

# **2025**

## **SPRING**

### **UNDERGRADUATE**

#### **RESEARCH**

##### **CONFERENCE**

**APRIL 10**

**RESEARCH TALKS**  
**LLLC COLLOQUIUM**  
**CELEBRATE SHOWCASE**



# ***SCHEDULE OF EVENTS***

## ***APRIL 8, 2025 | PMU BALLROOMS***

- 9:00AM-10:00AM Poster Session 1
- 10:30AM-11:30AM Poster Session 2
- 12:00PM-1:00PM Poster Session 3
- 1:30PM-2:30PM Poster Session 4

## ***APRIL 10, 2025 | STEW 214 & 218***

- 9:00AM-5:00PM Research Talks
- 9:30AM-4:00PM Literature, Linguistics,  
Languages, & Culture  
Colloquium

## ***APRIL 10, 2025 | STEW 206***

- 10:00AM-11:00AM Final Call Session
- 1:00PM-3:00PM Celebrate Showcase

## ***APRIL 8-11, 2025 | ONLINE***

**Virtual presentations**

*View them at [purdue.edu/undergrad-research/conferences/spring](https://www.purdue.edu/undergrad-research/conferences/spring)*

We encourage those with a Purdue account to provide feedback.

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[bit.ly/PURC2025](https://bit.ly/PURC2025)



# RESEARCH TALKS

Only presenting authors and mentors (\*) are listed. Contributing authors and acknowledgements are listed in the abstract booklet online.

## RESEARCH TALK SESSION 1 | 9:00-10:00

### ROOM: STEW 214B

- 9:00 Modeling and Mitigating Lunar Habitat Disruptions  
**7000** *Aaryan Sachin Lath; Karen Marais\**
- 9:20 Research and Development towards a Carbon-Fiber wire based drift chamber for Future Lepton Colliders  
**7001** *Gino Christian Daniels; Andy Jung\*; Sushrut Karmarkar\**
- 9:40 Smart Prosthetics Through Deep Learning: A Comparative Study of Neural Architectures for Real-Time Activity Recognition  
**7002** *Johnny Kamal Anton Hazboun; Aidan Cole Villegas; Andres Torres\*; Mo Rastgaar\**

### ROOM: STEW 214C

- 9:00 AI for Education  
**7003** *Zhenghao Xu; Colby Ben Acton; Alexander Peter Siladie; Samuel Enoch Jebaraj; Saimaurya Kanagala; Ryan James Hirsch; Shrey Agarwal; Sun Hong H Park; Kaya Tacer; Sarath Rajesh; Zichen Miao\**
- 9:20 Adaptive Speech Reconstruction Interface with AI (ASRIA): A Wearable-LLM Framework for Aphasia Rehabilitation  
**7004** *Philip R Liu; Richard John Silvester; Wenzhuo Wu\*; Robert Jose Corahua santo\*; Jing Jiang\**
- 9:40 Evaluating Blood Velocity Changes in Thoracic Aneurysm Progression for Rupture Risk Assessment  
**7005** *Suhani Lodha; Cortland Hannah Johns\*; Craig Goergen\**

### ROOM: STEW 214D

- 9:00 Reviving SLIP: Lightweight Networking for AFTx07  
**7006** *Jiaming Situ; Cole Aaron Nelson\**
- 9:20 The Evolution of Tyrosine Kinase Activity and Chance; Contingency; and Necessity in Evolution  
**7007** *Michael David Gardner; Brian Patrick Ha Metzger\**
- 9:40 Regime Switching Financial Model with Signature  
**7008** *Yang Lyu; Kiseop Lee\*; Jiwon Jung\**

### ROOM: STEW 218A

- 9:00 Modeling Drug Transport in the Umbilical Cord: Fetal Membrane  
**7009** *Annika Mallari Munjal; Emma Elizabeth Wagner; Morgan Stephens; Dipali Rebecca Abraham; Ishaan Pratap Singh; Mira Nimesh Patel; Alexander Carnevale; Arezoo Ardekani\*; Ryan B Wagner\**

9:20 Prioritization of HPV Vaccine Preventable Diseases Among  
**7010** Emerging Adults – Implications for Health Education and  
Communication  
*Caroline Rhea Packee; Avery Grace Brubaker; Shandey Derisa  
Malcolm\*; Monica Kasting\*; Samantha L. Ky\**

9:40 A qualitative analysis of cyclical patterns in bobcat movement in  
**7011** relation to seasonal flooding and species life history  
*Sierra Hunnicutt; Kristen Marie Bellisario\**

## **ROOM: STEW 218C**

9:00 More than Financial Risk: Harassment and Financial Dependence in  
**7012** the Gig Economy  
*Julieta Claudia Aguilar; Jeremy E Reynolds\**

9:20 Tradwives: Understanding the effectiveness of grassroots social  
**7013** media specialists  
*Marissa Elizabeth Velazquez; Spencer Dean Stewart\**

9:40 Uncovering the Intentions behind the Unjust Conviction and  
**7014** Imprisonment Statute  
*Emma Lynn Johnson; Logan Strother\**

## **RESEARCH TALK SESSION 2 | 10:00-11:00**

## **ROOM: STEW 214B**

10:00 Pulse Flow Reverse Osmosis System for Home Scale Use  
**7015** *Lucca Su Mo; Jose M Garcia Bravo\*; Ali Naderi Beni\*; Jarrod F  
Robbins\*; David Warsinger\**

10:20 Power; Performance; and Area Optimization of SoCET's AFTx07  
**7016** Chip  
*Ammar M Mukadam; Timothy Francis Hein\*; Mark Johnson\**

10:40 Investigating Combustion Instabilities in Turbulent Jet Ignition for  
**7017** Internal Combustion Engines  
*Mo Chen; Afaque Alam\*; Li Qiao\**

## **ROOM: STEW 214C**

10:00 Modeling metabolic dysfunction-associated fatty liver disease using  
**7018** liver organoids  
*Anna Catherine Dressman; Sunghee Park\**

10:20 Snake Tongue Flicking Project  
**7019** *Aditya Kumar; Pranjal Anand\*; Pavlos Vlachos\**

10:40 Identity Negotiation among LGBTQ+ Youth Experiencing Housing  
**7020** Insecurity through a Localized Engineering Program  
*Maerianna Jane Artang; Dhinesh Balaji Radhakrishnan\*; Jennifer J  
DeBoer\**

## **ROOM: STEW 214D**

10:00 Sensory Synergy: How a Frog-Biting Mosquito Uses Multimodal  
**7021** Cues for Host-Seeking  
*Anna Judy Lozen; Ximena Bernal\*; Richa Singh\**

10:20 Streamlining Proteomics Data Analysis: A Full-Stack Application and  
**7022** Statistical Pipeline for Enhanced Accuracy and Interpretation  
*Nathan Xuheng Li; Vatsal Sanjeevkum Dudhaiya; Tingyu Yin; Rachel Catherine D'Souza; Purav Matlia; Isaac Kojima Shane; Marco Hadisurya\*; Amirhesam Mashaollahi\*; Zhuojun Luo\**

10:40 Identifying potential enhancers of regeneration after zebrafish spinal  
**7023** cord injury  
*Nikhil Samit Sadavarte; Daniel Suter\**

## **ROOM: STEW 218A**

10:00 Researching the Old Naval Observatory  
**7024** *Alyssa Marie Berger; Marisa Rose Crescent; Ashima Krishna\**

10:20 Assessing Learning Gains in Energy-Focused Research Experience  
**7025** for Undergraduates (REU) Program  
*Rhea Dutta; Lisa B Bosman\**

10:40 Ecological impact of deer control hunts on wildlife activity in Indiana  
**7026** *Antonia Christina Alexiou; Kristen Marie Bellisario\**

## **ROOM: STEW 218B**

10:00 Data Mining for CityBus Ridership  
**7027** *Neha A Venkatraman; Esther L Larson; Jaden R Azar; Harshini Malarvannan; Xing Wang\**

10:20 Enhancing Healthcare Decision-Making with Explainable Generative  
**7028** AI  
*Chase Nicholas Hamdan; Yash Rajendra Ashtekar; Utkarsh Bali; Pengyi Shi\**

10:40 Smart Cookies: A Predictive Approach to Girl Scout Cookie Sales  
**7029** *Gabriel Morales Nunez; Rishita Korapati; Davi Cordeiro Moreira\**

## **ROOM: STEW 218C**

10:00 Play that Funky Music Pekin Ducks Part 1: Effects of Auditory  
**7030** Enrichment on Pekin Duck Welfare  
*Brynn Camille Peterson; Gabriella Emilia Chambers; Grace Catherine Ayres; Emma Lynn Stuart; Greg Fraley\*; Jenna M Schober\**

10:20 Play that Funky Music Pekin Duck Part 2: Effects of Auditory  
**7031** Enrichment on production variables.  
*Grace Catherine Ayres; Gabriella Emilia Chambers; Brynn Camille Peterson; Emma Lynn Stuart; Greg Fraley\*; Jenna M Schober\**

10:40 Effects of Colostrum or Milk Replacer Feeding on Sertoli Cell  
**7032** Proliferation and Seminiferous Tubule Area of Neonatal Male Piglets  
*Addison Mae Hill; Theresa M Anderson\*; Linda Marie Beckett\**

# **RESEARCH TALK SESSION 3 | 11:00-12:00**

## **ROOM: STEW 214B**

11:00 Using Reinforcement Learning for Automating Robot Path Planning  
**7033** in Manufacturing  
*Aditya Manoj Nair; Jaeun Kim\**

- 11:20 Utilizing the CycleGAN Architecture for Motion-Correction in HR-  
**7034** pQCT Imaging  
*Anika Mathur; Farhan Sadik\*; Rachel Kathleen Surowiec\**
- 11:40 Synthetic Data Generation for Enhanced Electric Vehicle Charging  
**7035** Demand Prediction  
*Jaewon Cho; Alexa Joan Noto; Akanksh Rao; Ankitha Mallekav; Sivaranjani Seetharaman\**

## **ROOM: STEW 214C**

- 11:00 Enhancing Diagnostic Accuracy of Atrioventricular Valve  
**7036** Regurgitation in Single Ventricle Hearts Using Machine Vision Algorithms  
*Haseung Jun; Brett A Meyers\**
- 11:20 Embodied Learning in Statistics: Using Gestures to Enhance  
**7037** Statistical Reasoning of Regression and Correlation  
*Zhengyi Jiang; Jason Wade Morpew\*; Junior Anthony Bennett\**
- 11:40 Acoustic Levitation for Additive Manufacturing  
**7038** *Quintin David Dumouchelle; Michael P Sealy\*; Luz Sotelo\**

## **ROOM: STEW 214D**

- 11:00 Multi-step Enzymatic Retrosynthesis using Monte Carlo Tree Search  
**7039** *Danny Andre Thornewell; Karthik Sankaranarayanan\*; Olga Costa Alves Souza\**
- 11:20 Optimizing Platinum Nanoparticle Deposition for Enhanced Stability  
**7040** in Electrochemical Aptamer-Based Sensors  
*Sirish Meher Reddy Kayam; Vanshika Gupta\*; AnhThu Pham\*; Jeffrey Edward Dick\**
- 11:40 Artificial Intelligence in Music - Computer Vision  
**7041** *Gurtej Singh Bagga; Trevor Mission Ju; Benjamin Joseph Taylor; Jackson Patrick Shields; Dinmukhamed Mukhtar Tynysbay; Han Li; Hanako S Keney; Paige Lorenz; Aneesh Pendyala; Yumin Kim; Yeon Ji Yun\*; Yung-Hsiang Lu\**

## **ROOM: STEW 218A**

- 11:00 Cultivating Cultural Awareness and Professional Growth: Reflections  
**7042** on Internship Experiences at Purdue's AAARCC.  
*Jae Yon Kim; Pamela Sari\**
- 11:20 The Inclusive Space Project: Adapting Physical Lab Spaces to Serve  
**7043** All Students  
*Frances Margaret Bajorat; A.J. Schwichtenberg\*; Amy Janis\*; Moon Rae West\**
- 11:40 Title: Sex Differences in Social Isolation Effects on Compulsive  
**7044** Related Behavior in Crossed High Alcohol Preferring Mice  
*Caitlin Alexandra Williams; Julia Chester\**

## **ROOM: STEW 218B**

- 11:00 Human vs. AI: Efficacy of LLMs in Performing Thematic Analysis  
**7045** *Jose Jorge Bueso; Vidya Reddy Madana; Prateek Jaiswal\*; Aparajita Jaiswal\**

11:20 Analysis of Rental Markets at Big Ten Universities

**7046** *Jakub John Jasinski; Michael Donald Eriksen\**

11:40 Crypto-Mining Integrated Software

**7047** *Jonathan S Carr; Samuel Joshua McBroom; Stewart F Bauserman\*; Steven R Dunlop\*; Saanvi Singh\**

## **ROOM: STEW 218C**

11:00 Comparative measurement of sow shoulder sore response to

**7048** common and novel treatments

*Abagayle Caitlin Wright; Allan Schinckel\*; Andrew James Fisk\**

11:20 Balancing Science and Society: A Solution for Long-term Nuclear

**7049** Waste Management; Finland's Onkalo Deep Geological Repository

*Abigail Elizabeth Preston; Austin Rory Cooper\*; Miriam Marina Barnum\**

11:40 The Black Genealogical Research Project: Hill-Williams-Coleman

**7050** Family of South Bend

*NahShon Zion Williams; Ashima Krishna\**

## **RESEARCH TALK SESSION 4 | 12:00-1:00**

### **ROOM: STEW 214B**

12:00 Investigating the role of cell-cell communication and size in Calcium

**7051** wave propagation

*Kenneth David Siefken; FNU Nilay Kumar\**

12:20 Anchor Testing in Reinforced Concrete Structures

**7052** *Hamond Rahardjo; Deepak Suthar\**

12:40 Refining Text Detection using Transfer Learning and a Unified

**7053** Approach to Text Localization and Transcription

*William Henry Stevens; Karthik Selvaraj; Gabriel A Torres; Leo Ross Benaharon; Surya Teja Sripathi; Fengqing Zhu\*; Carla Zoltowski\*; Edward J Delp\*; Soudabeh Taghian Dinani\**

### **ROOM: STEW 214C**

12:00 Using RNA Sequencing to Evaluate Exercise as an Intervention for

**7054** Unloading-Induced Joint Degeneration

*Allison Faye Matovic; Mikayla Angelique Roach\*; Ruth Singh\*; Deva Chan\**

12:20 Development of a Novel Wave-Powered Dual-Stage Pulse-Flow

**7055** Reverse Osmosis System

*Nikitha Sam; Diya Banerjee; Ryan Kumar San Juan; Nishtha Singh; Trysta Dephin Chiang; Lily Avery Waterman; Alex Joseph Nagel; Benjamin C Martin; Zihao Qin; David Warsinger\*; Jose M Garcia Bravo\**

12:40 BrainTrain: Human Behavior Alignment Improves the Robustness of

**7056** Neural Networks

*Bharath Anand; Ananth Y Grama\**

## ROOM: STEW 214D

- 12:00 A Triangular Ladder of Superconducting Qubits for Quantum  
**7057** Simulation  
*Santiago Lopez; Alex Ruichao Ma\**
- 12:20 MicroRNA-31 Regulates Neutrophil Migration and Activation  
**7058** *Elizabeth Christine Farrell; Tyler Renee Pikes\**
- 12:40 Automation Methods for Gamma Ray Spectroscopy and Data  
**7059** Analysis  
*James Thomas Pittard; Mason Patrick Julius Levere; Sydney Metz;  
Andy Jung\**

## ROOM: STEW 218A

- 12:00 The Impact of Children's Sensory Perception Abilities on Early  
**7060** Lexical Development  
*Victoria Tuell; Arielle Borovsky\*; Philip Robert Curtis\**
- 12:20 Effects of Hearing Impairment and Cognitive Load on Postural Sway  
**7061** *Mia An-Mei Schmetter; Alexander L Francis\**
- 12:40 Ultrastructural Characterization of White Adipose Tissue in Albumin  
**7062** Knockout Mice  
*Yen-hsi Lai; Gregory C Henderson\**

## ROOM: STEW 218B

- 12:00 In Silico Analysis of Calmodulin-Calcium Binding Sites and their  
**7063** effects on Adenylyl Cyclase 1 Activation  
*Shreya Krishnan; Jianing Li\*; Tongtong Li\*; Talon Hicks\**
- 12:20 Engineering Stable HEK293T Viral Production Cells to Achieve High  
**7064** Lentiviral Vector Titer for Cell-based Immunotherapy  
*Khanh Ha Nguyen; Sandro Matosevic\*; Soumyajit Das\**
- 12:40 Optimization of Diphyllin Analog Solubility for Ebolavirus Treatment  
**7065** as a V-ATPase Inhibitor  
*Oliver Hu; Vincent Jo Davisson\**

## ROOM: STEW 218C

- 12:00 How Audience Relations; University Practices; and Logistics of  
**7066** Student Journalism Impact the Journalistic Practices Used by  
Student Journalists  
*Makenzie Lee Albert; Taylor Gloria Vic Graham; Yaajushi Valluri;  
Rachel Fundator\*; Clarence Maybee\**
- 12:40 Laponite-based clay inks for natural material 3D printing  
**7067** *Emily Katherine Slotegraaf; Maria Caterina Santagata\*; Luis Enrique  
Garzon Sabogal\*; Tejas Gorur Sreenivasa Murthy\**



## RESEARCH TALK SESSION 5 | 1:00-2:00

### ROOM: STEW 214B

- 1:00 Deep Learning for Enhanced Subvisible Particle Analysis in Auto-Injector Devices  
**7068** *Jiwon Seo; Sai Aiswarya Sadagopan; Samskrithi Sivakumar; Jinhwan Kwon; Anika Mathur; Brett A Meyers\*; Pavlos Vlachos\*; Reza Babakhani Galangashi\**
- 1:20 Synthesizing and Understanding Facility-Level Water Consumption Datasets in Computing at Scale  
**7069** *Isha Shamim; Jaewon Cho; Yi Ding\*; Inez Hua\**
- 1:40 Optimizing Application Software for Greater Energy Efficiency using Large Language Models  
**7070** *Rishi Mantri; Arjun Sandeep Gupte; Chien Chou Ho; Leo Deng; Michael Lie Setiawan; James C Davis\*; Huiyun Peng\**

### ROOM: STEW 214C

- 1:00 Adaptive Trip Extraction from GPS Data: A Context-Sensitive Approach  
**7071** *Mahit Bheema; Satish V Ukkusuri\*; Shagun Mittal\**
- 1:20 Real-Time Agent Motion Prediction and Overtaking in Multi-Agent Autonomous Racing Using Deep Neural Networks  
**7072** *Myron Milad Tadros; Abdelrahman Ahmed Safw Eissa; Ahmed Sayed Omar Omar; Bola Yosry Zaky Warsy; Omar Ahmed Roshdi Badawi Abousheishaa; Rohin Rajesh Nair; Andres Felipe Hoyos Moreno\*; Samuel Labj\**
- 1:40 Rapid Diagnostic Test for HPV 16 & 18  
**7073** *Francesca Chiara Hamacher; Jacqueline Linnes\*; Karin F K Ejendal\**

### ROOM: STEW 214D

- 1:00 Exploring Protein Environmental Effects on the Vibrational Spectrum of Chlorophyll a at Room Temperature  
**7074** *Sarah A Alvarez; Michael Earl Reppert\**
- 1:20 Reducing Hallucination in LLM-based Scientific Literature Summarization Using Peer Context Outlier Detection  
**7075** *Daniel C Xie; Yexiang Xue\*; Maxwell Joseph Jacobson\**
- 1:40 Wildfire Impacts on Air Quality in the Midwestern United States  
**7076** *Parth Thakre; Gouri Gouri Prabhakar\**

### ROOM: STEW 218A

- 1:00 From BirdNet to BugNet: Leveraging AI to enhance Cicada Detection with comparison to bird calls  
**7077** *Zhixin Cai; Kristen Marie Bellisario\*; Christine Harrison Elliott\**
- 1:20 Mapping Wildlife-Vehicle Collision Hotspots in Indiana: Impacts & Implications on Wildlife Corridor Success  
**7078** *Lukas Benjamin Kraft; Kristen Marie Bellisario\**

1:40 An Assessment of Student Participation in the NSF REU Site:  
**7079** Growing Entrepreneurially-Minded Undergraduate Researchers with  
New Product Development in Applied Energy  
*Ava Thant Samuel; Lisa B Bosman\**

## **ROOM: STEW 218B**

1:00 PCNA-NKp44 Interaction Provides Avenue for Immunotherapeutics  
**7080** *Jenna Yeager; Vincent Jo Davisson\**

1:20 Targeting High-risk HPV E6: Structure Based E6-p53 Inhibition  
**7081** *Sungyu Choi; Vincent Jo Davisson\**

1:40 A Software Application to Predict and Optimize Healthcare Insurance  
**7082** Costs  
*Eric Tysinger; Leo Zheng; Michael Lance Whitfield; Nelson A  
Paguada; Matthew Lanham\**

## **ROOM: STEW 218C**

1:00 Building Barriers: Natural Variation Contributes to Reproductive  
**7083** Isolation in *Arabidopsis thaliana*  
*Ava Grace Barnes; Leonor Maria de Fatima Chagas Boavida\**

1:20 Economic and Environmental Comparison of Tillage Systems in  
**7084** Illinois  
*Yufei You; Michael R Langemeier\**

1:40 Adaxial versus Abaxial Translocation in Dicots for Organic  
**7085** Nanocarriers Produced via FNP  
*Laurian Kate Lien; Kurt Ristroph\*; Lucas Johnson\**

# **RESEARCH TALK SESSION 6 | 2:00-3:00**

## **ROOM: STEW 214B**

2:00 NeuralRace: Autonomous Racing through Neural Perception;  
**7086** Planning and Control  
*Manav Nikhil Gagvani; Sangeet Mohan; Zachary Thomas Nena;  
Felipe da Paixao; Shreya Ghosh\**

2:20 ZnO Nanowire-Based Wearable Sensor for driver health Monitoring  
**7087** *Zixuan Fei; Tuhina Saxena\*; Wenzhuo Wu\**

2:40 ASTRO-USA: Analog Simulation Training and Research Outpost  
**7088** Utilizing Self-Sustaining Architecture  
*Manya Devang Kadiwala; Shruti Subramaniyan; D. Marshall  
Porterfield\*; Dawn Whitaker\*; Robert M Stwalley\**

## **ROOM: STEW 214C**

2:00 Machine Learning driven characterization of thermal conductivity in  
**7089** materials  
*Jonathan Steven Hickle; Krutarth Hemant Khot\*; Xiulin Ruan\**

2:20 Single-Wheel Omnidirectional Drive  
**7090** *Xiaoyang Yu; Charles Holliday Jenckes\**

2:40 SWARMS: Multi-Agent Control Simulation  
**7091** *Amikosh Dube; Jay Bhavesh Gandhi; Noah Anthony Wisniewski; Shreyas Sundaram\*; Younggil Chang\**

## **ROOM: STEW 214D**

2:00 The Implications of Information Challenges on Student Journalists  
**7092** *Norah Ann Wills; Harsha Bansiwali; Sophia Victoria Pimentel; Rachel Fundator\*; Clarence Maybee\**

2:20 DMRG Simulation of Spin-Chain Multichannel Kondo Model  
**7093** *Jordan Alexander Gaines; Jukka Ilmari Vayrynen\**

2:40 Accurate prediction of macroscopic transport during the Mott transition using fractal resistor network and surface imaging  
**7094** *Po-Yu Chen; Erica Carlson\**

## **ROOM: STEW 218A**

2:00 Supporting Youth Learning and Development in an Afterschool Program  
**7095** *Amanda Reese Catey; Temitope Folasade Adeoye Olenloa\**

2:20 Integrating Digital Twins and Virtual Reality for Advanced Manufacturing Education  
**7096** *Alberto Minaya Lopez; Ramses Martinez\**

## **ROOM: STEW 218B**

2:20 Land Price and Land Use Gradients in China: Empirical Evidence on the Monocentric Model and Policy Influences  
**7097** *Yizhou Fang; Ben Zou\**

2:40 Opportunities and Risks of Biometric Security in the Age of Generative AI  
**7098** *Amanda Huang; Sudip Vhaduri\**

## **ROOM: STEW 218C**

2:00 Analyzing a gradient of effective corridor widths for mesocarnivores in Indiana  
**7099** *Katie Luo Hong; Kristen Marie Bellisario\**

2:20 Dress and Trade at Fort Ouiatenon and New France: Economic and Social Relations as Evidenced by Cloth Bale Seals  
**7100** *Jacob Scott Culp; Harold Kory Cooper\**

2:40 Deliberative Polling: A Tool for Realizing Practical Deliberative Democracy?  
**7101** *Lynlee Morgan Rice; Mary F Scudder\**

# **RESEARCH TALK SESSION 7 | 3:00-4:00**

## **ROOM: STEW 214B**

3:00 Modeling Drug Transport in the Umbilical Cord: A Fluidic Approach to Pregnancy Pharmacokinetics  
**7102** *Dipali Rebecca Abraham; Mira Nimesh Patel; Alexander Carnevale; Arezoo Ardekani\*; Ryan B Wagner\**

- 3:20 RISCV Multicore Extension and Benchmarking  
**7103** *Aishwarya Saikrupa Anand; Seongjoong Yim; Cole Aaron Nelson\*; Mark Johnson\**
- 3:40 The impact of gut microbiome dysbiosis and subsequent intervention  
**7104** on restoring spinal health in a murine model  
*Sarah Marie Staller; Deva Chan\*; Cameron Xavier Villarreal\**

## ROOM: STEW 214C

- 3:20 Bluetooth Functional Near Infrared Spectroscopy (fNIR) Software for  
**7105** Detection of Traumatic Brain Injury (TBI) in Athletes  
*Khushi Choksi; Elan Smyla; Ramya Prasanna; Ian Kwan Yin Lam; Saqib Manjur Chowdhury; Navya Gupta; Nasser H Sanwari; Hannah Jordan Margulis; Grant Dlugos Congdon; Kenneth David Siefken; Paras Sandeep Punater; Hammad Furqan Khan\**
- 3:40 AI-Driven Non-Invasive Wireless Blood Pressure Assessment via  
**7106** Triboelectric Sensors  
*Kevin Nathan Qu; Pranav Perumal; Padmaja Sachin Khairnar; Robert Jose Ccorahua santo\*; Wenzhuo Wu\**

## ROOM: STEW 214D

- 3:00 Using Topography to Search For Stratovolcanoes on Mars: Results  
**7107** from the Jezero and NE Syrtis Region  
*Samuel Garrison D Singer; Briony H Horgan\**
- 3:20 Genetic Engineering of SLC1A5 for Improved NK Cell Metabolism  
**7108** Against Brain Tumors  
*Luke Nathaniel Abram; Sandro Matosevic\*; Shambhavi Sanjay Borde\**
- 3:40 Development of a data calibration pipeline and identification and  
**7109** mapping of pyroxene in lunar spectroscopy via RGB image and  
 absorption band analysis  
*Jessica Marie Cyr; Arunima Saha; Kris Laferriere\**

## ROOM: STEW 218A

- 3:00 Music's Impact on Asian/American Adolescents  
**7110** *Michelle Wan; Stewart C Chang Alexander\*; Pamela Sari\**
- 3:20 Monitoring the size distribution of aerosols in manual metal arc  
**7111** welding fumes  
*Shane Kevin Limas; Jae Hong Park\**
- 3:40 Systemic Inflammatory and Organ-Specific Tissue Remodeling  
**7112** Responses Induced by Acute Electronic Cigarette Vapor Exposure.  
*Andrew Patrick Folkers; Thomas John Cowden; Thivanka M Muthumalage\**

## ROOM: STEW 218B

- 3:00 Student Identification of Persuasion Strategies in AI-simulated  
**7113** Financial Scams  
*Jennifer L Harvey; Tatiana Ringenberg\**
- 3:20 Securing Aviation Communications: A Network-Based Approach  
**7114** *Andrew Markel; Jason Schoenbeck\**

3:40 The effect of the addition of MXene (Ti3C2Tx) on the long term  
**7115** stability of poly(3,4-ethylenedioxythiophene): poly(styrene sulfonate)  
(PEDOT:PSS) bioelectronic interfaces  
*Charlita Sinmak; Ken Yoshida\*; Babak Anasori\**

## **ROOM: STEW 218C**

3:00 Gender Affinity in State Legislature Campaign Donations  
**7116** *Maylee Ann Rollins; Eric Waltenburg\**

3:20 Stalin and Groupthink: How Stalin's Personality Colt Existed  
**7117** Alongside Collective Leadership  
*Isidore Peter White; Christopher Ewing\**

3:40 Thermal Actuation Inspired Machine Learning Algorithm for  
**7118** Reconfigurable Antenna  
*Prisha Rachakonda; Adina Ioana Margineantu; Tanya Vijay; Sishir Mahavadi; Jacob Daniel; Ran Dai\**

## **RESEARCH TALK SESSION 8 | 4:00-5:00**

## **ROOM: STEW 214B**

4:00 Restoring Functional Independence: A Grip-Assistive Glove for  
**7119** Muscular Dystrophy through Responsive Motor Control  
*Luke Brian Johnson; Shreya Prakash; Ariel Scout Hudson; Uday Mittal; Supreet Mishra; Anjan Naniseti; Zachary Robert Davis\*; Rahaf Salim\**

4:20 Analyzing Gestures in Statistics Instruction: A Study on Digital Video  
**7120** Learning Environments  
*Aashvi Miten Majmundar; Jason Wade Morpew\*; Junior Anthony Bennett\**

4:40 Intrinsically Self-healable Laser-Induced Graphene Pressure for  
**7121** Ergonomic Hazard Monitoring  
*Abhinav Chowdary Annabathula; Haoqi Wu\*; Pedro Henrique de Souza Barbosa\**

## **ROOM: STEW 214C**

4:00 Cardiac Remodeling by Pressure and Volume Overload During  
**7122** Pregnancy  
*Samantha Stebbings; Elnaz Ghajar-Rahimi\*; Craig Goergen\**

4:20 VIP Bechtel IoT  
**7123** *Xuan Chen; Shivanya Chandra; Naeem Saeed Bahemia; Aarav Mangla; Isha Virat Yanamandra; Nina Hu; Alexander Chen; Matthew A Swabey\*; Jaeun Kim\**

4:40 Studying Cello Bowing Performance through a Robotic Arm and  
**7124** Reinforcement Learning  
*Tanishaa Shah; Jiashu Liu; Samantha Sudhoff; Pranesh S Velmurugan; Vincent Wentao Zhao; Yung-Hsiang Lu\*; Yeon Ji Yun\**

## **ROOM: STEW 214D**

4:00 Physical Characterization of Atmospheric Microplastics in  
**7125** Precipitation  
*Frances Geraldine Johnson; Alexandria Vincenza Johnson\**

- 4:20 Refining Atmospheric Chemistry Models: The Role of O-17 in Tracing  
**7126** Oxidation Reactions  
*Nathan Nguyen; Greg M Michalski\**
- 4:40 Enhancing Low-Resource Machine Translation Using Synthetic Data  
**7127** Augmentation  
*Akshith Garapati; Linda E Haynes\**

## **ROOM: STEW 218A**

- 4:00 Influence of Manganese Exposure on SHI-Adapted SH-SY5Y Cells:  
**7128** Neurotoxicity and Adaptive Mechanisms  
*Yuchen Zhang; Aaron B Bowman\**
- 4:20 Diet Quality and Nutrient Biomarkers - Results from the Personalized  
**7129** Nutrition; Education; Assessment; "Real" Food; and Lifestyle Support  
(PEARL) Study for Individuals with Autism Spectrum Disorder  
*Grace Kathryn Adams; Adrienne M Baumann; Galit Beraja; Alec  
Carter Didocha; Anita Aalia Panjwani\*; Monica Ramakrishnan\**
- 4:40 Iron Nanoparticle and Radiation-Induced DNA Damage with  
**7130** Intracellular Calcium Quenching in Triple Negative Breast Cancer  
(TNBC)  
*Dhriti Manish Laddha; Matthew Louis Scarpelli\*; Anukrishna  
Radhakrishnan\**

## **ROOM: STEW 218B**

- 4:00 Cross-Species Deep Learning: Evaluating the Generalization of  
**7131** Human and Veterinary Segmentation Models  
*Madison Sarah Loiselle; Fiona Kolbinger\*; Muhammad ibtsaam  
Qadir\**
- 4:20 Assessing heart rate dynamics following postural change in  
**7132** hypermobile-type Ehlers-Danlos Syndrome using wearable health  
monitors against POTS diagnostic criteria  
*Monique Watson; Damen Alec Wilson\*; Matthew Peter Ward\**
- 4:40 Integrating Wearable Technology for Electrochemical Sensor based  
**7133** Remote Health Monitoring  
*Surya Pratheek Turaga; Jing Jiang\*; Wenzhuo Wu\**

## **ROOM: STEW 218C**

- 4:00 Radiomic Analysis of Collagen  
**7134** *Sidh Jain; Youngjun Lee\*; Rachel Kathleen Surowiec\**
- 4:20 How Engagement in the Academic Setting Allows for Improvement of  
**7135** Grades  
*Abigail Marie Kiracofe; Catherine Jean Shukle\**
- 4:40 Utilization of Hydroponics for Self Sustainable Farming and BLSS  
**7136** Integration for a Closed Loop Space Habitat  
*Mia Constance Schecter; Vijay Muthukumar; Adriana K Sanchez;  
Mark T Crooks; D. Marshall Porterfield\**

# LITERATURE, LINGUISTICS, LANGUAGES, AND CULTURE COLLOQUIUM

Only presenting authors and mentors (\*) are listed. Contributing authors and acknowledgements are listed in the abstract booklet online.

**STEW 218D | 9:30-4:00**

- 9:40      Phonetic and Handwriting analysis  
**8000**      *Hannah Marie Kovach; John D Sundquist\**
- 10:00      Professor of Philosophy  
**8001**      *Jack William Fellmy; Christopher Yeomans\**
- 10:20      The Power of Linguistic Landscapes in Indiana's Libraries  
**8002**      *Claudia Kayleen Albrecht; Lori A Czerwionka\**
- 10:40      Animacy in English Object Relative Clause Structure Choice: A  
**8003**      Comparative Study Between L1 and L2  
*Marley Grace Mack; Elaine J Francis\*; Yue Li\**
- 11:20      Systematic Review of Humanities Pedagogy  
**8004**      *Lillian Sarah Piroto; Haley Diane Imus; Anne Victoria Wrobetz\*;  
Kirsten A Davis\*; Jerilyn Pia Tinio\*; Lori A Czerwionka\**
- 11:40      Laughter in Exile: The Concept of Laughter in Chekhov  
**8005**      *Emily Doris Gervais; Olga Lyanda-Geller\**
- 12:00      AI-Powered Tutoring with Retrieval-Augmented Chatbots: Enhancing  
**8006**      Interactive Learning in Intercultural Communication  
*Mohamed Alaa Moham Ahmed; Hyesun Choung\**
- 12:20      Rethinking Control Groups in L2 Pronunciation Research: Insights  
**8007**      from a Systematic Review  
*Paige Katherine Doyle; Adam Wesley Buehrer; Hannah Marie  
Marlowe; Daniel J Olson\*; Yiyang Jiang\**
- 12:40      Perspectives on Mental Health and Society in the Novels of Fyodor  
**8008**      Dostoevsky  
*Luke A Diehl; Amina Gabrielov\**
- 1:00      From Nationalism to Moral Responsibility: The Redefinition of  
**8009**      German Patriotism in Postwar Literature and Film  
*Kerri Jayne Easton; Beate I Allert\**
- 1:20      Physics of Speech Perception: Cross-Linguistic Variations in Vowel  
**8010**      Frequency Discrimination  
*Aastha Rasesh Patel; Linda E Haynes\**
- 1:40      Castles in the Sky: A Comparison of Constructed and Natural  
**8011**      Paradise in Dostoevsky and Utopian Literature  
*Tessa Clarabelle Stahly; Amina Gabrielov\**

- 2:00 Spanish Pragmatics Development during Study Abroad: A Review  
**8012** *Madilen Helene Gesse; Adler Olivia Kolb; Lori A Czerwionka\**
- 2:20 Semantic Interpretation in Humans and Large Language Models of  
**8013** Quantified Statements  
*Lauren Mackenzie Matthews; Shaohua Fang\**
- 2:40 "Holy Jokesters" in Russian Culture and Literature: Then and Now  
**8014** *Davyd Revenko; Olga Lyanda-Geller\**
- 3:00 AI as a Creative Partner: Exploring the Effects of Communication  
**8015** Modality and Chatbot Persona on Human Creativity  
*saumya verma; Hyesun Choung\**
- 3:20 The Intersection of Motivation, Community, and Happiness  
**8016** *Mia An-Mei Schmetter; Linda E Haynes\**

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*Presentations sorted by first author's last name.*

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## STEW 202 & 206 | 1:00-3:00

- 7200** A novel self-entry restraint device for low-stress handling of mice  
*Shikha Adhikari; Kelly Marie Curry; Amanda K Darbyshire\*; Aidan Patrick Horvath\**
- 7201** Trust in the Food Supply Chain: Pre- and Post-Survey Analysis of Poisoned's Influence on Young Adults  
*Shams Adigozalzade; Yaohua Feng\**
- 7202** iFront Door: Enhancing Community Quality of Life (CQOL) Through Digital Presence in Versailles, Indiana  
*Yixin Chen; Hossein Mousazadeh\**
- 7203** How Does Prompt Engineering Influence Character Consistency and Bias Mitigation in AI-Generated Biblical Narratives?  
*Satyam Vipulbhai Dave; Yana Sheoran; Matthew Lanham\**
- 7204** The Relationship Between Communication and Surgery Success: Analyzing Key Speech Metrics  
*Haochen Feng; Denny Yu\**
- 7205** Creating a Framework to Integrate LiDAR Data from Caves into Classroom Virtual Reality  
*Siya Chirag Jariwala; Henry J Lee; Caue Sciascia Borlina\*; Anastasia Kouvaras Ostrowski\*; Ali Bramson\**
- 7206** Mel Spectrograms as a Robust Feature Set for Deep Learning based Automated Detection of Heart Murmur  
*Saadhana Kallampalli Illam; Rahul Krishnan Pathinarupothi\*; Durga Padmavilochanan\**
- 7207** Purdue Aerial Robotics Team - Competition Optics and Avionics  
*William Andrew Kok; Abdulmalik Abiodun Busari; Niall Patrick Moloney\**
- 7208** Predictive Analytics of NBA Championship Performance Metrics: A Comprehensive 15-Year Analysis  
*Srivatsa Kartikeya Kuchibhotla; Santhosh Vaddi; Tiantian Qin\**
- 7209** Locating health facilities to treat Substance Abuse Disorder in Democratic Republic of Congo  
*Bhavya Lakhina; Pengyi Shi\**
- 7210** Comparative Sentiment Analysis of Mental Health Discourse on Social Media: A Study of Reddit and Twitter  
*Lamiya Sajidbhai Laxmidhar; Sammi Tayek\**

- 7211** Evaluating Cross-Species Generalization Capabilities of Deep Learning Models in Laparoscopic Surgical Tool Segmentation  
*Farren M Martinus; Fiona Kolbinger\*; Zheyuan Zhang\**
- 7212** Designing Healthcare Robotics: Biomimetic Prosthetic Hands for Secondary Education  
*Nay Naing; Carolina Bobadilla; Andres Torres\*; Mo Rastgaar\*; Nina Mahmoudian\**
- 7213** Expanding on Election Forecasting  
*Thanmaya Pattanashetty; Joseph Michael Cromp; Alexandria Volkening\*; Nour Khoudari\**
- 7214** Recycled to Revived: Giving Plastic a Second Life  
*Jeeranun Poopanead; Garam Kim\*; Do Gyun Kim\**
- 7215** A Comparative Analysis of Pure and Recycled Carbon Black on the Mechanical, Thermal, and Microstructural Properties of Mortars  
*Akshay Makarand Risbud; Maria mirian Velay Lizancos\*; Rui Bai\*; Aniya Edwards\**
- 7216** Co-designing Student VR Experiences for Geology Course Fieldtrips  
*Hiya Samanta; Anastasia Kouvaras Ostrowski\*; Caue Sciascia Borlina\*; Ali Bramson\**
- 7217** Depth Estimation Model for Autonomous Driving  
*Sarah Sawhney; Taehoon Kim; Ian Tseng; Shreya Ghosh\**
- 7218** BoilerSketch  
*Anvit Sinha; Vivan Tiwari; Andres Mauricio M Bejarano Posada\*; Ethan William Dickey\**
- 7219** Recycled Plastic Tree Tube Project  
*Christopher Dawkin Tanjutco; Jesse Basham; Spencer Russell Fiddler; Adan Rosales; Jackson Thomas St Myer; John G Burrell; Devon Julia Pessler\*; Paul B McPherson\**
- 7220** Bridges and Machines in German Media  
*Grace C Thomas; Beate I Allert\**
- 7221** Leveraging Game Mechanics for STEM Education: Enhancing Engineering Skills Through the Pac-Man Robotics Challenge  
*Christian R Tomao; Jacqueline Linnes\**
- 7222** The Impact of Air Quality on Real Personal Income: Evidence from U.S. States (2019–2022)  
*Yiwen Zhang; Michael S Delgado\**



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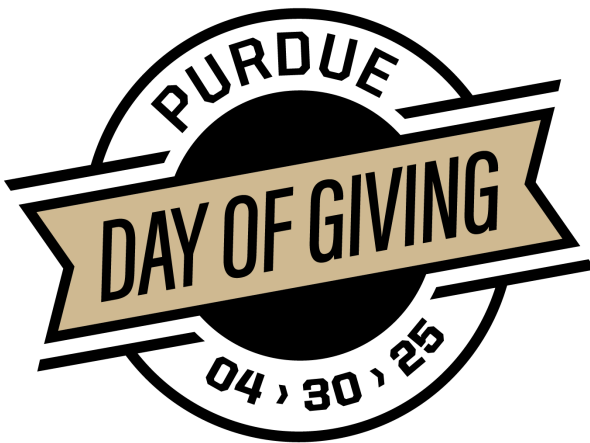
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