

Office of Research Development and Administration
Award Report, June 2018
\$358,801

Yichun Xie, Geography and Geology

Esri (\$1,000)

Esri 2018 ArcGIS Online Mapping competition (A17-0030-003): Recruit middle and high school students to participate in a state-wide ArcGIS Online mapping competition; recruit GIS professionals and community leaders to judge the competition; provide cash awards to 10 students who win the competition.

Iktimal Hamed, Academic Advising Center, College of Technology

DTE Energy Foundation (\$10,000)

Digital Divas (A16-0050-004): The Digital Divas program is an innovative approach created to encourage young women in Southeast Michigan to pursue STEM related disciplines and related careers. This one-day conference encourages and engages female middle and high school students in technology careers while giving them an opportunity to meet and network with professors and students. Beginning with under 100 attendees, the Digital Divas conference has grown to over 550 in the past five years. Over 4,000 girls from Southeast Michigan have attended a Digital Divas program.

Allen Kurta, Biology

Consumers Energy Corporation (\$1638)

Bat Habitat and the Rochester Replacement Line (A15-0005-010): Consumers Energy needs to replace a portion of a natural gas pipeline between Rochester and Sheldon Roads, Oakland County, Michigan. Dr. Kurta will evaluate the habitat along the 70-foot-wide corridor of the new pipeline, to determine whether the habitat is suitable for the endangered Indiana bat and provide a written report.

Claudia Drossel and Alexandros Maragakis, Psychology

Ann Arbor Area Community Foundation (\$10,180)

Establishing an Undergraduate Respite Program (A18-0051-001): The Center of the Advancement of Neurobehavioral Health (CANH) at EMU provides mental health services to seniors with dementia and their families. CANH addresses behavioral problems in dementia, so they do not become barriers to living at home. Doctoral students and faculty conduct home and clinic-based sessions. To support our clinical services and ensure care partners' focus on session content without disruption, concurrent respite is necessary. An undergraduate respite program will improve access to CANH's clinical services and reduce caregiver burden. Funding will allow us to hire graduate students who will develop a CANH-clinic procedure manual and curriculum for respite, network at EMU, and recruit and organize the first waves of undergraduates (volunteers, or students in field courses).

James Sheerin, Physics and Astronomy

National Aeronautics and Space Administration (\$5000)

Graduate Michigan Space Grant Consortium Fellowship: Investigating Radio Wave Reflection caused by Plasma Sheaths (A18-0048-001): A student will perform research on radio waves in plasma.

James Sheerin, Physics and Astronomy

National Aeronautics and Space Administration (\$1500)

Michigan Space Grant Operating Support: 2018-2019 (A17-0048-002): Annual operating funds for the EMU Space Grant.

James Sheerin, Physics and Astronomy

National Aeronautics and Space Administration (\$5000)

New Worlds (A17-0040-002): This project develops a new entry-level interdisciplinary course for pre-service teachers designed to meet state K-12 science education and teacher certification requirements using NASA resources integrated into each lesson module. The course lessons will address scientific knowledge of life, physical, and Earth systems and processes, encountered from Earth throughout the solar system. Particular emphasis will be placed on application of new knowledge to the search for exoplanets beyond our solar system. Extensive use will be made of data from NASA's latest missions, including

Kepler/K2 and the James Webb Space Telescope (JWST), and TESS due to launch during the project year, as well as ground-based searches. By integrating resources from the latest NASA missions into each lesson module, education students will become familiar with NASA's role in science education. Course modules will be designed to meet the science education needs of pre-service teachers and prepare them "to inspire the next generation of explorers" in partnership with NASA.

Kristin Judd, Biology

Mill Creek Research Council (\$1450 total, \$600 awarded in June)

Two Student Projects with Mill Creek Research Council. (A18-0040-002): Funding is for two student research projects on human impacts on stream ecosystems in the Huron River Watershed. The first project addresses the impacts of low doses of pharmaceuticals that enter natural systems directly from wastewater treatment facilities and indirectly through leaky wastewater treatment infrastructure. This study is the Masters Thesis research of **Elizabeth Stover**. She will cultivate stream biofilms on tiles to discover which various common pharmaceuticals found in waste water effluent are added to biofilms. The second project examines the impact of road salt inputs on stream ecosystem function, and will be carried out by **Caleb Willette**, an undergraduate student. Both studies include Mill Creek as the focal stream, but will also study other streams located in the upper Huron River Watershed to better understand how land use interacts with low doses of pharmaceuticals and road salt inputs. Both projects will be carried out during the spring and summer of 2018.

Roxanne Katus, Mathematics

National Aeronautics and Space Administration (\$35,719; Year 2 of 2)

Magnetospheric Ion Temperature Derived From TWINS ENA - Data Upgrade (A17-0028-002): In the proposed work we will complete and archive a comprehensive database of magnetospheric ion temperatures derived from NASA's Two Wide-angle Imaging Neutral-atom Spectrometers (TWINS) Energetic Neutral Atom (ENA) instrument, provide critical metadata, and archive all of this at the NASA Space Physics Data Facility in a format compatible with the VxO architecture. We will collaborate with faculty at University of New Hampshire to create the data upgrade for the TWINS ENA flux.

Tsu-Yin Wu, School of Nursing

Susan G Komen for the Cure (\$175,000)

Evidence-based sustainable strategies for early diagnosis of breast cancer in China (A18-0049-001): The goal is to reduce incidence of late diagnosis in primary breast cancer cases and improve quality of life (QOL) for women in China affected by this disease by improving the rates for early diagnosis of breast cancer of women with symptomatic lesions, leading to prompt and effective treatment. A randomized controlled trial will compare the efficacy of study intervention with usual care on incidence and mortality of breast cancers among Chinese women aged 35-69. The study findings will provide critical information for planning effective cancer control programs, providing guidance and support in implementation of future screening programs that integrate health systems in an equitable and sustainable way.

Christopher Herman, Health Promotion and Human Performance

Becker Orthopedic (\$12,272)

Effects of sagittal plane ankle alignment, coronal plane support, and varying dorsiflexion/plantarflexion resistance on ramp gait in subjects with impaired neuromotor function (A18-0050-001): EMU's Orthotics and Prosthetics laboratory will conduct testing and analysis to assess the performance of a configurable ankle foot orthosis for Becker Orthopedic.

Jessica Alexander, Office of Academic Services

Michigan College Access Network (\$10,000)

MCAN College Coaching Corps 2017-2018 (A18-0032-003): The College Coaching Corps help Michigan students pursue postsecondary educational opportunities particularly students located in communities with low socio-economic status and low adult educational attainment rates. Working alongside school professionals and under the supervision of school counselors, Eastern Michigan University College Coaching Corps Graduate Assistants will support students as they make the transition from high school to postsecondary education by providing students and their families with relevant information regarding the

benefits of a postsecondary education, preparing for college attendance, and the admission and financial aid processes.

Delbert Raymond III, School of Nursing

Health Resources and Services Administration (\$72,453)

EMU Nurse Faculty Loan Program 2018 (A18-0001-002): The NFLP is a loan forgiveness program that prepares and trains qualified nurse educators to fill faculty vacancies. The EMU program supports graduate nursing student education costs toward matriculation of graduates who will serve as nursing faculty. and builds upon our current Nurse Faculty Loan Program funding for qualified EMU graduate students enrolled in our MSN in Nursing Education program.

Sun Hae Jang, Health Promotion and Human Performance

American Orthotic and Prosthetic Association (\$18,439)

Normative Values, Reliability, and Validity of the Global Visual Gait Assessment for Measuring Orthotic Biomechanical Outcomes for Use in Post-Stroke Patients (A18-0052-001): Various AFOs and shoe modifications are prescribed for gait rehabilitation of post-stroke patients. The ankle foot orthosis and footwear combination (AFO-FC) concept and its tuning process were recently introduced for cerebral palsy. As of now, there are no validated gait assessment methods available that are capable of visually assessing gait for orthotic biomechanical outcomes of the tuning AFO-FC concept, especially in individuals who have had a stroke. The purpose of this study is to investigate and establish the normative values, the reference score, the reliability, the concurrent validity, and the sensitivity of the Global Visual Gait Assessment (GVGA) for use in patients after a stroke.