



42nd Research and Creative Activities Forum, Fall 2025

EVENT GUIDE 24th OCTOBER, 2025

ABOUT RCAF

RCAF stands for Research & Creative Activities Forum, an annual event that offers an invaluable opportunity for graduate and professional students to showcase their academic projects and research. The conference has been designed to provide a platform for students to display their work and discuss their findings with a larger audience. RCAF aims to stimulate intellectual growth and inspire the next generation of researchers and academics. It is an ideal opportunity for students to get feedback, improve their presentation skills, and network with fellow researchers and professionals.

Since its establishment, RCAF has become a highly anticipated event that attracts Mizzou students from various fields of study. It offers a diverse range of presentations providing attendees with a comprehensive overview of current research trends and practices here at Mizzou. This year, the 42nd RCAF conference features an array of research topics, from Social and Behavioral Sciences, Life Sciences, Physical Sciences and Mathematics, Engineering Science and Informatics, Artistic Expression and Humanities. This event promises to be stimulating and thought-provoking for all those involved.



RCAF, Fall 2025

42nd Research and Creative Activities forum

GPC President's Message

It is an honor to welcome you to the **Research and Creative Activities Forum (RCAF) Fall 2025**. This signature event reflects the University of Missouri's enduring commitment to academic excellence, interdisciplinary collaboration, and the advancement of graduate and professional scholarship.

Historically held in the spring, RCAF will now be hosted in the **fall semester** to broaden participation, prevent overlap with other major research conferences, and provide students an earlier opportunity to present their work. This makes 2025 a truly unique year, as we proudly host **two RCAF events**, one in the spring and one in the fall.

RCAF serves as a vibrant platform for students to share innovative ideas, engage in scholarly dialogue, and connect across disciplines. The projects showcased today represent the creativity and intellectual rigor that define Mizzou's graduate community. Whether your work advances scientific discovery, explores social systems, or celebrates artistic expression, your contribution enriches our shared pursuit of knowledge and impact.

I extend sincere appreciation to the organizing committee, faculty judges, and mentors for their dedication, and to each presenter for the courage and passion behind your research. Together, we exemplify the collaborative spirit that drives innovation at Mizzou and beyond.

Warm Regards,

Felix Michael Oguche

President, Graduate Professional Council



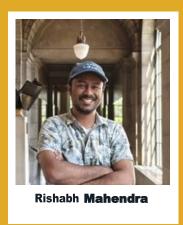
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GPC PROGRAMMING COMMITTEE 2025-2026



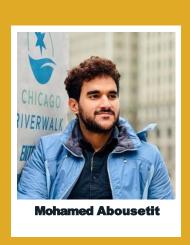












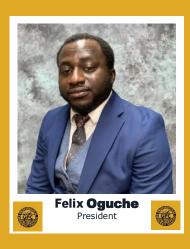




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GPC EXECUTIVE BOARD 2025-2026



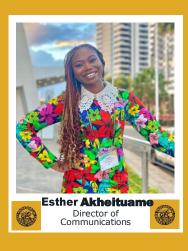














ACKNOWLEDGEMENTS

The Graduate Professional Council is grateful to the following faculty, staff, and students for their invaluable support towards making this event a success.

President Mun Choi

President University of Missouri

Jeni Hart

Dean of the Graduate School and Vice Provost for Graduate Studies, University of Missouri

Heather Hoffman

Assistant Dean for Professional Development and Leadership - Graduate School, University of Missouri

Marisa Chrysochoou

Dean of the College of Engineering, University of Missouri

Kristen Colbrecht

Director of International Student and Scholar Services, University of Missouri

Amy Bohnert

Business & Finance Officer - Office of the Provost, University of Missouri

Holly Parsons

Business Support Specialist, Student Engagement/Center for Student Involvement

Ejike Iweha

Former Director of Programming - GPC

PANEL OF JUDGES – RCAF, FALL 2025

24th October, 2025

Brielle Thompson

Peter Lea

David Bauer

Divya Kandanool

Anne Myers

Jong Bum Kim

Luke Kruse

Mansoo Yu

Verniz Debora

Vasavi Shabrish

Ashley Anderson

Enoch Ng'oma

Mohamed K. Abdelhakiem

Clark Peters

Joy Jenkins

Yicheng Guo

Ahmed Khulood

Atanas Dommo

Kathryn Rittenhour

Johana Goyes Vallejos

Sabrina Michael

Maria Mills

Akanksha Balha

Kamal Arora

LIST OF PRESENTERS

ARTISTIC EXPRESSION				
POSTER	PRESENTER	TITLE		
ID	NAME			
RCAF01	Kofi Opam	Vampires Will Never Hurt You: A Horror Memoir		
RCAF02	Mary Claire	Someone should apologize to Alice Smith		
	Sarafianos			
	ENGINE	ERING SCIENCE AND INFORMATICS		
RCAF03	Vani Seth	EmpathAI: A Trustworthy and Secure Conversational Agent for Mental		
		Healthcare		
RCAF04	Samrat Kumar Dey	Explainable AI for Segmentation and Classification of Liver Cirrhosis		
		on T2-Weighted MRI		
RCAF05	Zahida Begum	3D-Printed Scaffolds Reinforced with Natural Mineral (Asphaltum		
		Punjabianum) for Skin Tissue Engineering		
RCAF06	Sumit Singh Sheoran	Comparative study on the formulation and characterization of protein-		
		based active packaging films with multifunctional properties		
RCAF07	Apaala Basak	Translational Optogenetics in ALS: Preserving Swallowing Function via		
		Hypoglossal Neuromodulation in SOD1 Mice		
RCAF08	Sara Shojaei	Adaptive Structure-Aware Connectivity-Preserving Loss for Improved		
		Road Segmentation in Remote Sensing Images		
RCAF09	Emma Bennett	Quantum Graph Neural Networks for Aerial Navigation		
RCAF10	Manobendro Sarker	Impacts of Continuous Manure Application on Soil Health and Crop		
		Performance		
RCAF11	Mahady Hasan	Adaptive Content Engine: Real-Time Personalization in VR Education		
	Rayhan	using Reinforcement Learning		
RCAF12	Saad A. Alsamraee	Long-Term Electricity Demand Forecasting of University Campuses		
		Based on Advanced Deep Learning Artificial Neural Network		
		Algorithms		
RCAF13	Showmik Singha	The Angle Effect: Single-Event Transients in β-Ga2O3 MOSFETs for		
		Space-Power Applications		
RCAF14	Pegah Sepehri	Integrating Economic and Sustainability Factors in Building Design		
		through Data-Driven Surrogate Modeling		
RCAF15	Anindita Laz Banti	GIS-Based Settlement Vulnerability Assessment in Rohingya camp,		
		Cox's Bazar, Bangladesh		
RCAF16	Rogelio Muneton	A Phase-Field Formulation for Fracture Modeling of Rate- and		
		Temperature-Dependent Materials		
RCAF17	Juan Pablo Giraldo-	A local approach to stress-constrained topology optimization of multi-		
	Isaza	material structures		
RCAF18	Amir Erfan Zareei	Temporal and Profession-Specific Trends in HIV Case Queries Within		
	Shams Abadi	the Show-Me ECHO Program		
RCAF19	Md Yekra Rahman	A 1 MHz GaN-Based Transformerless Resonant Superimposed		
		Quadratic Converter for 48 V-to-PoL High-Current AI Power Delivery		

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		Screening Against Broomrape, Phelipanche aegyptiaca
RCAF41	Samuel Martin	A New Model of Cardiovascular-Kidney-Metabolic (CKM) Syndrome
		in Naturally Aged Swine
RCAF42	Godfred Siaw Kumi	Investigating the role of AAV2 VP1u in Cellular Trafficking
RCAF43	Asha Kaluwella	Methionine Sulfoxide Reductases Play a Central Role in Arabidopsis
	Mudalige	Seed Proteome and Metabolic Homeostasis
RCAF44	Samantha Norris	Overcoming Early-Life Lethal Phenotypes to Develop a Distinct Mouse
		Model for Baker-Gordon Syndrome Using CRISPR-Cas9 Gene Editing
		Approaches
RCAF45	Moses Ataben	Schwann Cell Proliferation in the Adult PNS Challenges the Long-Term
		Durability Of AAV Gene Therapies
RCAF46	Uzoamaka Mbionwu	Sex-related Differences in Diabetes, Obesity, and Dyslipidemia as
		Cardiovascular Disease Risk Factors
RCAF47	Raquel Young	Interpreting Rabies Titer Testing and Pet Travel Regulations: A Mixed
		Methods Study of Public Health and Professional Understanding
RCAF48	Ty Montgomery	Identifying PRDM Family Members Potentially Involved in Epigenetic
		Reprogramming after Fertilization in Porcine Embryos.
RCAF49	Md Selim Mahbub	Spermine Catalyzes Isomerization of The Sugar-Phosphate Backbone to
		a Non-Canonical DNA Backbone at an Apurinic/Apyrimidinic Site In
		Duplex DNA
	PHYSIC	CAL SCIENCES AND MATHEMATICS
RCAF50	Clare Mate	A Tale of Two Scalids: Priapulid Affinity with a Cambrian Cone
RCAF51	David Beckwitt	Quantitative X-ray Diffraction Analysis of 2D-Oriented Powders with
		Area Detectors
RCAF52	Nancy Ihechu	Anti-Parkinson's Therapeutic Discovery- A Computational Approach
RCAF53	Emmanuel Barffour	Nitrogen Effects on Forage Utilization and Economic Returns in
	Oppong Adjei	Grazing and Haying Systems
RCAF54	Emily Hayden	Conformer Distribution of Normal Propyl Cyanide in Neat and Water-
		Rich Ices Probed by Broadband Rotational Spectroscopy
RCAF55	Andrew Crouch	Hot on the Heels of Extinction: Tracing Post-impact Warming of the
		Brazos River Region Through Oxygen Isotopes
RCAF56	Tapesh Gautam	Study of Orbital Hall Effect in Topological Graphene
	SOCIA	AL AND BEHAVIOURAL SCIENCES
RCAF57	Zeinab Parishani	What Amplifies Health Information-Seeking Challenges Among
		International Students in Rural Midwest U.S.?
RCAF58	Denise M. Brown	Explaining the Decline of Dominant Parties in New Democracies:
		Evidence from South Africa
RCAF59	Miranda V Brunn	Quantifying Narrative Characteristics and their Association with
		Individual and Relational Health: A Test of Communicated Narrative
		Sensemaking Theory
RCAF60	Md Rokibul Hasan	The Morality-Creativity Paradox: When AI Turns Brand Innovation into
		Crisis
RCAF61	Sara Mostowfi	Uncovering Metacognition Awareness in AR Learning Environment via

		Gaze Transition Entropy
RCAF62	Laura	Re-membering as Decolonial Praxis: Nigerian Youth Navigate
		Language, Culture and Global Black Belonging
RCAF63	Wenting Sun	Department of Human Development and Family Science, University of
		Missouri
RCAF64	Nanan Nuraini	Functional Connectivity and Volume of the Amygdala as Predictors of
		the Response to Propranolol for Anxiety in Autism: A Pilot Study
RCAF65	Minervah Wathke	An Expository into the Effects of State Labor Laws on Union Density &
		Public Opinion of Labor Unions in the United States
RCAF66	Jeffrey Bodeen	Context of Eye Health: Social Determinants of Health Impact on
		Community Disease Burden Through Multiple Disease Models
RCAF67	Audrey Miller	Health Gaps Across State Lines: Measuring Inequities Using
		Comparative Data
RCAF68	Nwanyinna	Community Leadership Development for Social Change: A Socio-
	Shoemaker	Demographic Comparative Analysis
RCAF69	Friederike Albrecht	Participatory Group Discussions of the 'Viviendo Bien' Study: Focus on
		Methods
RCAF70	Robin Vanderbeck	What's in Your Ice Machine?
RCAF71	I Dewa Ayu Dwika	Early Childhood Material Hardship and Young Adult Mental Health
	Puspita Dewi	
RCAF72	HongYi Shih	Identifying Barriers in Healthcare Facilities: Perceived Accessibility of
		Hospital Toilets.
RCAF73	Daniel Yuhasz	Seed Sovereignty as an Ontological Approach to Food System
		Transformation

BOOK OF ABSTRACTS



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