



News

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Four SWOSU Students Selected to present NASA Research at NCUR

Photo Caption: SWOSU students who are active in research projects that have been selected for the National Conference on Undergraduate Research are (from left): Madison Matli, Enid (Chisholm); Jacob Miller, Duncan (Bray-Doyle); and Dylan Ortega, Del City. Not pictured is Thomas Crews, Okarche.

Four Southwestern Oklahoma State University students in Weatherford have been selected to present research projects at the National Conference on Undergraduate Research (NCUR 2018) planned April 4-7 in Edmond.

The four students are Thomas Crews, Okarche; Madison Matli, Enid (Chisholm), Dylan Ortega, Del City; and Jacob Miller, Duncan (Bray-Doyle).

The SWOSU students received funding from the NASA Oklahoma Space Grant Consortium to support their research.

"All students have been working for a couple years or more with us," said Dr. Jeremy Evert, assistant professor of computer science at SWOSU. "Some students are in Blue Thunder Alley, our student research lab located in the General Thomas P. Stafford Center. We participate in the OneOklahoma Cyberinfrastructure Initiative (OneOCII), and we are thankful to our partners for helping us support our outstanding undergraduate researchers."

Crews, a computer science senior, will present "*Automating Avionics Tests for the Space Launch System.*" Crews spent last summer at the Marshall Space Flight Center in Huntsville (AL), running data analytics for NASA on their vehicle launch systems. He wrote Python software to help NASA researchers process data generated by their launch systems.

Matli, also a computer science senior, will present "*Encouraging High Performance Computing Education in Oklahoma High Schools.*" Madison and Devin Smoot, a computer science senior from Weatherford, have developed a guide to build a high performance computer (HPC) cluster computer out of Raspberry Pi computers. These are small systems that can be purchased for less than \$1,000 but run many of the same software packages as multi-million dollar supercomputers. Matli and Smoot will be hosting a Raspberry Pi Cluster for area high school students to remotely use in preparation for this year's Oklahoma HPC competition hosted by the University of Tulsa.

Ortega, an engineering technology senior, will present "*PerfSonar and OFFN: Diagnosing and Testing Science DMZ Connections for the High-Speed Transfer of Large Data-sets on Oklahoma Friction Free Network.*" Ortega and a team of SWOSU students have helped write a National Science Foundation grant to build a research network. Ortega and Smoot have worked with OneNet to connect SWOSU to a science Demilitarized Zone (DMZ) that connects nine institutions in Oklahoma. The two SWOSU students are currently using a PerfSonar diagnostic system to research throughput and latency capabilities of their connection to the network. Once in place, this network will allow SWOSU researchers faster access to open data repositories, such as NASA satellite data and National Weather Center data.

Miller, a computer science sophomore, will present "*Wall Clock Time of the National Center for Atmospheric Research's Weather Research and Forecasting Model (NCAR WRF.*" This research was completed from SWOSU using computers from the University of Oklahoma's Supercomputing Center for Education and Research in Norman. The NCAR WRF software shares multiple components with the NASA Unified Weather Research and Forecasting model. The NOAA National Severe Storm Lab has been very supportive in helping SWOSU students get the software up and running.

"We are proud to sponsor undergraduate researchers to present their NASA Oklahoma Space Grant funded work at a peer reviewed national conference," said Madeline Baugher, program coordinator and institutional representative for the Space Oklahoma Space Grant Consortium. "This support's NASA's strategic management of human capital and helps reduce the risk of developing workforce gaps."

The work by the SWOSU students is supported by the National Aeronautics and Space Administration under Grant/Contract/Agreement No. NNX15AK02H issued through the NASA Oklahoma Space Grant Consortium.

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Community	▷
Events	▷
Faculty and Staff	▷
Miscellaneous	▷
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- [2018](#) ▷
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- [2020](#) ▷
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