Central State University was selected by the State of Ohio and the Department of Higher Education (ODHE) to receive a Choose Ohio First (COF) grant to support computer science and related fields.

The grant – in support of a five-year COF program – is in the amount of $207,433 and provides computer science scholarships that will help improve Ohio’s workforce development capacity to innovate and grow the economy. Dr. Manizheh Nafari serves as Project Director for the grant.
CSU Professor Co-Authors Article titled "Contaminant Transport Forecasting in the Subsurface Using a Bayesian Framework"

As corresponding author, Dr. Arunasalam Rahunanthan, an Associate Professor of Mathematics, published an article in Elsevier Journal of Applied Mathematics and Computation. In the article, the authors propose a criterion in deciding when to stop Markov Chain Monte Carlo (MCMC) simulations for a reliable prediction of contaminant concentration in an aquifer. All the MCMC simulations in the study were performed on the NSF-funded GPU computing cluster at Central State University. Co-authors included: A. Al-Mamun, University of Texas at Dallas; J. Barber, Northern Arizona University; V. Ginting, University of Wyoming; F. Pereira, University of Texas at Dallas. The full article can be accessed online at: https://doi.org/10.1016/j.amc.2019.124980

CSU Faculty Member Mohammadreza Hadizadeh Published in Scientific Reports and Nuclear Technology

Dr. Mohammadreza Hadizadeh is an assistant professor of physics at Central State University. He is a theoretical physicist studying the quantum mechanics of few-body nuclear and atomic systems. He is experienced in computational physics with an extensive background in theoretical physics, numerical methods, algorithm development and parallel as well as high-performance programming. Dr. Hadizadeh has authored over 50 research papers garnering more than 450 citations. His work was recently featured in Nature journals Scientific Reports and Nuclear Technology.

The article titled “A Three-Dimensional Momentum-Space Calculation of Three-Body Bound State in a Relativistic Faddeev Scheme,” explores a novel computational method proposed to study relativistic effects in light nuclei made up of three nucleons to provide a more accurate picture of the structure of the triton and helium-3 nuclei.

The other article titled "An Overview of the Application of Pulsed Neutron Activation in Flow Measurements," published in Nuclear Technology, is based on research Dr. Hadizadeh performed for the Evans-Allen Research Project about the application of Pulsed Neutron Activation for accurate measurements of water flow in pipes. The articles can be found online at: https://www.nature.com/articles/s41598-020-58577-4 and https://doi.org/10.1080/00295450.2019.1693214.
of nutrition and agricultural technology research, which will make the world’s food healthier.

Central State University was designated in 2011 by Ohio Senate Bill 221, a landmark energy reform bill, as one of the eight centers of excellence in advanced energy with primary focus on EMERGING TECHNOLOGIES. The solution-driven initiatives and technologies from the University, will be incubated by the Center and transferred to the community through strategic alliances with businesses.

Bluegrass Farms of Ohio Inc., of Jeffersonville, Ohio develops proprietary varieties and processing technologies that will never de-nature seeds. For over 30 years it has led in the provision of the purest non-genetically modified organism (GMO) grains.

Dr. Mark Campbell, one of the leading scientists in the US who specializes in high amylose corn breeding, joined CSU to lead this endeavor. Dr. Campbell received a Ph.D. in agronomy-plant breeding from Iowa State University, Ames, IA; a Master of Science in agronomy from Montana State University in Bozeman, MT; and a Bachelor of Science degree in agronomy-production and technology option from the University of Wisconsin, Madison, WI.

The research at Central State, centers around the development of specialty starch maize to identify novel uses, while demonstrating the value of plant genetic resources, and effectively increase the diversity of U.S. maize germplasm utilized by producers, global end-users and consumers.

Article continued on next page.
Together, Central State University and Bluegrass Farms will work to develop a sustainable program that identifies and develops specialty corn genetics for further development into hybrid seed corn that is selected for yield, agronomy, and unique starches to improve the health of consumers.

Through this partnership CSU, with its 1890 USDA/NIFA Land-Grant designation increased its research portfolio, allowing the university to further advance the frontiers of knowledge in foods and agricultural sciences in line with the Second Morrill Act of 1890.

At a time when the world is re-discovering the importance of agriculture, Central State University stands poised to play a key role in consumer health and nutrition. Together, with Bluegrass Farms, CSU will help shape and inform the future of agriculture and serve as a foundational model for how 1890 Land-Grant institutions can impact the world. Visit centralstate.edu to learn more about the research taking place at the University.

CSU Receives Accolades from USDA-NIFA

Central State University Extension was recently congratulated for creating and delivering outstanding results in the Renewable Resources Extension Act (RREA) funded by the USDA-NIFA, whose mission is to invest in and advance agricultural research, education, and extension to solve societal challenges.

According to USDA-NIFA, Central State University’s outputs and impacts for the 2019 RREA Program demonstrate the importance of the RREA capacity funds in supporting CSU Extension’s Forestry Program. The RREA provides funding for extension activities related to forestry and natural resources at land-grant universities. Should these funds be reduced or eliminated, it would have serious consequences for the nation’s 11 million private forest landowners and the forest industry that rely on these resources to produce wood products.

The statement, sent on behalf of the USDA-NIFA, acknowledges Central State University’s advancements when compared with many peer institutions; and specifically references how CSU meets the needs of forest landowners, and especially women landowners through the Women Owning Woodlands in Southeast Ohio program.

Jamie Dahl is the Forest Outreach Coordinator with the CSU-Extension Service and McIntire-Stennis Program. Jamie has a Bachelor of Science in forest management and a Master of Science in forest resources, wood procurement and utilization, both from The Pennsylvania State University. She is currently pursuing a doctorate degree in Higher Education Leadership at Colorado State University with a focus on diversity and inclusion within the natural resource professions. She is also an active member of the Society of American Foresters.
The collaboration, affirmed in an Oct. 24 ceremony, will see Central State students, faculty and staff engaged in community outreach, targeted research, and curriculum development aimed at improved management of water and land.

“This is a wonderful way to do initial research and test hypotheses,” said CSU President Cynthia Jackson-Hammond. “And out of that should come some co-authorships and publications. That’s how we all learn.”

The agreement bolsters Community Solutions' ability to expand its reach and capacity as an educational and research institution. The collaboration strengthens CSU’s research, education, and extension activities while helping advance the science and practice of sustainable farming in the region.

Together, CSU and Community Solutions aim to host mutual interest research and testing, integrate research findings into outreach, and provide hands-on learning opportunities for students. Recruitment and continuing education curriculum are also key aspects of the partnership as well as engaging local stakeholders in research, conferences, workshops, field days and technical demonstrations designed to increase multi-disciplinary collaboration.

Continued on next page.
Already, Community Solutions is engaged in honeysuckle and perennial sunflower planting projects with CSU Professor Marcus Nagle, and hosted a Project Learning Tree workshop with CSU Forest Outreach Coordinator Jamie Dahl on November 8, 2019 at the Farm, which is located at 131 Dayton-Yellow Springs Road.

Other planned collaborations include developing a tree nursery, expanding extension services, and engaging in soil research.

“Community Solutions is thrilled to be raising the level of our partnership with Central State by signing this formal agreement,” said Susan Jennings, executive director of Community Solutions. “Our mutual interests in regenerative agriculture, student engagement, and support of the regional agricultural community will be enhanced and extended through this collaboration. We are grateful for the vision of Dr. Jackson-Hammond in cementing this partnership.”

Founded in 1940 by engineer and educator Arthur Morgan, Community Solutions promotes interest and understanding in consciously developing the full possibilities of community life in small towns, rural areas and cities. Central State – Ohio’s only public historically black college or university, and an 1890 Land-Grant institution – has a 132-year tradition of preparing students from diverse backgrounds and experiences for leadership, research and service. The university fosters academic excellence within a nurturing environment and provides a strong liberal arts foundation and STEM-Ag curriculum leading to professional careers and advanced studies globally.
Central State University (CSU), Ohio’s only 1890 Land-Grant College, in collaboration with Ohio’s other public universities, joins Lieutenant Governor Jon Husted in implementing the Ohio IP Promise.

In May 2019, Husted challenged the Inter-University Council of Ohio (IUC) to establish a best-in-class process for cultivating the licensing of intellectual property (IP). The resulting Ohio IP Promise, opens up new opportunities for universities to engage business partners in research projects by facilitating efficient and effective commercialization of intellectual property.

As a result, the state’s research universities, which includes Central State University, aligned on the following guiding principles that serve as a foundation for the Ohio IP Promise. **Flexible:** provide industry choices for accessing intellectual property developed through sponsored research.

**Transparent:** publish template sponsored research and license agreements. **Simple:** deliver fair and streamlined guidelines for faculty creator startups. **Clear:** communicate licensing processes on university websites in a clear, prominent way. **Easy:** provide well-defined university entry points for industry, investors, and entrepreneurs. **Fast:** reduce impediments that hinder the pace of transactions and enable CSU to achieve 1890 Land-Grant institution research and extension mission.

Through the Ohio IP Promise, research universities like Central State, are able to contribute in significant ways to Ohio’s economy by attracting innovative researchers and serving as a magnet for investors and entrepreneurs.

For example, in August, CSU became the first university in the state to plant seeds for hemp research. Hemp, grown for fiber, grain, and cannabidiol (CBD), can be used in more than 25,000 products. Local businesses, looking to create new products from hemp can partner with Central State on research projects and/or capitalize on innovations developed through sponsored research.

Further, according to Dr. Alton Johnson, Dean, College of Engineering, Science, Technology, and Agriculture and Director Land-Grant Programs; the IP Promise also makes it easier for faculty and researchers to commercialize their intellectual property—thus enhancing Ohio’s economy and improving its residents’ lives with new products and service.

To learn more about Central State University and the IP Promise visit centralstate.edu.
CSU Professor Brings International Toastmasters to Central State

Every Monday, CSU professor Lubna Abu-Niaaj, Ph.D., meets with STEM students who are members of the CSU Toastmasters chapter—"Leaders on the Rise" Toastmasters Club. This group of future leaders meets every Monday at 5:00pm in CENS Room 245. Toastmasters International is a non-profit educational organization that teaches public speaking and leadership skills through a worldwide network of clubs.

CSU Professor Appointed to Serve on American College of Sports Medicine Committee

Dr. Kathleen Carter, associate professor at Central State University, has been appointed to a three-year term on the Consumer Outreach Committee of the American College of Sports Medicine. Committee members participate fully in the deliberations and work of the committee. Duties include attending meetings, participating in teleconferences, accepting reasonable assignments, and engaging in all facets of committee activities. Dr. Carter’s term begins in May and will continue until 2023.

Mathematics Professor Awarded Nearly $300,000 for Research

Bhupendra Paudyal Ph.D., assistant professor of mathematics, has been awarded a Research Initiation Award of $284,405 for three years to work on “Spectra on Composition Operators on Analytic Function Spaces.” This is one of the prestigious National Science Foundations research awards for early career faculty in HBCUs. Visit https://www.centralstate.edu/academics/cse/documents/Paudyal-CV.pdf to learn more about Dr. Paudyal.
CSU DONATES RELIEF SUPPLIES TO HELP COMBAT COVID-19 PANDEMIC

Responding to the call made by the Ohio Governor and the Chancellor of the Ohio Department of Higher Education to the Universities to donate PPEs to health care workers, Central State University donated the disaster relief supplies to Greene County Disaster Management Services. The supplies primarily consisted of Personal protection equipment (PPEs) distributed to local agencies and first responders. The PPEs donated included an assortment of nitrile gloves, lab coats, N95 respirator masks and chemical masks with accessories such as filters and cartridges, safety glasses, face shields and goggles.

CSUE Associate Director of Research and Professor of Water Resources Management Subramaniam I. Srinathan, Ph.D., P.E., presented the donation to Greene County Director of Disaster Services Roseanne Anders.

STUDENTS PERFORM RESEARCH AT CSU

Central State University student, Jordan Graves, collects body composition data using bioelectrical impedance from a Springfield Rescue Fire Division Captain. Her efforts are part of an ongoing wellness research study by Exercise Science faculty, Dr. Brandy Phipps and Dr. Kathy Carter. Two abstracts from this study were accepted for presentation at the 2020 American College of Sports Medicine Annual Meeting and World Congress in San Francisco, as well as for publication in the Medicine and Science in Sports and Exercise journal.

CSU MATH MAJOR SUBMITS POSTER ABSTRACT

Since fall of 2019, mathematics major, Thomas Smith, has been working on “Mesh Refinement Study of a Central Scheme for Solving Convection-Diffusion Equations.” He submitted an abstract for a poster presentation in 2020 National Council for Undergraduate Research and his abstract was accepted. His research advisor is Dr. Arunasalam Rahunanthan.
Agricultural Scholarships Available

Student Scholarship Program Applications for the Central State University, College of Engineering, Science, Technology, and Agriculture (CESTA), are now being accepted. The scholarship awards eligible students up to $60,000 covering tuition, books, and room and board for up to four years. High school seniors and college transfer students (including community college graduates) who are Ohio residents are eligible to receive the award. Students must register in one of the following majors: Sustainable Agriculture (SAG), Agricultural Education (AgEd), Exercise Science (EXS) with a nutrition minor, Agricultural Extension Education (AgExEd), Agricultural Business (AgB), Water Resources Management (WRM), or Environmental Engineering (ENV).

High school applicants must have a cumulative GPA of no less than 2.8 and transfer students must have a cumulative GPA of at least 3.0. The deadline to apply, is June 30, 2020. To learn more or to apply visit centralstate.edu, email skrishna@centralstate.edu, or call 937-376-6061.

OABA Scholarships Available

The Ohio Agribusiness Association (OABA) has once again selected Central State University Students majoring in Agriculturally-related studies to receive up to three scholarships valued at $1000 each. This is the third consecutive year OABA has offered scholarships. Recipients from the past three years include: Kennedy Dennard, Destinee Cooper, Dazjuan Brittman and Melinda Dugan. Applications will be available at the start of Fall Semester 2020. For more information contact professor Jonathan Henry at jhenry@centralstate.edu.

The USDA-1890 National Scholars Program

The USDA-1890 National Scholars Program was established in 1992 as part of the partnership between the U.S. Department of Agriculture and the 1890 Historically Black Land-Grant Universities. The goal of the USDA-1890 National Scholars Program is to increase the number of minorities studying agriculture, food, natural resource sciences and other related disciplines. The program is available to high school students and rising college sophomores and juniors, who exhibit leadership and community service, and a desire to attend an 1890 Historically Black Land-Grant University. The scholarship provides full tuition, employment, employee benefits, fees, books, and room and board each year for up to 4 years to selected students pursuing a bachelor’s degree at an 1890 Historically Black Land-Grant University. To apply contact Isabel Brumley, 1890 Program Liaison Officer at (937) 376 6091 or via email at librumley@centralstate.edu.
Extension and Research Faculty & Staff Working Together to Advance Aquaponics

Gretchen Rives

In just six to nine months, two hundred tilapia fingerlings that recently arrived at the Central State University Extension (CSUE) demonstration greenhouse will grow into more than 200 pounds of fresh fish. This locally produced protein, utilizing an aquaponics system, will demonstrate the benefits of aquaponics.

“Aquaponics is a closed loop system that combines conventional aquaculture (the raising of aquatic animals such as snails, fish, crayfish or prawns in tanks) with hydroponics (cultivating plants in water) in a mutually symbiotic environment. The aquaponics system utilizes the waste of one element for the benefit of another other. In this case, the waste produced by the fish benefits the growing plants,” says CSUE Program Leader for Agricultural and Natural Resources, Dr. Cindy Folck. Aquaponics helps grow plants faster and more efficiently than more traditional methods, with the added bonus of breeding fish for consumption.

“Three tanks, housed within the 30-by-90-foot greenhouse, will be used for the demonstration project,” says CSUE vegetable and small fruit technician Marc Amante. The tilapia will be raised in a 1,000-gallon tank with lettuce, basil and other small greens grown in two 700-gallon tanks.

“A Dutch Bucket aquaponics system will produce tomatoes, peppers and other small vegetables,” he adds. The dutch bucket aquaponics system utilizes buckets connected to a fish tank via a central line.

“Central State has two aquaponics systems, one for research and one for community engagement and workshops,” says Dr. Krishna Kumar Nedunuri, CSUE researcher for aquaponics, professor of Environmental Engineering, and director of the International Center for Water Resources Management at CSU. The research aquaponics system has been investigating the role water quality plays in enhancing the fish productivity and plant growth. Close monitoring of water quality resulted in about 160 tilapia weighing about 1.5 pounds each and produced about 33 tons/hectare of lettuce in a span of about eight months. Our researchers now understand how to control key and easily measurable water quality parameters in aquaponics systems to regulate toxic ammonia levels and transform it into less harmful and more beneficial nitrate for higher rates of lettuce production. The science involved in fish and plant production under carefully monitored water quality control, the technical know-how and skills from research are being translated to extension through active and continuous collaboration between the Agricultural Research Development Program (ARDP) and CSU Extension.

A joint research between CSU and OSU had found aquaponics system to be more efficient than hydroponics system in producing a better leaf morphology and higher photosynthetic rates than hydroponic systems. Their work was presented at highly prestigious and peer-reviewed International meeting on Aquaculture: World Aquaculture held between February 9–12, 2020 in Honolulu, Hawaii. The dutch bucket aquaponics project is made possible through funding from a USDA-NIFA Capacity Building Grant. The project is a collaboration between CSU Research, CSU Extension, and OSU Extension at Piketon. For more information Dr. Folck at aflck@CentralState.edu or Dr. Nedunuri at knedunuri@centralstate.edu.

Engineering major Emily Archer showing her lettuce on its way to maturity.

View more photos @centralstateuniversityextension and @collegeofengineeringsciencetechnologyandagriculture
Faculty Profiles

Dr. Manizheh Nafari

Title: Assistant Professor of Mathematics

Dr. Nafari serves as Project Director for the (COF) grant (see page 1) to support computer science and related fields awarded by the State of Ohio and the Department of Higher Education (ODHE).

Education: Ph.D. in Mathematics, University of Texas in Arlington, 2011

Research Interests: Non-commutative Algebra, (Quadratic) Regular Algebras, Non-commutative Algebraic Geometry, Quantum Computing

Dr. Alessandro Rengan

Title: Associate Professor of Manufacturing Engineering

Education: Ph.D. in Materials Science and Engineering, North Carolina State University, 1992

Research Interests: Polymer Matrix Composites, Ceramic Matrix Composites, Mechanical Properties Testing, Surface Analytical Techniques

Pratibha Gupta, Ph.D.

Title: Research Associate Professor, and CSUE Food Nutrition and Health Specialist recently presented on the topic of “Diabetes Management and Prevention by Self-Care,” at the 51st Annual Meeting of the Southern Rural Sociological Association (SRSA), February 2-3, 2020, Louisville, KY. The SRSA is an educational and scientific organization established to foster the study, understanding, and application of rural sociology in the South.

Education: Ph.D. in Biochemistry-Zoology, Banaras Hindu University

Post-doctoral research: Case Western University, Cleveland, Ohio

Areas of Specialty: health and wellness, disease prevention through nutrition and exercise, and nutrigenomics.

Current Research: Pilot study to determine the role of 5 key obesity-related single nucleotide polymorphisms (SNPs) gene markers in modulating the responses to a dietary intervention.
Congratulations

CLASS OF

2020
NEWSLETTER TEAM
Lena Fields-Arnold
Pam Sherman
Gretchen Rives
Denise Brown

Central State University, an 1890 Land-Grant Institution, is
committed to the full inclusion of all people, and does not
discriminate on the basis of race, age, ancestry, color, disability,
gender identity or expression, genetic information, HIV/AIDS
status, marital or family status, military status, national origin,
political beliefs, religion, sex, sexual orientation, or veteran
status. If reasonable accommodations are needed, please
contact the Department of Human Resources at 937-376-6540.
Affirmative Action/Equal Opportunity institution.

FACULTY & STAFF

Alton B. Johnson, Ph.D., Dean and Director, College of Engineering, Science,
Technology and Agriculture and 1890 Land-Grant Programs
Claudine Gee, Ph.D.-Director of Fiscal Affairs and Operations
Abayomi J. Ajayi-Majebi, Ph.D., Prof. of Manufacturing Engineering
Adelynn Reeves, Laboratory Technician
Alessandro Rengan, Ph.D., Assoc. Prof. of Manufacturing Engineering
Alverta Rea-Laboratory and Animal Care Technician
Anthony Arment, Ph.D., Prof. of Biology
Arunasalam Rahunanthan, Ph.D., Chair of Mathematics and Computer
Science
Augustus Morris, Jr., Ph.D., Assoc. Prof. of Manufacturing Engineering
Bhupendra Paudyal, Ph.D., Asst. Prof. of Mathematics
Brandy E. Phipps, Ph.D., Assistant Professor of Exercise Science
Cadance Lowell, Ph.D., Chair, Agricultural and Life Sciences
Charlene Edwards, BA, Administrative Coordinator, DALS
Daqing Gao, Ph.D., Assoc. Prof. of Chemistry
DeBonnie N. Wishart, Ph.D., Assoc. Prof., Geosciences
Deng Cao, Ph.D., Assoc. Prof. of Computer Science
Denise Brown, BA. Admin. Coord., Dean's Office
Gopalakrishnan Krishnasamy, Ph.D., Asst. Prof. of Computer Science
Gretchen Rives, BA, Assoc. Communications Extension
Pratibha Gupta, Ph.D., Research Assoc. Prof.
Ibrahim Katampe, Ph.D., Assoc. Prof. of Chemistry, Asst. Dir. of
Innovation & Tech Transfer
Jeremy Holtgrave, Ph.D., Assoc. Prof. of Physics
Kathleen Carter, Ph.D., Assoc. Prof. Exercise Science
Kazi Islam, Ph.D., Asst. Professor of Biology
Krishnakumar V. Nedunuri, Ph.D., Prof. of Environmental Engineering,
Dir. of Int'l Center for Water Resources
Latha Chakravarthy-Ph.D., Inst. of Mathematics
Leanne Petry, Ph.D., Assoc. Prof. of Chemistry
Lena Fields-Arnold, M.A., Communications Coordinator
Lubna F. Abu-Niaaj, Ph.D., Asst. Prof. of Biology
Lucinda Brennan, Admin. Asst.
Mahmoud A. Abdallah, Ph.D., Program Coord. and Prof. of
Manufacturing Engineering
Manizheh Nafari, Ph.D., Asst. Prof. of Mathematics
Mohammadreza Hadizadeh, Ph.D., Asst. Prof. of Physics
Morris Girgis, Ph.D., Prof. of Manufacturing Engineering
Nabil Ali, Information & Technology Specialist
Ning Zhang, Ph.D., Assoc. Prof. of Environmental Engineering
Pam Sherman, Ph.D., Admin. Coord., Dean's Office
Ramanitharan Kandiah, Ph.D., P.E., Prof. of Environmental Engineering
Saleh Alimestri, Ph.D., Assist. Prof. of Manufacturing Engineering
Sam L. Laki, Ph.D., Prof. of Water Resources Management
Samuel A. Okunade, Ph.D., Prof. Emeritus of Geology
Sharath Krishna, Ph.D., Prof. of Biology
Siddhartha Dasgupta, Ph.D, Assoc. Extension Admin. and Prof. of
Mathematics
Subramania I. Sritaran, Ph.D., P.E., Assoc. Dir. for Research
Susan Speight, Ph.D., Asst. Prof. Animal Science
Suzanne Seleem, Ph.D, Prof. of Chemistry
Tara McCormick, Admin. Coord., Ag. Research Development Program
Xiaofang Wei, Ph.D., Prof. of Geography, GIS, and Remote Sensing