

## 2023 GRADUATE STUDENT SYMPOSIUM

### Red Cloud A

<b>WELCOME</b>	9:00a – 9:15a	GeSAB / COE	Opening Remarks & Welcome!
<b>KEYNOTE</b>	9:15a – 9:45a	Khalid Alkady	A Novel Framework for the Dynamic Characterization of Civil Structures Using 3D Terrestrial Laser Scanners

### BREAK

Red Cloud B			Pioneers Room		
<b>SESSIONS</b>	10:00a – 10:15a	Dada Zhang	Leverage Vibration Data to Improve Highway Surface Roughness Assessment	Bowen Yang	A Reliability-Based Service III Operational Evaluation for Prestressed Girder Bridges Under Platoon Loads
	10:20a – 10:35a	Zina Ebrahim	Production of Sustainable Alkali-Activated Hemp-Based Construction Material	Qusai Alomari	Numerical Modeling and Performance Investigation of Fire-Damaged Multi-Column Bridge Piers Subjected to Vehicle Collision Coupled with Air Blast
	10:40a – 10:55a	Kari Heck	Evaluation of Commensal E. coli Outer Membrane Vesicles as Bioactive Vehicles for Oral Gene Delivery	Farzad Yazdipناه	Development of Balanced Mix Design (BMD) Method for the Design and Production of Asphalt Mixtures in Nebraska
	11:00a – 11:15a	Joshua Dotto	Renovating the iPMU via Internet of Things for Pollutant Emission Estimations in Poultry Facilities	Mubarak Abu Zouriq	The Use of Inexpensive Cameras in Structural Health Monitoring
	11:20a – 11:35a	Sydney Caparaso	In Vitro Screening for Neuronal Ion Channel Agonists to Parse Role of Mechanics and Inflammation in Chronic Low Back Pain	Muhammad Umer Farooq	Moving Train Situational Monitoring of Rail Tracks and Realtime Object Detection of Rail Crossings by Train-Mounted LIDAR and Train-Associated Self-Driven Drones
	11:40a – 11:55a	Bahareh Tajvidi Safa	Mechanical Characterization of Single Cell-Cell Junctions Under Prolonged Strains	Mark Kathol	Investigating the Relaxase Behavior and Replication Functionality of the Mobilization Protein mobV in the Plasmid pBBR1
	12:00p – 12:15p	Boanerges Bamaca	PHB, A Sustainable Bioplastic, Production from Low-cost Corn Kernel Oil and Distiller's Corn Oil. A Dual-substrate Case		

### Willa Cather Dining Hall

### LUNCH (12:15p – 1:30p)

### Red Cloud A

<b>KEYNOTE</b>	1:30p – 2:00p	Brandon Kreiling	The Complete Engineer
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### BREAK

### Red Cloud B

<b>3-in-5 PITCH COMP.</b>	2:15p – 3:15p	Yasaman Ahmadi	Investigating the Data Inputs and Requirements for Response and Recovery Decision Models in Flooding Events
		Arafat Alam	Performance Evaluation of Multi-layer Engineering Material Arresting System Under Aircraft Overrun Using LS-DYNA
		Nitish Bastola	Use of Nebraska Produced Corn Oil in Roadway Structure
		Nipuna Chamara	Innovative Portable Spectrometer for Food Quality Estimation
		Ethan Krings	Wearable Ultrasound Patch with Stretchable Matching Layer
		Patrick McManigal	Wearable Electronic Nose Technology for Point of Care Diagnostics
		Apala Pramanik	Vision-based Safety Monitoring for Human-Construction Robot Systems
		Sahand Serajian	Organic-Inorganic Composite Electrolytes for Solid-State Batteries
Elliott Wolbach	VR Circuit Simulator		

### BREAK

Red Cloud A

<b>POSTER SESSION</b>	3:30p – 5:00p	Golnoosh Abdolazadeh	<b>#1</b> Reaching a Higher Quality Layout Planning Design in Health Care Facilities by Incorporating Simulation Methods	Sahar Beigzadeh	<b>#18</b> Quantification of the Microstructure of Additively Manufactured Parts Utilizing Local Orientation Image Analysis
		Yasaman Ahmadi	<b>#2</b> Determining Balance Staff Allocation and Impact of Facility Layout Methods on Walk-In Covid-19 Vaccine Clinics: A Theoretical Exploration	Spencer Pak	<b>#19</b> Direct Ink Write 3D Printing of Liquid Emulsions
		Nelson Akindele	<b>#3</b> Ontology Development for Recent Advances in Interactive Workspaces for Architecture, Engineering, and Construction Use Cases	Diego Salazar	<b>#20</b> Fast Simulations of Corrosion and Electrodeposition
		Houman Kosarirad	<b>#4</b> Using Deep Learning to Detect Bridge Deck Defects Based on UAV Images	Rachael Wagner	<b>#21</b> Design of a Miniature Robotic Surgery Technology Demonstration Payload for Orbital Spaceflight
		Daud Nosham	<b>#5</b> The Indoor Air Quality of Classrooms with and without Portable Air Purifiers – a Pilot Study	Jia Wang	<b>#22</b> Physical Vapor Transport Growth of Antiferromagnetic CrCl <sub>3</sub> Flakes Down to Monolayer Thickness
		Hafiz Oyediran	<b>#6</b> 4D BIM-based Construction Robot Task Planning and Simulation	Payal Chaudhary	<b>#23</b> Computational Discovery of Active and Selective Metal-Nitrogen-Graphene Catalysts for Electrooxidation of Water to H <sub>2</sub> O <sub>2</sub>
		Muhammad Ahmad	<b>#7</b> Using Crude Vegetable-Based Oil and Antioxidants to Improve the Performance of Asphalt Binders	Niaz Chowdhury	<b>#24</b> In Silico Analysis Revealed Central Role of Phosphoglycerate Mutase in Chlamydia Trachomatis Persistence
		Muhammad Umer Farooq	<b>#8</b> Investigation of Winter Weather Crashes Based on Aggregated Crash and Meteorological Data	Ahmed El-Harairy	<b>#25</b> Electrochemical Reduction of CO <sub>2</sub> with Porphyrin-based COF using H-Cell
		Andrise Buchweitz Klug	<b>#9</b> Modeling of Damage Evolution of Recycled Fine Aggregate Matrices	Lohani Esterhuizen	<b>#26</b> Developing a Framework for Dynamic Flux Balance Analysis in Python with Optimization- and Explicit Runge-Kutta-based Approach
		Mitra Hosseinzadeh Nasimi	<b>#10</b> Using Tornado Induced Tree-Fall to Estimate Near-Surface Winds	Alyssa Grube	<b>#27</b> Fabrication and Characterization of Wool Textile-Based Supercapacitors
		Nosakhare Idiaghe	<b>#11</b> Students' Perception of Undergraduate Research	Sunayana Malla	<b>#28</b> Genome-scale Metabolic Modeling Provides Insight into the Metabolic Landscape of Alveolar Macrophages
		Katie Mowat	<b>#12</b> Preparedness in Engineering for Agricultural Start-ups (PEAS): A Case Study	Abraham Osinuga	<b>#29</b> Modeling Sphingolipid Metabolism and Prediction of Orosomucoid (ORM) Proteins' Regulatory Roles: 15N Stable Isotope Labeling Studies
		Toluwalase Opanuga	<b>#13</b> Weekly Self-rating of Undergraduate Students' Perceptions of their Proficiency with Course Learning Objectives	Tahereh Razmpour	<b>#30</b> Identifying PDAC Diagnostic Biomarkers Utilizing Machine Learning Combined with Genome-Scale Metabolic Modeling
		Ibukunoluwa Eunice Salami	<b>#14</b> Understanding Engineering Students Design Priorities for Industry Preparedness	Nabia Shahreen	<b>#31</b> Omics-Informed Metabolic Modeling of Staphylococcus aureus Reveals Underlying Principles of Overflow Metabolism
		Anu Singh	<b>#15</b> Student Engagement in Multiple Dimensions of Metacognitive Strategies Through Self-Evaluation and Self-Reflection	Gustavo Castro Garcia	<b>#32</b> Evaluation of Swine Carcass Disposal Using Composting and Shallow Burial with Carbon
		Mirza Athar Baig	<b>#16</b> Hardware Fingerprinting of Phasor Measurement Units for Data Provenance	Andrew Stiven Ortiz Balsero	<b>#33</b> Effect of Bromoform and Linseed Oil Addition to Stored Beef Feedlot Manure on Greenhouse Gas Emissions and E. coli Concentrations
		Venkat Sai Suman Lamba Karanam	<b>#17</b> AI-driven Seasonal Pattern Analysis for Network Traffic Synthesis	Portia Plange	<b>#34</b> Development of Single Walled Carbon Nanotube Sensor for Organelle Specific Nitric Oxide Quantification in Cancer Cells
<b>Red:</b> DSAEC / <b>Blue:</b> CEE / <b>Grey:</b> EER / <b>Yellow:</b> SoC <b>Orange:</b> MME / <b>Purple:</b> CHBE / <b>Green:</b> BSE			Ivon Acosta Ramirez	<b>#35</b> Characterization of Carbon Nanotube Platform for Extracellular Nitric Oxide Quantification In Vitro	

**SYMPOSIUM ENDS (5:00p)**