



# ACHIEVE

RESEARCH & GRANTS ACTIVITIES @ ROBERT MORRIS UNIVERSITY • 5th Edition Volume 2 • Spring 2020

## Associate Provost's Message

### Happy New Year - 2020

The Research & Grants Administration is happy to share the Spring 2020 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 eight grant applications submitted by RMU faculty from July to December 2019. 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, twenty one opportunities were discussed/explored and twelve full proposals and one Letter of Intent were submitted. All grant proposals were written by our faculty and staff with support from the Research & Grants Administration, and Financial Operations. As always, supporting institution data was provided by the Office of Institutional Research.

The Research & Grants Administration encourages all faculty and staff to pursue research and participate in various research & grants related activities. We are available to help you answer questions related to grant searching, writing, budgeting, and managing. Please contact us with your questions, comments, suggestions, and concerns. All faculty and academic administrators are requested to contact R&GA for all grant opportunities before proceeding to Institutional Advancement or to any potential funders.

I am hopeful in 2020 we will be able to submit more research grant applications.

Have a great Spring semester!

Sincerely,

### Sushil Acharya

*Associate Provost for Research, Global Initiatives and Development*



## ➤ Establishing a Community of Practice for Small- and Mid-Sized Academic Libraries to Explore the Possibilities of Transformative Agreements beyond the Top-Tier Research Library Level

Grant Agency: **Institute of Museum and Library Services (IMLS)**

In pursuit of an Institute of Library and Museum Services National Forum (IMLS) grant, the Robert Morris University Library and Purdue University Fort Wayne requested \$122,483.40 to plan for and develop a Community of Practice from small- and mid-sized academic libraries capable of pursuing transformative Open Access (OA) agreements. Such agreements (also known as “read-and-publish,” “publish-and-read,” and “offsetting” agreements) are being pioneered by the largest research libraries and consortia in the world in order to secure full access to large swaths of a publisher/aggregator’s (e.g. Elsevier) collections while also ensuring that all articles published by an institution’s faculty are available immediately full text for free to the entire world (i.e. gold open access). As small- and medium-sized institutions are being left out of these conversations and are thus at risk of being left behind as the field of scholarly communications surges ahead with this important development, the community of practice proposed in the grant would explore collectively held needs, facilitate conversations that identify possibilities for collaborative action, and articulate best practices to realize the community’s aspirations and plan next steps. The project would result in a first-of-its-kind community that represents a critical mass of institutions with sufficient publishing output and negotiating power to speak with one voice. The driving question the institutions would seek to answer is: *How can a diverse representation of small- and mid-sized academic libraries create more inclusive conversations on OA that empower them to operate at a network-level to participate in the national trend towards transformative agreements?*

### Grant Proposal Activities - July to December 2019



Grant Opportunities Explored



Grant Proposals Submitted

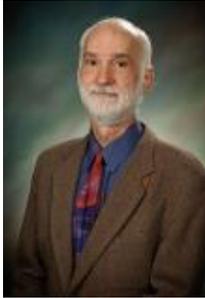


**Tim Schlak**  
*Principal Investigator*  
Assistant Professor of Learning Resources

## ➤ **ALCOSAN Clean Water Summer Academy**

Grant Agency: **ALCOSAN**

RMU is to serve as the summer field site for a five day “ALCOSAN Clean Water Summer Academy”. The RMU summer camp will accommodate 30 participants who shall be high school students (9th to 12th grade) from within the ALCOSAN service area. The on-campus academic component of the RMU summer camp will revolve around hands-on interactive laboratory exercises, classroom studies, and field activities for the participants. Participants will also engage in water quality research activities to support their learning experience. All educational experiences will focus on water related topics and issues that are part of the ALCOSAN service mission of treating and conveying municipal wastewater in the ALCOSAN service area.



**Ken Lasota**  
*Co-Principal Investigator*  
Associate Professor of  
Geology and Earth  
Sciences, SEMS



**Catherine Hanna**  
*Co-Principal Investigator*  
Associate Professor of  
Biology, SEMS



**Melissa Hillwig**  
*Co-Principal Investigator*  
Associate Professor of  
Biology, SEMS



**Paul Badger**  
*Team Member*  
Associate Professor of  
Chemistry, SEMS

## ➤ **Adopting Additive Manufacturing Technologies for Orthotics and Prosthetics**

Grant Agency: **Commonwealth of Pennsylvania’s Department of Community and Economic Development**

As rapid prototyping and additive manufacturing technologies improve, the development of patient specific medical devices that match patient anatomy is becoming an increasingly attractive market.

Since 2018, with a grant from the Commonwealth of PA Department of Community and Economic Development, Robert Morris University (RMU) has been collaborating with Union Orthotics & Prosthetics Co. (Union Orthotics) to explore the use of AM for patient-specific medical devices in the orthotics and prosthetics industry. Union Orthotics is a leading custom orthotic and prosthetic device manufacturer in Western Pennsylvania, and the manufacturing engineering program at RMU has successfully collaborated with many other industries to develop AM technologies.

During 2018-2019, the project focused on design optimization and developing streamlined AM processes for prosthetic and orthotic devices. As a result, RMU researchers were able to streamline the design process from the scanning of patients’ limb to 3D modeling of a socket in less than 30 minutes, and reduced printing time from 14 to a few hours with optimization of printing conditions. In addition, the 3D printed prosthetic sockets were validated using FEA and mechanical testing and compared to traditionally manufactured sockets. Results showed the 3D printed sockets are equivalent in strength to traditional sockets. Finally, RMU provided training to technicians at Union Orthotics on 3D scanning, 3D modeling and AM technology, and they are now better prepared for new manufacturing environments.

This research will lead to more efficient and effective manufacturing processes that can be applied more broadly to the medical AM industry.



**Won Joo**  
*Principal Investigator*  
Associate Professor of  
Biomedical Engineering  
SEMS



**Rika Carlsen**  
*Co-Principal Investigator*  
Assistant Professor of  
Mechanical and  
Biomedical Engineering,  
SEMS



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

## ➤ Dyslexia Screening and Early Literacy Expansion

Grant Agency: **PaTTAN and IU13**

Act 69 of 2014 initiated the Dyslexia Screening and Early Literacy Pilot Program in Pennsylvania and Act 37 of 2018 extended this program. A team from the Allegheny Intermediate Unit (AIU), Robert Morris University (RMU), and Carlow University (CU) collaborated to submit a grant expansion proposal to support schools in serving the needs of students with dyslexia. Literacy and dyslexia experts from the AIU, RMU, and CU proposed to work with the Pennsylvania Training and Technical Assistance Network (PaTTAN) to provide training to approximately 150-225 classroom teachers in literacy acquisition, literacy intervention, and instructional strategies. The grant also proposes to facilitate virtual learning communities to provide additional coaching and support. The grant proposal is under review. The RMU grant team included: Dr. Vicki Donne, Dr. Carianne Bernadowski, and Ms. Amy Jackson.



**Vicki Donne**  
*Principal Investigator*  
Professor of Education,  
SNEHS



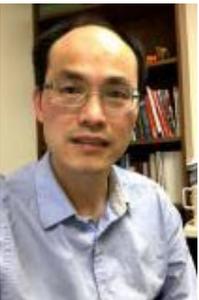
**Carianne Bernadowski**  
*Team Member*  
Professor of Education,  
SNEHS



**Amy Jackson**  
*Team Member*  
Dyslexia Outreach  
Support Specialist



**Jacob Peng**  
*Principal Investigator*  
Associate Professor of  
Accounting, SBUS



**Zhaoyun (Joe) Shangguan**  
*Program Supervisor*  
Professor of  
Accounting, SBUS

## ➤ Volunteer Income Tax Assistance (VITA)

Grant Agency: **United Way of Western Pennsylvania**

Robert Morris University has partnered with the United Way of Western Pennsylvania to operate a volunteer income tax assistance (VITA) site for 2019 tax returns. The grant provides funding for paid internship for two students managing the overall activities of the site, and engages a group of volunteers who include students and members of the community. The program provides income tax preparations for low-income individuals and families. Student interns are certified by the IRS and learn how to complete international student returns, military returns, and advanced individual returns. Dr. Joe Shangguan supervises this program.

## ➤ A Modern Approach to Land Valuation: An Application of Artificial Neural Networks

Grant Agency: **Lincoln Institute of Land Policy**

This interdisciplinary research applies recent developments in information technology to economic problems. The advancement of information technology within the last decade has enhanced the uptake of modern mass appraisal methods. With large volumes of data and numerous variables, the use of artificial intelligence techniques is becoming more popular in real estate market analysis. This study employs artificial neural networks to estimate land value. A major advantage of this technique is that it does not require a priori assumptions about data or functional forms. It allows us to process complex nonlinear relationships without many parametric restrictions. The research enables assessors and public officials to produce reliable estimates in a timely manner. It aims to facilitate land assessments in practice. The research is funded by the Lincoln Institute of Land Policy.



**Zhou Yang**  
*Principal Investigator*  
Associate Professor of  
Economics, SNEHS



**Terri Devereaux**  
*Project Director*  
 Associate Professor of  
 Nursing, SNEHS

**➤ “RMU-We Care” - Opioid Prevention In Higher Education Project**

**Grant Agency: Department of Drug and Alcohol Programs (DDAP)**

This project deals with the prevention, identification, and intervention when opioid use disorder (OUD) is suspected in higher education. The project brings together the RMU community including the counseling and media centers, athletics, security, nursing and PR/marketing. The goals are to reach students, athletes, parents, and faculty/staff to provide educational and reporting resources, a project website, and support for students who are affected by a loved one living with substance abuse disorder.

**➤ Child Care Special Education Certification and Credential**

**Grant Agency: Pennsylvania Department of Education (PDE) and the Office of Child Development and Early Learning (OCDEL)**

A Federal Preschool Development Grant (PDG) supports the work of the PDE and OCDEL to strengthen and align higher education systems for early care and education through professional strategic approaches to using higher education to build high quality practices in child care settings. This work is important as 68% of children under the age of 5 have working parents and need child care and less than 39% of PA’s early childhood education workforce currently has a degree in early childhood. To strengthen and build the capacity for a meaningful career pathway, child care workers can earn a child development association credential, associate degree, or bachelor degree. A team from RMU proposed the development of an undergraduate special education certificate which can be applied to all these pathways. The courses, aligned with the National Association for the Education of Young Children (NAEYC) and PA Learning Standards for Early Childhood Infant and Toddlers and Pre-Kindergarten, are delivered on site, online, and at RMU. The coursework and clinical field experiences will provide current child care workers with the education, experience, and support to develop their knowledge and skills in working with infants and toddlers with diverse needs, most specifically those with identified and unidentified special needs. The first cohort for this program begins Spring 2020. The grant team



**Vicki Donne**  
*Principal Investigator*  
 Professor of Education,  
 SNEHS



**Mary Hansen**  
*Team Member*  
 Professor of Education,  
 SNEHS



**Shelly Haser**  
*Team Member*  
 Professor of Education,  
 SNEHS



**Fan-Yu Lin**  
*Team Member*  
 Associate Professor of  
 Education,  
 SNEHS



**Susan Parker**  
*Team Member*  
 Associate Professor of  
 Education,  
 SNEHS

**Contact us:**

Sushil Acharya, *Associate Provost*

Lisa Nauman, *Grants and IRB Specialist*

[acharya@rmu.edu](mailto:acharya@rmu.edu)

[nauman@rmu.edu](mailto:nauman@rmu.edu)

412-397-4023

412-397-6227

*Published by the Research & Grants Administration, Academic Affairs, Robert Morris University*