 increases the molecular mobility of lipid species. These findings suggest that the therapeutic effects of J147 may be mediated through its ability to enhance membrane fluidity and molecular mobility, offering new insights into its mechanism of action.

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NAME: JACOB BOWIE
AFFILIATION: KINESIOLOGY

TITLE

Heat Tolerance Classification Criteria Require Population-Specific Thresholds for Accurate Assessment of Acclimation State ***(POSTER #6)***

ABSTRACT

Heat tolerance testing (HTT) assesses responses to heat stress with rectal temperature (Trec) and heart rate (HR) thresholds defining individuals as heat-tolerant (HT) -intolerant (HI). **PURPOSE**: To evaluate classification criteria by acclimation state and sex. **METHODS**: 40 participants (19M/21F, mean±SD, 23±4 years) completed an HTT (120min, 5km·hr-1, 2% grade) before (PreHA) and after (PostHA) five days of repeated exercise in (40°C, 40%RH) categorized as isothermal (exercise intensity adjusted to maintain Trec within 38.5-39.5°C, 60min) exercise-heat acclimation (HA). **RESULTS**: PreHA 51.1% (mean % HI classification across criteria) of participants were HI (66.7%F/52.6%M), decreasing ($p<0.001$) to 23.6% PostHA (28.6%F/10.5%M), reflected across criteria ($p<0.05$). The rate of HI based on plateau in Trec during the final 60min (?Trec (T120-T60)?0.45°C) was similar ($p=0.735$) PreHA (15% HI) and PostHA (10%), and HA reduced ?Trec (T120-T60) (0.30±0.19 vs. 0.19±0.20°C, $p=0.001$), demonstrating sensitivity to adaptation. **CONCLUSION**: HA reduces HI classification rate, but criteria differ in capturing presumed HT, and classify more females as HI in naïve and acclimated state.

NAME: METEHAN ÇAM
AFFILIATION: MECHANICAL ENGINEERING

TITLE

Hydration Water Drives Elastin’s Elasticity ***(POSTER #7)***

ABSTRACT

Elastic tissues in our arteries, skin, and lungs get their elasticity from elastin, a protein that lasts for decades. Scientists agree this elasticity is mostly an entropy effect–"freedom to move and explore"–but have debated whether that freedom is lost mainly by the protein or by the water surrounding it when stretched. Using long, all-atom simulations of a minimal model of elastin, we separated the two contributions. We find that stretching slightly limits the protein’s own motions, but it strongly orders the thin layer of water at its surface: water molecules bond more with each other, interact less with the protein, and become less free overall. This loss of water’s freedom outweighs the protein’s changes and provides the main push for the protein to recoil—clarifying the key source of elastin's elasticity.

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NAME: VIOLETA CHACÓN
AFFILIATION: RUDD CENTER FOR FOOD POLICY AND HEALTH

TITLE

Development of a Farm to School Assessment for Connecticut Districts: The CT Fresh Ed Compass (***POSTER #8)***

ABSTRACT

Background: We collaborated with the Connecticut State Department of Education to develop a Farm to School assessment for Connecticut districts.

Methods: Developing the CT Fresh Ed Compass was an iterative process that involved (1) establishing an Advisory Committee with experts in Farm to School practices, (2) developing a set of items to assess key constructs, (3) developing a website, (4) incorporating feedback from the Committee and food service directors to the assessment and website, and (5) pilot testing the assessment with a sample of Connecticut districts. Results: The assessment was organized into three sections: 1) Local and Regional Procurement, which included questions about the frequency of serving local or regional foods in USDA Child Nutrition programs; (2) Spending, with questions about spending on local and regional foods; and (3) Best Practices and Needs Assessment, with questions about the Farm to School practices across the cafeteria, classroom, community, and coordination. The website includes resources about relevant definitions (e.g., local and regional), recommended respondents and documentation needed, and resources to encourage staff members to complete the assessment. The website provides access to a summary of the results.

Conclusion: The CT Fresh Ed Compass provides a practical means for Connecticut districts to assess their Farm to School practices.

NAME: CAGAN DIYAROGLU
AFFILIATION: MECHANICAL ENGINEERING

TITLE

Damage Modeling of Ultra-Thin Films for Implant Encapsulations ***(POSTER #9)***

ABSTRACT

Flexible electronics utilizing thin organic substrates offer enhanced mechanical compliance with soft biological tissues, making them promising for wearable and implantable human-machine interfaces. However, challenges such as mechanical durability and functional longevity due to moisture permeation and thermal diffusion remain critical. This study investigates the degradation of thin encapsulation materials that influence lifespan when implanted in the human body under environmental conditions. We employ a combination of the traditional finite element (FE) method and peridynamic (PD) theory, the latter introduced by Dr. Silling as an extension of classical continuum mechanics. PD theory accounts for non-local interactions and provides a unique approach to capture discontinuities in the material, such as cracks, without requiring external crack-growth criteria. This methodology offers significant advantages for analyzing the failure of thin flexible electronic structures, addressing the need for improved resilience and longevity in practical applications.

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NAME: NING GUO
AFFILIATION: INSTITUTE OF MATERIALS SCIENCE

TITLE

General Purpose Nanocoating Against Various Electrical Hazards at Interface ***(POSTER #11)***

ABSTRACT

Interface is considered as an important but vulnerable insulation link in various applications. Numerous surface engineering methods are proposed to enhance the insulation; however, they are effective to specific electrical hazard and difficult to scale up. An "all-in-one" nanocoating is developed to solve various interfacial problem in a simple and scalable manner.

NAME: SHADI IZADIDEHKORDI
AFFILIATION: ALLIED HEALTH

TITLE

Preventing HIV Among People Who Use Drugs in a Methadone Clinic ***(POSTER #12)***

ABSTRACT

Cost-effectiveness analysis (CEA) of an integrated Bio-behavioral Community-friendly Health Recovery Program (CHRP-BB). This is a randomized clinical trial implementing a harm reduction strategy on the population receiving medications for opioid use disorder with elevated risk for HIV. It encompasses a behavioral compartment targeting high-risk sexual and drug injection sharing behaviors alongside a pharmaceutical compartment aiming to improve medication adherence to pre-exposure prophylaxis (PrEP), an approved medication to prevent HIV transmission in this high-risk population.

Measuring the effectiveness of a biobehavioral clinical trial is discussed. This includes clinical adherence measurement through dried blood spots alongside with measuring behavioral change using validated survey questions. Translation of intervention effect to a unified measure such as quality-adjusted life years (QALY), development of a compartmental dynamic transmission model to capture the intervention effect on a population level, and final outcomes of a CEA in terms of number of HIV-cases averted are addressed.

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NAME: JONATHAN MERCEDES FELIZ
AFFILIATION: PHYSICS

TITLE

Shaping Massive Galaxies at Cosmic Noon: How Black Holes and Stellar Winds Regulate Galaxy Growth ***(POSTER #14)***

ABSTRACT

Galaxies grow by pulling in gas, but powerful winds from stars and black holes can dramatically reshape that process. Using high-resolution cosmological simulations from the FIRE project, we study how stellar and black-hole feedback together regulate galaxy growth. When intense bursts of star formation occur, stellar feedback drives large winds that push gas out of the galaxy, creating a hot, low-density cavity surrounded by dense shells of gas. This expelled gas can pile up just outside the galaxy, eventually falling back in and fueling a new wave of star formation—and, later, black-hole activity. Meanwhile, black-hole-driven "quasar winds" can shut down star formation on larger scales. Together, these feedback cycles show how galaxies can alternately breathe out and in, self-regulating their growth over cosmic time.

NAME: MICHELLE NEITZEY
AFFILIATION: ECOLOGY & EVOLUTIONARY BIOLOGY

TITLE

Future Proofing a North American Forest Tree Through Genomics in a Rapidly Changing Climate (***POSTER #17)***

ABSTRACT

American Beech is a historically dominant, keystone tree species in eastern North American forests. However, invasive pests and pathogens, and climate change, are threatening the survival of this species. With modern genetics tools, we can identify regions of the genome associated with disease resistance and climatic traits to accelerate the pace of resilient tree breeding and subsequent restoration.

COFFEE BREAK

Outside the Theater

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NAME: CAO THUY GIANG NGUYEN
AFFILIATION: BIOMEDICAL ENGINEERING

TITLE

Innovative Material Platforms for Precision Therapeutics in Brain Tumors and Neurological Disorders (***POSTER #18)***

ABSTRACT

Effective treatment of brain cancer and neurological diseases is hindered by the limited penetration of therapeutics into brain tissue. My research focuses on designing bioengineered material platforms for targeted drug and gene delivery to overcome these barriers. By integrating nanotechnology, material science, and ultrasound-assisted delivery, I develop systems that enhance therapeutic transport, cellular uptake, and localized activity within brain tumors. This work advances next-generation approaches for precise, minimally invasive treatments. The presentation will highlight recent progress in ultrasound-responsive nanoparticles and implantable devices that achieve controlled delivery and immune modulation in glioblastoma models.

NAME: SWAYAM SAMPURNA PANIGRAHI
AFFILIATION: GLADSTEIN FAMILY HUMAN RIGHTS INSTITUTE

TITLE

Who Pays the Price for Our Clothes? Human Rights Issues in US–India Supply Chains ***(POSTER #19)***

ABSTRACT

Behind the fashion we wear lies a story of workers facing forced labor, child labor, and unfair wages in textile and apparel supply chains. My research compares the US and India to understand where these human rights risks are hidden and why they persist. The aim is to highlight how supply chains can protect people, while still generating profits.

NAME: AMAL PERERA
AFFILIATION: NATURAL RESOURCES AND ENVIRONMENT

TITLE

Teaching Computers to Read Climate Change: Frozen Ground and Human Footprints in the Arctic ***(POSTER #20)***

ABSTRACT

Accurate mapping of permafrost landforms, thaw disturbances, and human-built infrastructure at pan-Arctic scale using sub-meter resolution satellite imagery is increasingly critical.

Handling petabyte-scale image data requires high-performance computing and robust feature detection models. Vision Transformers (ViTs) offer advantages in capturing long-range dependencies and global context via attention mechanisms, similar to the success in transformer-based large language models (LLMs). ViTs support pretraining via self-supervised learning, addressing the common limitation of labeled data in Arctic feature detection. The Arctic domain also poses challenges for model generalization, especially when features with the same semantic class exhibit diverse spectral characteristics. To address these issues for Arctic feature detection, we integrate geospatial location embeddings into ViTs to improve adaptation across regions. This presentation will highlight the potential of transformer-based models with spatial awareness for Arctic Remote Sensing applications.

NAME: HOANG QUAN TRUONG
AFFILIATION: BIOMEDICAL ENGINEERING

TITLE

Novel Lipid-Based Nanoparticles for Biomedical Applications ***(POSTER #21)***

ABSTRACT

Lipid-based nanoparticles (LNPs) are tiny carriers (~50-200 nm) that can deliver drug and genetic molecules to specific parts of the body. My work has focused on developing new types of LNPs that improve the therapeutic efficacy, stability, and safety. By combining LNPs with advanced technologies, I aim to unlock their full potential for a wide range of clinical applications, including vaccines, cancers, and other diseases.

NAME: SHUYAN WANG
AFFILIATION: LINGUISTICS

TITLE

Syntax Development in Bimodal Bilingual Children ***(POSTER #23)***

ABSTRACT

There is a false belief that exposure to sign languages like American Sign Language (ASL) hinders spoken language development by deaf and hard of hearing (DHH) children and therefore should be avoided. This view has been fueled by studies that misleadingly compare language development of speech-sign bilingual children with monolingual children (cf. Holcomb et al. 2024). The current project extends investigation of language development across different bilingual groups, providing new evidence that early access to ASL does not hinder, and may even benefit, spoken English development. In particular, we collected longitudinal naturalistic language samples from five DHH children (2;03-4;01) during 30-minute adult-child play sessions, and analyzed longitudinal corpora of three American-born Mandarin-English bilingual children (1;07-4;11) acquiring Mandarin as a heritage language, from the Child Language Data Exchange System (CHILDES) (Mai & Yip 2017). We measured children's stages of syntactic development in English using the CHILDES Index of Productive Syntax, which analyzes the variety and complexity of syntactic structures of 50-utterance samples.

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NAME: YAKAI WANG
AFFILIATION: NATURAL RESOURCES & THE ENVIRONMENT

TITLE

A SIF-Driven Agroecosystem Model for Simulating Carbon-Water Coupling in U.S. Croplands ***(POSTER #24)***

ABSTRACT

Accurate simulation of carbon–water coupling is critical for predicting ecosystem responses to climate variability. We developed a solar-induced chlorophyll fluorescence (SIF)-driven version of the Dynamic Land Ecosystem Model (DLEM-SIF), where satellite SIF directly constrains canopy photosynthesis. The SIF-derived productivity is partitioned into sunlit and shaded leaves to regulate stomatal conductance and transpiration. Compared with the traditional model, DLEM-SIF more effectively captured drought-induced declines in productivity and water-use efficiency, while the traditional model tended to overestimate both. Regionally, DLEM-SIF reproduced finer spatial patterns in photosynthesis and efficiency that aligned with observed drought impacts. Sensitivity analysis identified photosystem efficiency and energy partitioning between heat and fluorescence as dominant factors influencing simulated productivity. Overall, SIF-driven modeling strengthens the representation of carbon–water interactions and provides a scalable approach for monitoring ecosystem function under climate stress.

NAME: XUDONG WU
AFFILIATION: INSTITUTE OF MATERIALS SCIENCE

TITLE

Colors in Motion: How Electricity Lights Up the Invisible World ***(POSTER #25)***

ABSTRACT

Imagine a material that can change its color instantly when you simply turn on an electric switch. This is a fascinating reality happening at the microscopic level! In our research, we explore this magical color change. We embed special "smart" molecules, which are initially colorless, inside a common plastic film. When we apply a pulsing electric field. The plastic film reacts and begins to release highly active fragments called free radicals. These radicals then trigger a chemical transformation in the "smart" molecules, forcing them to open up their structure and emit a vibrant red glow, visible under a fluorescence microscope. This journey from invisible to brilliant red demonstrates a dynamic conversation between electricity and matter. By watching these colors switch, we are creating a visual spectacle. From an academic perspective, it can indirectly help to understand the mechanism of electrical aging.

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NAME: LIANG ZHANG
AFFILIATION: NATURAL RESOURCES AND THE ENVIRONMENT

TITLE

Divergent Hydroclimate Responses to Natural and Anthropogenic Warming Across the Continental United States ***(POSTER #27)***

ABSTRACT

Regional hydroclimates under natural and anthropogenic warming are governed by external forcings and internal climate variability, yet the contrasts and mechanisms between these regimes remain poorly constrained. Here we combine paleoclimate data assimilation with Earth system model simulations to evaluate hydroclimatic responses to distinct warmings across the continental United States (CONUS). During pre-industrial warming, internal variability, especially the Pacific Decadal Oscillation, drove persistent drought in the western and southern CONUS by enhancing subsidence and limiting moisture inflow. In post-industrial warming, anthropogenic forcings, particularly greenhouse gases (GHGs) and land-use/land-cover change (LULC), emerged as dominant drivers. Relative to GHGs, LULC exerts stronger influence by maintaining a stable mid-to-lower tropospheric pressure configuration and redirecting moisture transport, thereby intensifying drought across the central and northern Plains. These results highlight the need to disentangle internal variability from anthropogenic forcings to improve hydroclimate projections in Earth system models and to inform land management for effective adaptation.

NAME: YANG ZHANG
AFFILIATION: MECHANICAL, AEROSPACE AND MANUFACTURING ENGINEERING

TITLE

How Smart Sensors Help Structures Tell Their Stories ***(POSTER #28)***

ABSTRACT

Every structure undergoes subtle changes long before visible damage appears. Yet identifying where and how these early degradations occur is like solving a sparse puzzle with limited clues. In this talk, I will show how smart sensors combined with reinforcement learning and optimization can help structures “tell” their hidden stories. By analyzing sparse measurement data, our framework adaptively explores the most informative sensing regions and learns to pinpoint local damage without exhaustive search. The approach transforms a complex inverse problem into a guided decision process, enabling efficient and interpretable detection of small-scale defects. This study demonstrates how intelligent exploration strategies can make structural health monitoring not only data-driven but also decision-aware, allowing engineers to extract meaningful signals from limited observations and better understand how structures evolve under stress.

JUDGES

Michelle Cote

Michelle Cote serves as Interim Director of the Werth Institute at the University of Connecticut, and leads educational programming for the Connecticut Center for Entrepreneurship & Innovation (CCEI), at the UConn School of Business. In these roles, Michelle delivers programs that help students and faculty build skills critical for innovation, and supports the development of new ventures at the University.

Michelle also contributes to the City of Hartford's innovation and entrepreneurship community, through leadership of Launc[H], which has worked with the State of Connecticut and over 30 corporations, colleges and universities, and community organizations, to invest $15M in programs which have cemented Hartford's reputation as a key center of InsurTech and digital health innovation, and set the groundwork for the city's current strategy to become a center of excellence in applied AI.

Michelle's other professional experience includes providing coaching and technical assistance to entrepreneurs in South America and Afghanistan in partnership with USAID and the Department of State; founding and leading a social enterprise called The Purpose Project; and designing and launching an accelerator, focused on social enterprise for reSET, in Hartford, Connecticut.

Kent Holsinger

Kent Holsinger served as Vice Provost for Graduate Education and Dean of The Graduate School from 2012 until his retirement in 2024. He earned his PhD in biological sciences at Stanford University. He held postdoctoral positions at the University of California, Berkeley and the University of California Davis before joining UConn as an assistant professor in the Department of Ecology & Evolutionary Biology. In 2012, he was appointed as a Board of Trustees Distinguished Professor — the university's highest faculty honor.

Holsinger's research spans theoretical population genetics, plant population genetics and evolution, evolution of plant mating systems, conservation biology, plant systematics, and molecular evolution. Among his many contributions is the co-edited book Genetics and Conservation of Rare Plants (Oxford, 1991), regarded as a foundational work in plant conservation.

Holsinger has taught a broad range of courses, from introductory biology for majors to graduate courses in population genetics and conservation biology. He served as a major advisor to 14 graduate students and as an associate advisor to more than 70 graduate students in at least 8 different academic programs.

He has also been a longtime advocate for open-access publishing. He served from 2000 until 2022 Chair of the Board of Directors for BioOne, a not-for-profit initiative providing affordable access to scholarly journals in organismal and environmental biology.

Holsinger is an elected Fellow of the American Association for the Advancement of Science (AAAS) and a member of the Connecticut Academy of Science and Engineering. In 2006, he received the Centennial Award from the Botanical Society of America.

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JUDGES

Emily Shearier

Emily R. Shearier, PhD, CCRP, is the Research Operations Manager at Hartford HealthCare Research. In this role, she works at the intersection of research, technology, and strategy- overseeing initiatives in research technology and AI implementation, academic partnerships and learner programs, research value optimization, and communications.

Dr. Shearier earned her PhD in Biomedical Engineering from Michigan Technological University, with a focus on tissue engineering and bioresorbable metals, and completed a postdoctoral fellowship at UConn Health. She joined Hartford HealthCare in 2019 as a Clinical Research Associate at the Bone and Joint Institute, and has since progressed through roles as Research Navigator and Senior Scientist before stepping into her current position. Her career path reflects a transition from bench science to research operations- leveraging her scientific training to build infrastructure and enable researchers across the health system.

Hartford HealthCare Research Administration is currently hiring for a Senior Scientist/Project Manager position, supporting complex research projects through protocol design, biostatistical analysis, and scientific publication. Interested candidates can reach out to learn more. And if you'd like to see what research is happening across Hartford HealthCare, follow us on LinkedIn at Hartford HealthCare Research.

Matthew Mroz

Dr. Mroz leads UConn's Research Development efforts, overseeing the OVPR's efforts to support faculty research advancement and external funding success. His portfolio includes OVPR Internal Funding and research support programs, research opportunity matching, enhancement of collaboration/team science, research development training and education, and proposal development support. He also contributes to research strategy discussions and the building of external partnerships. He has a PhD in English Literature and Rhetoric and extensive experience in teaching, scholarship, and academic administration.

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CAREER PANEL

Spencer Glantz

Spencer Glantz is a co-founder and Vice President of Research & Development at Detect, Inc., a CT based startup developing "point-of-need" diagnostic tests to increase access to testing, improve patient outcomes, and reduce healthcare costs. He is also a Board Member at RNAConnect, a startup which develops next-generation enzymes to unlock breakthrough applications in omics and molecular biology. He is passionate about both biology and building companies that improve the world we live in. He holds a PhD in Bioengineering and a B.S.E. in Chemical Engineering from the University of Pennsylvania.

Dr. Rachel Prunier

Dr. Rachel Prunier earned her PhD from UConn in Ecology and Evolutionary Biology in 2010. She then completed a post-doc at Michigan State University's Kellogg Biological Station where she was also employed as the Assistant Director of Undergraduate Education. She followed the faculty path, becoming an assistant and associate professor at Western Connecticut State University but then shifted careers to support her husband's academic career at UCLA. In 2023 she returned to UConn in her current role supporting graduate students and post-docs at UConn's Center for Excellence in Teaching and Learning. Her postdoctoral experience was requisite for her academic career, and the skills she gained at MSU have been useful outside of the classroom as well. When she isn't at work, she loves tending her garden, reading with her kids, and learning to play the guitar.

Emily Shearier

Emily R. Shearier, PhD, CCRP, is the Research Operations Manager at Hartford HealthCare Research. In this role, she works at the intersection of research, technology, and strategy- overseeing initiatives in research technology and AI implementation, academic partnerships and learner programs, research value optimization, and communications.

Dr. Shearier earned her PhD in Biomedical Engineering from Michigan Technological University, with a focus on tissue engineering and bioresorbable metals, and completed a postdoctoral fellowship at UConn Health. She joined Hartford HealthCare in 2019 as a Clinical Research Associate at the Bone and Joint Institute, and has since progressed through roles as Research Navigator and Senior Scientist before stepping into her current position. Her career path reflects a transition from bench science to research operations- leveraging her scientific training to build infrastructure and enable researchers across the health system.

Hartford HealthCare Research Administration is currently hiring for a Senior Scientist/Project Manager position, supporting complex research projects through protocol design, biostatistical analysis, and scientific publication. Interested candidates can reach out to learn more. And if you'd like to see what research is happening across Hartford HealthCare, follow us on LinkedIn at Hartford HealthCare Research.

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NETWORKING AND POSTER SESSION

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NAME: LIANA BARBOSA
AFFILIATION: PATHOBIOLOGY AND VETERINARY SCIENCE

TITLE

Evaluation of Novel Adjuvant Formulations to Increase Vaccine Efficacy Against Leptospirosis (***POSTER #2***)

ABSTRACT

Leptospirosis is an important zoonosis that causes more than 1 million human cases and 60,000 deaths a year, with the real impact in animal health still underestimated. There are no human vaccines available and current commercial vaccines for animal use present several limitations as short-term protection, failed to protect against all pathogenic Leptospira spp., and collateral effects after vaccination. The use of immunogenic Leptospira proteins as vaccine candidates represent a potential alternative to prevent infections in humans and animals. LigA protein it is a promising protective vaccine target; however, in association with traditional adjuvants, it has failed to prevent kidney colonization by the bacteria. In this study, we immunized hamsters with LigA protein associated with three new adjuvants formulations (Addavax, IVAX1 and DOTMA LNP) and evaluated the potential of these adjuvants to induce a protective and sterilizing immune response against leptospirosis.

NAME: JESSICA BOURGET
AFFILIATION: EDUCATIONAL PSYCHOLOGY

TITLE

Examining the Effects of Educational Television on Preschool Literacy Skills ***(POSTER #5)***

ABSTRACT

This poster presents the findings from a randomized control trial conducted looking at the effect of a television show geared towards developing young children's reading skills—Reading Buddies—on preschool student's literacy outcomes. Results indicated statistically significant effects of the treatment on standardized measures of phonological awareness, and meaningful effects on researcher-created measures of phonological awareness and letter knowledge. Audience members will learn about the process for breaking down an educational program into measurable skills, and the benefits and challenges of using a television program to support learning with preschool children.

NAME: GANG GE
AFFILIATION: INSTITUTE OF MATERIALS SCIENCE

TITLE

Injectable and Biodegradable Piezoelectric Hydrogel for Osteoarthritis Treatment ***(POSTER #10)***

ABSTRACT

Osteoarthritis (OA) characterized by cartilage degradation and subchondral bone remodeling is a prevailing joint disease worldwide, leading to cartilage loss and chronic inflammation.

Current clinical treatments adopt analgesics and symptom management for pain relief but fail to delay the degenerative OA process or secure the restoration of degraded cartilage. Herein, an injectable, biodegradable, and piezoelectric hydrogel is proposed by utilization of the thermally induced and template-assisted nanofibers (TITAN) of poly(l-lactic acid) (PLLA) nanofibers (NFs), which is embedded in the collagen matrix. TITAN hydrogels in situ injected into the knee joint self-generate electrical cues under ultrasound stimulation to facilitate chondrogenesis and cartilage regeneration. In vitro studies demonstrate that the TITAN hydrogel under ultrasound induce stem cell migration and recruitment, and secretion of TGF-β1, promoting chondrogenesis. This injectable and piezoelectric hydrogel not only holds great potential for cartilage healing but also paves the way for developing a significant platform for tissue engineering.

NAME: ANKIT LADDHA
AFFILIATION: PHARMACOLOGY & TOXICOLOGY

TITLE

MRP4 Deficiency Drives Lipid Metabolism Dysregulation and Adipose Tissue Inflammation Through cAMP-CREB-CRTC2 Activation ***(POSTER #13)***

ABSTRACT

Multidrug resistance-associated protein 4 (MRP4) is a protein that helps remove unwanted substances from cells. Our earlier research showed that when mice lack this protein (MRP4-/-), they tend to become obese and develop diabetes. To understand this better, we fed these mice a high-fat, high-sugar diet for 24 weeks and studied their metabolism and fat tissue. Compared to normal mice, MRP4-/- mice gained more weight, had higher blood sugar and cholesterol levels, and showed poor insulin response. Their fat tissue became larger, more inflamed, and showed signs of scarring (fibrosis). We also found higher levels of certain molecules (cAMP, P-CREB, and CRTC2) that signal inside cells, suggesting that this pathway becomes overactive when MRP4 is missing. Overall, our findings suggest that the loss of MRP4 disrupts fat metabolism, increases inflammation and fibrosis in fat tissue, and contributes to obesity and diabetes under a high-fat diet.

NAME: SANTIAGO MONSALVE
AFFILIATION: PATHOBIOLOGY AND VETERINARY SCIENCE

TITLE

Frequency of Agglutinating Antibodies Against Leptospira in Capybaras (Hydrochoerus hydrochaeris) from the Casanare Floodplain Savanna, Colombia ***(POSTER #15)***

ABSTRACT

Leptospirosis is a neglected zoonotic disease caused by pathogenic Leptospira spp., transmitted through contact with contaminated water or soil. To assess exposure in wildlife, 173 serum samples from wild capybaras (Hydrochoerus hydrochaeris) inhabiting the Casanare floodplain savanna (Colombia) were analyzed using the Microscopic Agglutination Test (MAT) with 32 antigens representing 23 serogroups.

Fifty-four samples (31.2%) were seropositive, mainly to Icterohaemorrhagiae (27.8%), Australis (27.8%), and Ballum (16.7%) serogroups, with most titers ranging from 1:100–1:200. These findings indicate frequent environmental exposure of capybaras to pathogenic Leptospira spp. and suggest potential epidemiological links between wild and domestic fauna. This study provides the first serological evidence of Leptospira exposure in Colombian capybaras and highlights their potential role as sentinel species within the One Health framework.

NAME: SEYAD SHEFRIN NAINA MOHAMED BASIL
AFFILIATION: MOLECULAR AND CELL BIOLOGY

TITLE

Multi-Scale Simulations Reveal AAC2–Respiratory Super-Complex Interactions in the Mitochondrial Membrane ***(POSTER #16)***

ABSTRACT

The ADP/ATP carrier AAC2 (ANT1 in humans) exchanges nucleotides across the mitochondrial inner membrane and functions as an essential transporter in isolation. However, AAC2 has also been observed to associate with the respiratory super-complex (RSC), composed of Complex III and IV, though the molecular basis and significance of this interaction remain unclear. Protein–protein docking and coarse-grained molecular dynamics simulations were used to investigate AAC2–RSC interactions. Docked complexes consistently converged to a single binding region distinct from initial poses. Principal component analysis of the free-energy landscape identified low-energy conformations, which were back-mapped to all-atom models. These models revealed stable binding interfaces and highlighted key residues involved in the interaction. Simulations further identified cardiolipin binding regions in AAC2 that may stabilize its association with the RSC. Our findings provide a structural framework for understanding potential AAC2–RSC interactions and generate hypotheses for mutagenesis experiments, offering new insight into how mitochondrial carrier proteins may engage with respiratory assemblies.

NAME: ALTAN UNLU
AFFILIATION: EVERSOURCE ENERGY CENTER

TITLE

Weather Enhanced Experiments for Risk Contingency Management During Hazards for Power Systems ***(POSTER #22)***

ABSTRACT

Extreme weather events such as hurricanes, heatwaves, and storms are increasing in frequency and intensity due to climate change and threatening the severe risks to power grid infrastructure. These events lead to widespread outages, cascading failures, and diminished grid resilience. This presentation addresses key concerns for the weather and power industries by simulating and analyzing the connection between weather systems and power grid vulnerabilities. Our work conduct experiments for past events in detail will generate extensive data to design contingency strategies during weather hazards and to discover the cascading failures, fragility curves, and monitoring needs.

NAME: TASNIM ZAMAN
AFFILIATION: ENVIRONMENTAL ENGINEERING

TITLE

Toward Better Offshore Wind Forecasts: Evaluating WRF Model Configurations with WFIP3 Observations in the Northeastern U.S. (***POSTER #26***)

ABSTRACT

Despite continual advances in numerical weather prediction, key uncertainties persist in how boundary-layer physics schemes reproduce hub-height wind fields, turbulence structure, and stability in offshore environments, especially as turbine rotors expand into the 100~200 m portion of the lower atmosphere where routine observations remain sparse. To address these gaps, this study presents a comprehensive evaluation of Weather Research and Forecasting (WRF) model configurations for offshore wind forecasting, leveraging high resolution measurements from the third Wind Forecast Improvement Project (WFIP3) in the Northeastern U.S. Particular attention is given to meteorological features critical for offshore wind prediction, including synoptic systems (e.g., frontal passages, high/low pressure patterns), as well as local phenomena like low-level jets and sea breezes. These atmospheric processes significantly impact hub-height winds and are often underrepresented in mesoscale models.

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