**ADAM R. BARNES**

Center for Advanced Spatial Technologies (CAST)

University of Arkansas, Fayetteville

abarnes@cast.uark.edu

# PROFESSIONAL EXPERIENCE

2006 - Present **Research Assistant** – Center for Advanced Spatial Technologies, University of Arkansas, Fayetteville, AR.

2005 - 2006 **Graduate Research Assistant** – Center for Advanced Spatial Technologies, University of Arkansas, Fayetteville, AR.

2003 - 2004 **GIS Student Intern** – Oklahoma Center for Rural Development, Tahlequah, OK.

# EDUCATION

# 2006 Master of Arts in Geography – University of Arkansas, Fayetteville*A Repeat Survey of Bathymetry, Sedimentation, and Aquatic Vegetation of Lake Wedington, Washington County, Arkansas.*

2004 **Bachelor of Arts in Geography** *Summa cum laude*–Northeastern State University

# TEACHING and RESEARCH INTERESTS

|  |  |  |
| --- | --- | --- |
| Archaeological Remote Sensing | Photogrammetric Survey | Survey-grade GNSS |
| Historic Aerial Photography | Terrestrial 3D Scanning | GIS Model Development |
| Object-based Image Analysis | 3D Visualization and Analysis | Web Mapping Applications |

# PUBLICATIONS (*\* peer review*)

# Journal Articles

2017 Salazar, S.E., A. Barnes, and R.A. Coffman
\*Closure to “Discussion of ‘Development of an Internal Camera Based Volume Determination System for Triaxial Testing’ by S. E. Salazar, A. Barnes, and R. A. Coffman” by A. Mehdizadeh, M. M. Disfani, R. Evans, A. Arulrajah, and D. E. L. Ong. *Geotechnical Testing Journal*. Vol. 40, No. 1, pp. 47-51. DOI: 10.1520/GTJ20160154.

2016 Sylvest, M.E., S.J. Conway, M.R. Patel, J.C. Dixon, and A. Barnes
\*Mass Wasting Triggered by Seasonal CO2 Sublimation Under Martian Atmospheric Conditions: Laboratory Experiments. *Geophysical Research Letters*. Vol. 43, Issue 24, pp. 12,363-12,370. DOI: 10.1002/2016GL071022.

2015 Salazar, S.E., A. Barnes, and R.A. Coffman
\*Development of an Internal Camera Based Volume Determination System for Triaxial Testing. *Geotechnical Testing Journal*. Vol. 38, No. 4, pp. 1-7. DOI: 10.1520/GTJ20140249.

2014 Limp, W.F., and A. Barnes

 \*Solving the grid-to-ground problem when using high precision GNSS in archaeological mapping. *Advances in Archaeological Practice: A Journal of the Society for American Archaeology*, Volume 2, Number 2, pp. 138 - 143, May 2014.

# Conference Proceedings

2016 Sylvest, M.E., S.J. Conway, M.R Patel, J.C. Dixon, and A. Barnes

 \*Mars Gully Slope Constraints for Sublimation-Induced Granular Flows. 47th Lunar and Planetary Science Conference, The Woodlands, TX, 16-20 March 2015. No. 1832, p. 2667.

2015 Sylvest, M.E., S.J. Conway, M.R Patel, J.C. Dixon, and A. Barnes

 \*Laboratory Observations of Mass Wasting Triggered by Sublimation of Condensed CO2 Frost Under Martian Conditions. 46th Lunar and Planetary Science Conference, The Woodlands, TX, 16-20 March 2015. No. 1832, p. 2667.

2015 Sylvest, M.E., S.J. Conway, M.R Patel, J.C. Dixon, and A. Barnes

 \*Laboratory experiments to explore the sediment transport capacity of carbon dioxide sublimation under martian conditions. Geophysical Research Abstracts, European Geosciences Union (EGU) General Assembly, Vienna, Austria, Volume 17. DOI: EGU2015-14789

2012 Opitz, R., K. Simon, A. Barnes, and K. Fisher

 \*Close-range photogrammetry vs. 3D scanning: Comparing data capture, processing and model generation in the field and the lab. Proceedings of the Computer Applications and Quantitative Methods in Archaeology (CAA), Southampton, UK, 26-29 March 2012.

2010 Limp, W.F., A. Payne, S. Winters, A. Barnes and J. Cothren

 \*Approaching 3D Digital Heritage Data from a Multi-technology, Lifecycle Perspective. Proceedings of the Computer Applications and Quantitative Methods in Archaeology (CAA), Granada, Spain, 6-9 April 2010.

2010 Cox, B.R., J. Cothren, A. Barnes, J. Wartman, J. Meneses, and A. Rodriquez-Marek

 \*Towards Quantifying Movement of a Massive Lateral Spread using High-resolution Satellite Image Processing. Opportunities for Emerging Geospatial Technologies: The ASPRS 2010 Annual Conference, San Diego, California, 26-30 April 2010.

2008 Cothren, J., W. F. Limp, D. Fredrick, T. de Noble, A. Barnes, C. Goodmaster, and C. Stevens

 \*Visualizing the Roman City: Viewing the Past through Multidisciplinary Eyes. Proceedings of the 35th Computer Applications and Quantitative Methods in Archaeology (CAA) Conference, Budapest, Hungary, 2-6 April 2008. Page 88.

2008 Cothren, J. C. Goodmaster, A. Barnes, E. Ernenwein, A. Vranich, W.F. Limp, and A. Payne

 \*Fusion of 3-dimensional data at Tiwanaku: An approach to spatial data integration. Proceedings of the Computer Applications and Quantitative Methods in Archaeology (CAA), Budapest, Hungary, 2-6 April 2008. Page 92.

2006 Cothren, J., W. F. Limp, A. Payne, J. Herrmann, and A. Barnes

 \*Integrating Terrestrial LIDAR Point Clouds and Independent Close-range Images. Proceedings of the American Society of Photogrammetry and Remote Sensing National Conference, Reno, Nevada.

# Reports

2013 Gorham, B., A. Barnes, and D. Catanzaro

 Project Report: Development of a High Resolution Impervious Surface/Land-cover map for Milwaukee, Wisconsin. Report submitted to the Environmental Protection Agency (EPA).

2006 Barnes, A., L. Komlos, M. Williamson, and W. F. Limp

Final Report: GIS-Based Natural Resource Analysis for the Ozark Wetland Planning Region. Report submitted to the Arkansas Natural Resource Commission, Little Rock, Arkansas.

2005 Barnes, A., L. Komlos, D. McFee, M. Williamson, and W. F. Limp

 Final Report: GIS-Based Natural Resource Analysis for the Arkansas River Valley Wetland Planning Region. Report submitted to the Arkansas Soil & Water Conservation Commission, Little Rock, Arkansas.

# Other

2016 Salazar, S. E., L. D. Miramontes, A. Barnes, M. L. Bernhardt, R. A. Coffman

Validation of an Internal Camera Based Volume Determination System for Triaxial Testing. Civil Engineering Undergraduate Honors Theses. University of Arkansas, Fayetteville, AR.

2011 Barnes, A.

Guides to Good Practice: Close-Range Photogrammetry. Archaeology Data Service / Digital Antiquity: Guides to Good Practice.

<http://guides.archaeologydataservice.ac.uk/g2gp/Photogram_Toc>

# MANUSCRIPTS in PRESS

|  |  |
| --- | --- |
| 2017 *(In Press)*  | Barnes, A.\*Digital Photogrammetry. *SAS Encyclopedia of Archaeological Sciences*. |
| 2017 *(In Press)* | Salazar, S., L. Miramontes, A. Barnes, M. Bernhardt, and R. Coffman\*Verification of an Internal Close-Range Photogrammetry Approach for Volume Determination During Undrained Triaxial Testing.. *Canadian Geotechnical Journal*. |

# CONFERENCE PRESENTATIONS

2016 Sylvest, M.E., S.J. Conway, M.R Patel, J.C. Dixon, and A. Barnes

 \*Controls on Sediment that Transport Capacity of Carbon Dioxide Sublimation Under Martian Conditions: Experimental Results. Martian Gullies and Their Earth Analogues (GSA), The Geological Society of London.

2015 Conway, S., M Sylvest, M. Patel, J. Dixon, and A. Barnes
Laboratory Experiments Reveal Mass Movements Triggered by Carbon Dioxide Sublimation Under Martian Conditions. Cryosphere Workshop. Nantes, France.

2014 Sylvest, M., J. Dixon, R. Leone, and A. Barnes

 DEM Extraction from Stereo Webcam Videos for Small-scale Experimental Geomorphological Modeling. 45th Lunar and Planetary Science Conference, The Woodlands, TX, 17-21 March 2014.

2013 Gorham, B., and A. Barnes

 High Resolution Urban Land-Use/Impervious Surface Mapping: Milwaukee, Wisconsin. Arkansas GIS Users Forum Symposium, Rogers, AR, 12 September 2013.

2013 Simon, K., and A. Barnes

 Digital Documentation Issues in Rock Art Restoration and Research Applications. 41st Annual International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA), Perth, Australia, 25-28 March 2013.

2013 Simon, K., C. Walker, A. Barnes, M. Willis

 That Elevation Model Looks Great! Is it Accurate? 41st Annual International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA), Perth, Australia, 25-28 March 2013.

2013 Sylvest, M., J. Dixon, A. Barnes, and G. Ito

 Experimental Study of CO2 Sublimation as a Trigger for Mass Wasting. 44th Lunar and Planetary Science Conference, Houston, TX, 18-22 March 2013.

2012 Opitz, R., K. Simon, A. Barnes, and K. Fisher

 Close-range Photogrammetry vs. 3D scanning: Comparing Data Capture, Processing and Model Generation in the Field and the Lab. 40st Annual International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA), Southampton, UK, 26-30 March 2012.

2011 Barnes, A. and J. Wilson

 ArcMap Tool for Comparing Digital Elevation Models (DEM) with Differing Resolutions. Arkansas GIS Users Forum Symposium, Bentonville, AR, 1 September 2011.

2009 Kalayci, T., J. Cothren, J. Casana, and A. Barnes

 Accuracy of DEM Generation from CORONA Stereo Pair Images. 37th Annual International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA), Williamsburg, VA, 22-26 March 2009.

2007 Barnes, A. and J. Cothren

 Mapping Tiwanaku: Using Modern Photogrammetric Methods to Analyze an Ancient Landscape. Paper presented at the Technology and Archaeology Workshop, Dumbarton Oaks, Washington, D.C.

2007 Cothren, J., A. Barnes, and C. Goodmaster

 Ancient Sites in 21st Century Environments: Fusion of Three-dimensional, Multi-scale Digital Data from Tiwanaku. Paper presented at the Technology and Archaeology Workshop, Dumbarton Oaks, Washington, D.C.

2007 Goodmaster, C., J. Cothren, A. Barnes, and A. Payne

 Archaeological Laser Scanning at Tiwanaku: A Multiyear High Density Survey of a UNESCO World Heritage Site. Paper presented at the 35th Computer Applications and Quantitative Methods in Archaeology (CAA) Conference, Berlin, Germany.

# ONLINE SEMINARS and WEBINARS

2014 Limp, W. F., A. Barnes, J. Cothren, R. Opitz, K. Simon, C. Stevens, M. Williamson

 New Developments in Technologies for the Measurement of Form and Space in Archaeology. Society for American Archaeology On-Line Seminar Series.

2014 Simon, K., A. Barnes, and A. Wiewel

 From Photos to Models: Strategies for Using Digital Photogrammetry in Your Project. Society for American Archaeology On-Line Seminar Series.

2013 Gorham, B., A. Barnes, and D. Catanzaro

 Mapping Milwaukee: EPA Technology Transfer Webinar. 28 March 2013.

# TEACHING

2009 UCLA Field Program in Modeling Heritage Resources at Cuzco, Peru

# TECHNICAL EXPERTISE (*not comprehensive*)

**Field Instruments:** Terrestrial 3D Scanners, Mapping- and Survey-grade GNSS, UAVs, Field Spectrometer, DSLR for close-range photogrammetry.

**Software:** ArcGIS, ERDAS Imagine, ENVI, Geomagic Design X, QGIS, Meshlab, PhotoModeler, Agisoft Photoscan Pro, Optocat (Breuckmann), Cyclone (Leica), PCI Geomatica, CloudCompare.

# ACADEMIC SERVICE

**Journal Peer Review:** Advances in Archaeological Practice (2015, 2016).

# PRESS

Television Documentary: Time Scanners. [www.timescanners.com](http://www.timescanners.com)

University of Arkansas Press: Scanning History. <www.uark.edu/features/scanning-history.php>

# PROFESSIONAL MEMBERSHIPS

* American Society of Photogrammetry and Remote Sensing
* Computer Applications and Quantitative Methods in Archaeology
* Society for American Archaeology