



ACHIEVE

RESEARCH & GRANTS ACTIVITIES @ ROBERT MORRIS UNIVERSITY • 9th Edition Volume 2 • Spring 2024

Vice President’s Message

The Research & Grants Administration (R&GA) is happy to share the Spring 2024 issue of the R&G Newsletter. We hope this newsletter will play an important role in showcasing research & grant activities at RMU.

In this issue, we feature four (4) grant applications submitted by RMU faculty from August to December 2023. The summaries presented here are in the Principal Investigators’ own words. Some of these applications have been awarded and others are pending. For this period, fourteen (14) opportunities were discussed/explored and five (5) proposals were submitted. Most grant proposals were written by our faculty and staff with support from Research & Grants Administration, and Financial Operations. As always, supporting institution data was provided by the Office of University Data and Analytics (UDA).

The Research & Grants Administration encourages all faculty and staff to pursue research and participate in various research & grants related activities. The R&GA is available to help you answer questions related to grant searching, writing, budgeting, and managing. Please contact us with your questions, comments, suggestions, and concerns.

Have a great Spring semester!

Sincerely,

Sushil Acharya

Vice President for Grants, Research, and Global Initiatives

Professor of Software Engineering



➤ Optimal Expansion of Electric Vehicle Charging Stations under Choice Models

Grant Agency: Argonne National Laboratory

The electrification of vehicles is considered one of the most important strategies to address issues related to energy dependence and climate change. Charging operations for electric vehicles (EVs) are essential because users need charging infrastructure to purchase EVs, so government agencies have invested in public charging infrastructure to encourage drivers to use EVs. To encourage more drivers to use EVs, organizations need to develop a charging station expansion strategy that meets drivers' needs for convenience, such as no wait times and fast chargers (e.g., Level 3 chargers). The Argonne Project addresses the problem of deploying new EV charging stations with specific modes and changing the modes of existing stations to maximize the number of drivers using the public charging stations. The project consists of two components: education and research. The education component developed a mathematics and computing tutorial for the project, which will be taught in the RMU engineering course ENGR3950/ENGR5800 Computational Optimization in Spring 2024. To capture real-world examples, the research component adds additional constraints to the problem and generalizes the project's statistical model, which we call the Choice Model. (Incidentally, the Choice Model won the Nobel Prize in Economics (McFadden 2000).)



Sangho Shim

Principal Investigator

Associate Professor of Industrial and Manufacturing Engineering, SEMS

Grant Proposal Activities August to December 2023



**Grant Opportunities
Explored**



**Grant Proposals
Submitted**

➤ Hydraulic Tank Design Improvement using CFD and Rotomolding Process Simulation Analysis

Grant Agency: **Pennsylvania Department of Community and Economic Development (DCED) Pennsylvania Manufacturing Fellow Initiative (PMFI)**

With this project, we propose a novel effort for process and product performance improvement of hydraulic tanks manufactured by Schroeder Industries. The effort is based on a computational fluid dynamics (CFD) approach to design and improve the rotational molding of the hydraulic tanks. In that vein, collaboration between Schroeder Industries and Robert Morris University featuring an iterative design process will enable the research team to improve the efficiency of the rotational molding manufacturing process and performance of the hydraulic tank characterized by increased air residence time. At the same time, additional purpose of this grant request is to seek funding to support the physical testing procedures to determine the quality of the product. Developing additional testing for the hydraulic tanks will have a significant and positive impact on waste management and the quality of hydraulic reservoir products. The integrated physical and virtual testing will lead to significant scrap rate reductions.

Ergin Erdem
Principal Investigator
Associate Professor of Industrial and Manufacturing Engineering, SEMS



Arif Sirinterlikci
Co-Principal Investigator
University Professor of Industrial and Manufacturing Engineering, SEMS



➤ Leadership Support Activities for African American and Black Students at RMU and the Surrounding Communities

Grant Agency: **Heinz Endowment**

A goal of the RMU Office of Diversity, Equity, and Inclusion (ODEI) is to provide programs and services that enable RMU to create an environment where individual differences are embraced, all possess an inclusive mindset, and everyone feels free to immerse themselves in the Robert Morris community experience. Last fall, the ODEI designed and offered programs for Black and African American students ages 14 through 22 in the Pittsburgh Region (including RMU students) with this exact goal in mind. Kicking the season off with an all-day Student Leadership Conference, sharpening their cultural awareness with a trip to the Byham Center, opening their minds with relevant topics with a Lecture Series; and concluding with a Professional Development Seminar and Etiquette Dinner. Each program was uniquely and intentionally developed to foster and strengthen academic, leadership, and social skills. Seminars and workshops were conducted by professional business leaders, academicians, and local politicians who addressed topics affecting our region's Black and African American communities.



Kishma Decastro-Sallis
Project Director
Chief Diversity and Inclusion Officer

➤ It's on Us - Initiative to Prevent Sexual Violence and Increase Reporting

Grant Agency: Governor's "It's On Us" PA Grant Program

The lack of social-emotional skills present in today's average university student is having a significant impact on every area of college campuses. In the Office of Student Equity & Title IX, it's apparent that many students lack the ability to establish healthy relationships, set appropriate boundaries, advocate for themselves, have hard conversations and cope with rejection. When considering traditional approaches to the prevention of sexual violence, it could be argued that a certain level of social-emotional skills are needed in order to make an impact.

We hope to build upon the sexual violence prevention efforts made possible through previous "Its On Us" Grant awards (2019, 2021, 2022) through the development and implementation of a comprehensive skill development training program aimed at teaching the social-emotional skills that are lacking in today's college students. If awarded the grant, we plan to partner with SEEDS Training, a social-emotional learning company to develop a curriculum that would help build these social emotional skills in first year students.



Nelle Stahura
Project Co-Director
Director of Student Equity & Title IX
Coordinator
Office of People and Culture



Lisa Hernandez
Program Co-Director
Vice President of People and Culture
Office of People and Culture

In addition, proposals were submitted for the following projects: Sports & Exhibition Authority - Sports Event Funding (SEF) grant.

Contact:

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